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The Contribution of African Linguistics to Linguistic Theory

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Vol. II

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PREFACE

This issue of *SLS* contains the second set of the papers selected from the 20th Annual Conference on African Linguistics held at the University of Illinois, Urbana-Champaign, April 19-22, 1989. A number of factors, including delays in the vetting of the papers, editorial work, and overwhelming new administrative responsibilities for me account for this belated publication. I deeply regret this development and extend my sincere apologies to the authors and the *SLS* subscribers who have had to wait for so many years to see this issue in print. Your patience is very much appreciated, and I hope the appearence of this fine set of papers will merit it.

As in the previous issue (SLS 19:2), the papers included in this issue were vetted by at least two faculty members selected from a number of universities in the U.S. Their comments were initially reviewed by the editors and subsequently forwarded anonymously to the authors of the papers concerned for action. We relied heavily on the opinions of these reviewers in accepting or rejecting any of the papers submitted for consideration. The revised contributions were subsequently reviewed by the editor for consistency and final editorial changes wherever this was necessary. Overall, our aim has been to produce a volume that is representative of current research in African languages that is informed by various contemporary theories.

We are most grateful to the following scholars for reviewing the papers in this issue: A. Adun, E. G. Bokamba, J. Bresnan, C. C. Cheng, G. N. Clements, J. Cole, C. E. DeBose, D. Evans, M. Goodman, H. H. Hock, J. I. Hualde, B. B. Kachru, J. Karneva, M. Kenstowicz, C. W. Kim, W. Leben, S. S. Mufwene, D. Odden, and C. H. Ulrich.

Several academic units at this University and elsewhere co-sponsored the 20th ACAL from which the papers included here were selected. We take this opportunity to express our gratitude to these units for their financial and material support: African Studies Center (Michigan State University, East Lansing), the Center for African Studies (University of Illinois at Urbana-Champaign), the Department of Linguistics (UIUC), the Miller Endowment Fund (Center for Advanced Study, UIUC), the College of Liberal Arts and Sciences (UIUC), the Office of the Vice-Chancellor for Academic Affairs (UIUC), the African Student Organization (UIUC), and the Africa-Related Women Association (UIUC).

Work on this issue has been done in stages by different individuals since the conclusion of the conference. As the proceedings' editor, I am indebted to Dr. Dorothy E. Evans and Dr. Rick E. Treece for their various contributions in the preparation of the manuscripts, and to Ms. Cathy Huffman and Eileen Sutton (secretaries, Department of Linguistics) for reword processing three of the papers included here. I owe a greater debt of gratitude to Ms. Amy C. Cheatham, an MA candidate in linguistics and graduate assistant for *SLS* (UIUC) for the final reformating and proof-reading of the entire manuscript; without her meticulous rereading of the papers and hard work beyond the call of

duty, many of the contributions in this issue would have appeared with unexplained gaps and errors of various sorts.

Once again, I take full responsibility for the long delay in the publication of this issue. The associate editors and I hope that you will find these studies as informative and stimulating as those in the first issue.

Urbana, Illinois   Eyamba G. Bokamba
June 1993   Editor

INTRODUCTION

Eyamba G. Bokamba
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This issue of SLS contains the second set of papers which comprise the second volume of what we have titled "The Contribution of African Linguistics to Linguistic Theory." Salikoko S. Mufwene (The University of Chicago), in his commentary on the plenary session papers (pp. 63-70), raises the question of what actually constitutes this contribution. Is it, he asked, the contribution of African language data to the analysis of standard problems in linguistics, or is it the presentation of abnormal problems and the postulation of new theories for their analysis?

The answer that emerges from the thirteen papers included in this volume is that the contribution is both data-based and theoretically oriented. This point is made first and forcefully in the plenary session papers by Bokamba (pp. 3-34), Bresnan (pp. 35-48), and Goldsmith (pp. 49-62). Bokamba's paper offers three types of discussions: First, it summarizes several areas of sociolinguistics and indicates the contribution of African linguistic data in extending the application of "standard" analyses to accommodate such facts. Second, it points out, wherever relevant, the contributions that Africanist linguists have made theoretically in forcing a redirection of certain analytical views/approaches as a result of African data — the unusual problem. And third, the paper points out the deficiencies in African sociolinguistic research and suggests a research agenda in sociolinguistics, arguing that Africanist linguists are best placed to pursue various issues related to language in its social context than many other area-scholars.

Bresnan's study also takes a topical approach, focusing on four syntactic phenomena that represent both the common and uncommon type of problems: (1) logophoricity (uncommon), (2) topic, pronoun, and agreement (common), (3) hierarchies and argument asymmetries (less common), and (4) syntax of verbs (common). In discussing each of these Bresnan provides a critique of the Chomskyan syntactic theory in handling or not dealing at all with these phenomena, and points out the extent to which African data have forced theoretical syntacticians to incorporate them in their analyses. The work of Alec Marantz (1984), Hilda Koopman (1984), Mark C. Baker (1988), Bresnan's own research and that of her colleagues (e.g., Sam Mchombo, Lioba Moshi, Alex Alsina, Jonni Kanerva) on Bantu languages in the development of LFG (Lexical Functional Grammar) in the past several years (cf. 1986, 1987, 1988, 1989, 1990) constitute eloquent examples of both data-driven changes and theory formulation based on African languages. She observes that while the impact of these changes have not been as profound as those in phonology, they have nonetheless impacted significantly syntactic theory and will continue to do so in the forseeable future.

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John Goldsmith's paper approaches the question of African linguistics from a "continuity" perspective. He states that "no historian of modern linguistics can understand the continuities in our field without tracing them through fields such as African linguistics, for that is where the important ideas of our times live, prosper, and remain fertile, often despite the Balkanizing effects of linguistic theory" (p. 50). Goldsmith focusses on prosodic phonology and traces developments in this area from Firthian phonology to contemporary autosegmental and metrical theory to show the direct and indirect contribution of African linguistics to this evolution. He suggests that if one views African language data and Africanist-originating theories as contributing ultimately to a better understanding of language structure in general, then the dichotomy between "descriptive" and "analytical" research becomes meaningless in the assessment of area-specific contribution to linguistic theory.

The remaining nine papers by E. Broselow and A. Niyondagara (pp. 71-88), G. N. Clements and R. Sonaiya (pp. 89-104), O. Ka (pp. 105-22), M. Noske (pp. 123-34), M. Ourso and C. Ulrich (pp. 135-50), C. Kisseberth and S. Mmusi (pp. 151-62), N. Mutaka (pp. 163-73), A. Kapanga (pp. 175-88), and M. Wade-Lewis (189-204) offer specific substantiations of the analysis of African language data which accommodate current theories, supplement or extend them, and in some cases critique and offer alternative analyses (to) them. Taken together, these studies present a microcosmic view of the continuing evolution of African linguistics and its impact on general linguistic theory.

Mufwene (pp. 63-70) observes that the best measure of the impact of a particular field is the extent to which theories/approaches that it has originated or influenced are published as textbooks — the standard bearers and agents of received wisdom in academia. It is gratifying to point out in this regard that African linguistics has indeed reached this stage in its development: Since the writing and submission of the papers assembled in this volume, the publication of African languages-based and/or strongly influenced textbooks has increased tremendously. In addition to Marantz (1984) and Baker (1988) mentioned earlier, and J. Bendor-Samuel and R. Hartell, eds. (1989), *The Niger-Congo Languages: A Classification and Description of Africa's Largest Language Family* (Lanham: University Press of America), recent publications include: John Goldsmith (1990), *Autosegmental and Metrical Phonology* (Oxford: Basil Blackwell); George Poulos (1990), *A Linguistic Analysis of Venda* (Pretoria: Via Afrika); Ayo Bamgbose (1991), *Language and the Nation [in Africa]* (Edinburgh: Edinburgh University Press); Jenny Cheshire, ed. (1991), *English Around the World: Sociolinguistic Perspectives* (Cambridge: Cambridge University Press); Carol Myers-Scotton (1993), *Social Motivations for Codeswitching: Evidence from Africa* (Oxford: Oxford University Press); Carol Myers-Scotton (1993), *Duelling Languages: Grammatical Structure in Codeswitching* (Oxford: Oxford University Press; D. Nurse and T. Hinnebusch (1993), *Swahili and Sabaki: A Linguistic History* (Berkeley: University of California Press); Louis-Jean Calvet (1992), *Les Langues des Marchés en Afrique* (Paris: Didier Erudition); Sam Mchombo, ed. (In Press), *Studies in Bantu Syntax and Linguistic Theory* (Stanford University: CSLI); and Salikoko S. Mufwene and Lioba Moshi, eds.(In Press), *Topics in African Linguistics* (Philadelphia: The John Benjamins

Publishers). As in the past, a number of anthologies containing substantial African linguistic contributions have been published since 1989, and both of these trends will likely continue. It is hoped that the studies in this volume will be a small contribution to this burgeoning literature in African linguistics.

I

Plenary Addresses

EYAMBA G. BOKAMBA
African languages and sociolinguistic theory

JOAN BRESNAN
African languages and syntactic theories

JOHN GOLDSMITH
Phonological theory and African language phonology

SALIKOKO MUFWENE
African languages, African linguistics, and linguistic theory (commentary)

AFRICAN LANGUAGES AND SOCIOLINGUISTIC THEORIES*

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1. Introduction

Until the 1970s sociolinguistic research on African languages dealt mainly with language planning and a restricted range of language contact phenomena, with particular emphasis on pidgins and creoles. The few studies undertaken on language variation during the two preceding decades, for instance, focused largely on English in West Africa (cf. Spencer 1971, Sebeok 1971). Since the mid-1970s, however, the scope of sociolinguistic research has expanded to include language variation in African languages, language spread/diffusion, and code-switching. In this paper I will attempt to provide an overview of this research, with particular attention to language spread, language policy and planning, language variation, and code-switching,[1] as a way to ascertain the nature of and extent to which African languages have influenced developments in sociolinguistics. The examination of the contribution of African linguistics to the sociolinguistic theories associated with the above-mentioned areas will involve an assessment of the adequacy of such approaches in the study of African languages and by implication those of other multilingual societies.

The task of providing an overview of the contribution of African linguistics to linguistic theory is a difficult and challenging one for any specialist; and this is particularly true in regard to the assessment of the contribution of African languages to sociolinguistic theories. There are three principal difficulties in this type of study. First, unlike phonology, semantics, and syntax, the field of sociolinguistics is very broad with ill-defined boundaries between subfields. While it is generally agreed that sociolinguistics is the scientific study of language in relation to society (Fishman 1969, Hymes 1974, Hudson 1980, Wardhaugh 1986), what this relation encompasses remains the subject of considerable debate. The problem is amply illustrated in the views expressed by five distinguished sociolinguistic scholars, viz., Hymes, Trudgill, Hudson, Wardhaugh, and Fasold.

Hymes, in a paper delivered at the 1972 Georgetown University Round Table conference on languages and linguistics, acknowledges that:

> The term 'sociolinguistics' means many things to many people, and of course no one has a patent on its definition. Indeed not everyone whose work is called sociolinguistic is ready to accept the label, and

those who do not use the term include and emphasize different things (Hymes 1974:195).

Hymes (1974) views the scope of sociolinguistics as consisting of three major concerns: (1) "the social as well as the linguistics;" (2) the "socially realistic linguistics;" and (3) "socially constituted linguistics." The social and linguistic perspective deals with social problems involving language and its use; this is what Fishman (1969) refers to as the "sociology of language" which he characterizes as an area of inquiry that "focuses upon the entire gamut of topics related to the social organization of language behavior, including not only language usage per se but also language attitudes, overt behavior toward language and toward language users" (Fishman 1972:45).

The second concern, viz. socially realistic linguistics, focuses on the interplay of linguistic structure and social factors or variables; it addresses itself to questions of the extent to which linguistic structure reflects and can be explained by societal factors. This concern is termed "descriptive sociolinguistics" by Fishman (1969) and is acknowledged by him and others (cf. Labov 1972, Trudgill 1983) to be the main focus of sociolinguistics. The third and final topic, "socially (re-)constituted linguistics," according to Hymes (1974:196-97), "is concerned with social as well as referential meaning, and with language as part of communicative conduct and social action." This area has evolved in recent times into an independent subfield of linguistics known as ethnography of communication as exemplified in recent publications by Gumperz and Hymes (1972), Gumperz (1982), and Saville-Troike (1982).

Hymes' (1974) view of sociolinguistics is echoed by Trudgill (1983:1) who states that "It has become apparent that [sociolinguistics] is a term which means many different things to many people." In particular, the term "appears to have different implications in Britain and North America than those it has in Europe." Trudgill attributes this multiplicity of interpretations and the confusion they engender to "the fact that different scholars draw the line" between language and society, on the one hand, and sociolinguistics, on the other, "in different places." He observes that:

> while everybody would agree that sociolinguistics has *something* to do with language in society, it is equally clearly not concerned with *everything* that could be considered under the heading of 'language and society'. (Trudgill 1983:1)

According to Trudgill (1983:2-4) this delimitation of the field is motivated by the various objectives envisaged by scholars. These objectives fall into three groups: (1) "purely linguistic " objectives; (2) partly linguistic and partly social; and (3) sociological. The first set of objectives is exemplified in the work of scholars such as Labov who seeks to secularize linguistics; the second by the bulk of scholars who engage in the descriptive study of language in its social context with particular reference to phenomena such as language variation, code-switching, pidgins and creoles, language planning, and other aspects of bi- and multi-lingualism (cf. e.g., B. Kachru 1982, 1983, 1986; Ferguson 1968,

Trudgill 1983a&b, Mufwene 1979, 1988, 1989; Romaine 1982, 1986, 1988). The third category of objectives is addressed by individuals concerned with the sociology and/or functions of language in society. The work of Fishman and Hymes, among others, appear to be characteristic of this group.

In contrast to these two views (viz. Hymes and Trudgill), Hudson (1980) considers sociolinguistics as that field of linguistics which deals with all aspects of language excluded by autonomous syntax, phonology, and historical linguistics. This perspective is shared by Wardhaugh (1986) and Fasold (1984, 1990), among others, who include in their respective studies of sociolinguistics topics such as dialectology, language variation and change, multilingualism, pidgin and creole languages, pragmatics, ethnography of communication, language and sex, code-switching, and language planning.

In spite of the recognition of this multiplicity of subfields which are generally assumed to constitute the domain of sociolinguistic research, many sociolinguists continue to view the field as one that is amenable to a simple definition and therefore capable of offering a unified theoretical model. Fasold's statement in this regard is illustrative of both the dilemma faced and frustration experienced by many theoretically-inclined sociolinguists. After arguing for the need to treat different topics of sociolinguistics separately, Fasold (1990:viii) points out and laments that,

> Although it might make some sense to equate 'inguistic proper' with 'sociolinguistics,'[2] no unified theory of sociolinguistics will be found here. Instead, I present sociolinguistics as a series of topics with some connections between them, as was done in the companion book [*The Sociolinguistics of Society*]. The reason for this is that I am not able to detect an overall theory, even of the portion of sociolinguistics that is addressed here.

That there is no unified theory of sociolinguistics is not at all surprising in view of the facts pointed out above: the field encompasses many topics and subfields which often entail different research methods and theories, as Trudgill (1983) correctly observes. It is therefore unreasonable to expect such a macro-field to evolve a unified theory. Further, the conclusion that there is no unified theory in sociolinguistics cannot be construed to imply that there are no theories for the constituent subfields; on the contrary, theories abound in most of these subfields, as will be seen later for the ones selected for this study. Thus, instead of a single theory, I will assume in this paper that there are several theories of sociolinguistics.

The second major difficulty in providing an overview of African sociolinguistics is a derivative of the first: the vastness of the field makes it impossible to adequately cover all the subfields. The best that one can do is to highlight a few salient research developments that illustrate the contribution made by African linguistics. The third and final difficulty is that mainstream or descriptive sociolinguistics (viz., language variation, including code-switching/code-mixing and creolistics) has generally assumed knowledge of

syntax and phonology, and thereby the various theories that have developed in these fields. In other words, descriptive sociolinguistics is to syntax and phonology as physics is to applied physics. To adequately review developments in the applied aspect of the field one must be not only conversant with the basic theories, but also the ways in which they are applied in the derived or associated fields and the methodologies utilized in conducting the research in question. Thus in making the assessments of the research in the subfields under consideration here I have had to remain attentive to the theoretical frameworks under which such research was written.

In summary, I view sociolinguistics as a rigorous and macro-field of inquiry within linguistics. The kinds of phenomena that it addresses and attempts to explicate can be seen as representing a continuum that ranges from purely linguistics at the top end to sociological concerns at the bottom end. As one moves from one end of the continuum to the other, the extent to which linguistic theories apply decline accordingly. Hence research resulting from the bottom end of this continuum cannot be assessed in purely linguistic evaluation measures but in terms of a combination of measurements. For instance, the study of language policy and planning cannot, in my view, be characterized as involving theoretical constructs as for example in phonology, semantics, syntax, and historical linguistics, but instead in terms of "approaches"; whereas the study of different aspects of language variation can be measured in terms of theoretical frameworks.

2. Sociolinguistic theories and African languages

Judging from Clement's (1989:23-28) survey of doctoral theses submitted in American universities from 1933 to 1987, the sociolinguistic study of African languages represents the third most important area of research in African linguistics after syntax (which has 80 theses, including grammar),[3] phonology (44), and sociolinguistics (41, including dialectology, discourse analysis, and pragmatics). If one were to conduct a cursory survey of the non-doctoral dissertation literature (viz., M.A. theses and article-length studies) throughout African, European, and North American institutions and journals, however, it is very likely that sociolinguistics would emerge as the most studied aspect of African linguistics in terms of volume of studies.

African sociolinguistics has focused mainly on five major areas: (1) language spread, (2) language policy and language planning, (3) language variation, (4) code-switching and code-mixing, and (5) pidgin and creole languages. Very little has been done on bilingualism, discourse analysis, ethnography of communication, and language shift and maintenance for which African languages offer excellent and extremely rich data. As indicated in the first footnote, this study excludes a review of the research on topic five (5); individuals interested in this area are referred to the excellent work of Hancock (1971, 1979, 1986); Mufwene (1988, 1989); and Samarin (1960, 1962, 1984, 1985, 1986, 1989). The discussion in this section addresses itself to the first four topics by summarizing the results of these studies and offering a

preliminary assessment of their contribution to the general sociolinguistic research. Consider, first, the case of language spread.

2.1 Language spread

Sociolinguistics research on language spread in general addresses itself to the question of the expansion of certain languages over geographical and population areas by examining the psychological, social, and linguistic phenomena that account for such an expansion. In an interesting article that introduces the first collection of in-depth study of language diffusion from a cross-linguistic perspective, Cooper (1982:6) defines language spread as

> an increase, over time, in the proportion of a communicative network that adopts a given language or language variety for a given communicative function.

Cooper (1982:5-36) suggests, and the other contributors in the volume concur, that the study of language spread can best be approached by examining three broad questions: "(1) what is spreading, (2) the notion of spread as a time-dependent phenomenon, and (3) the medium through which language spread occurs" (p. 6). More specifically, research on language spread seeks to provide answers to a set of fundamental questions that include the following:

> [4] What are the psychological, social, and linguistic phenomena which, in interaction, account for language spread? [5] Do languages spread in the same way as a single item of vocabulary, pronunciation, or grammar? [6] Do languages spread according to the same laws as innovations more generally? [7] What variables entering into what equations can predict the rate and extent of spread of a given language among a given group of speakers? (cf. Cooper 1982:5)

In answer to the first four questions (i.e., (1) - (4)), it has been determined in the general literature that language spread involves the diffusion of two or more varieties of a given language over specific communities of individuals who are willing and capable of learning that language as an additional medium of communication for perceived socioeconomic benefits (cf. Brosnahan 1963, Tabouret-Keller 1968, Fishman, Cooper & Conrad 1977, Kachru 1978, 1983, Kahane & Kahane 1979, Scotton 1982, and Cooper 1982). The acquisition of the language concerned as a second, third or nth language occurs gradually over a period of time, and is said to be facilitated by five major agents: (1) military conquest, (2) colonization, (3) religion, (4) trade, and (5) education. Writing systems, music, and intermarriage have also been mentioned sporadically as two of the minor agents of language spread (cf. Cooper, 1982b, Bokamba 1984c).

It has been further determined in regard to questions (5) and (6) that language spread, as defined above, differs significantly from the diffusion of

innovations in pronunciation, vocabulary, and grammar; the two processes are therefore not analogous although some of the social variables are arguably similar (Cooper 1982b). Language spread typically occurs across speech communities via specifically targetted population groups through the five agents of spread mentioned above; whereas the spread of innovations takes place through individual speakers under naturalistic, rather than forced or planned, language contact situations. Question (7), however, has not been directly addressed in the general literature, but Scotton's (1971, 1972) studies, as will be seen shortly, attempt to deal with it on the basis of African languages.

Sociolinguistic research on language spread in Africa has focused mainly on the expansion of lingua francas either in certain regions (e.g., northern, western, central, and eastern Africa) or countries (Central African Republic, Ethiopia, Kenya, Sudan, Tanzania, Uganda, Zaire, Zambia). Except for a few studies (e.g., Hulstaert 1946; Samarin 1962, 1984/1985, 1986, 1989; Greenberg 1965; Tabouret-Keller 1968; Whiteley 1969; Heine 1970; Scotton 1971, 1972; Cooper 1978; Calvet 1982; Fabian 1986), the bulk of this research has commonly been undertaken in the context of the general question of language planning vis-à-vis education. This orientation, as will be seen later, accounts in part for the lack of discussion of the structural properties of the spreading language.

As in the general sociolinguistic literature, research on language spread in the African context has sought to address the same questions identified in paragraph one above. Over-all, the findings of these studies confirm those encountered in non-African languages. For instance, Hulstaert (1946) and Samarin (1962, 1984/85, 1986, 1989) in their studies of the spread of lingua francas such as Lingala, Sango, Kikongo/Kituba, Swahili, etc., in Central Africa (viz. Zaire, Congo, and Central African Republic) found the same agents of spread to be operative. The same conclusion is reached by several other scholars, including Greenberg (1965) in his study of the effect of urbanism and migration on language diffusion in West Africa, Tabouret-Keller (1968) in his comparative analysis of the sociological factors that contribute to language maintenance and shift in Africa and Europe, Whiteley (1969) and Mazrui & Zirimi (1978) in their study of the spread of Swahili in Eastern Africa. While most of the other studies seem to suggest that military conquest, colonization, and commerce played an equal role in the spread of African lingua francas, Cooper (1978) shows that the primary impetus for the spread of Amharic in Ethiopia was due initially to military and political domination of the non-Amharas by Emperor Haile Selasie and his predecessor. Commerce and education subsequently strengthened further the process and consolidated the gains made during the initial phases. In the case of the spread of Mandingo in West Africa, Calvet (1982) demonstrates that military conquest and commerce played a primary role in the diffusion process.

In the most comprehensive study on this topic in the African context, Heine (1970) documents forty different African lingua francas throughout the continent, groups them by region, and discusses their spread in the respective regions (pp. 46-125). Heine addresses here essentially the same major questions that

Cooper (1982) and his colleagues were still concerned with about fourteen years later. In regard to the sociology of the spread of a lingua franca, he confirms Brosnahan's (1963a) and Greenberg's (1965) findings regarding the prototypical agents of spread of languages of wider communication and lingua francas and the socioeconomic conditions under which the phenomenon arises. Heine (1970:36) points out that the extent to which each of these factors were influential in each of the forty lingua francas varied according to historical and geographical factors. For instance, citing Westermann (1940), he states that religion (i.e., Islam in this case) was very influential in the expansion of Arabic, Hausa, Mandingo, and Swahili. This conclusion has been corroborated by other Africanist scholars with respect to Arabic (cf. Greenberg 1965), Mandingo (Calvet 1982), Swahili (Whiteley 1969, Mazrui & Zirimu 1978). A further conclusion that Heine draws regarding the medium through which a lingua franca , and by extension any language of wider communication, spreads in Africa is that men are more involved than women in serving as agents of the diffusion. He attributes this difference to the greater mobility that men have in accessing education, employment as well as in undertaking long distance trading (Heine 1970:29-30).

In addressing the structural and socio-psychological characteristics of language spread, Heine (1970) suggests with respect to the former that most lingua francas, like other languages of wider communication, develop at least two forms: a "basis form" and a "lingua franca form" (p. 25ff). The basis form is that variety spoken by the native speakers, whereas the lingua franca form is that which is used by those who speak the lingua franca in question as a second or additional language. The lingua franca form, according to Heine (1970), characteristically undergoes and exhibits "simplification" via "pidginization" of the grammar due to the influence of the speakers of other languages. Throughout the study Heine (1970) shows that the socio-psychological determinants of lingua franca spread are similar: Diffusion and infusion occur much more rapidly and spontaneously in the direction of related languages and among speakers of related languages who perceive benefits (social, economic, educational) for learning an additional language than in cases where these conditions do not obtain (pp. 34-35 ff). The spread of a lingua franca is often impeded or inhibited altogether if the languages spoken in the region or community concerned are unrelated to it and/or there is a competing lingua franca (see also Greenberg 1965).

If, as it seems to be generally agreed, infusion precedes diffusion, then the choice of which lingua franca to learn among competing ones must be guided at least by some discernable sociolinguistic criteria or variables. An identification of these criterial variables would permit us to answer question (7) in the statement cited above from Cooper (1982): "What variables entering into what equations predict the rate and extent of spread of a given language among a given group of speakers?"

Scotton (1971, 1972) addresses this question from the perspective of code selection in a multilingual setting where three lingua francas, viz., English, Luganda, and Swahili, compete as languages of wider communication in an

African capital city: Kampala (Uganda, East Africa). In carrying out this study among a stratified and random sample of two hundred and twenty-three (223) heads of households, Scotton had established that 97% of the respondents claimed to speak Swahili to a certain extent versus 76% for English and 75% for Luganda (pp. 113-16). The remainder of the interviewees spoke no Swahili (viz., 3%), English (24%), and Luganda (25%). What this meant, Scotton observed, is that 24-25% of the time that a conversation was initiated in English and Luganda it met with "incomprehension", whereas this was not the case with Swahili which appeared to be the ideal lingua franca that "presume[d] nothing" about the interlocutor's socioeconomic background (p.116). Initiating a conversation in English or Luganda had socioeconomic connotations.

To investigate code-selection in this sociolinguistic context, Scotton (1971:122) made two major conceptual assumptions:

> (1) that supra-individual norms arise in the group situation and influence the individual to act in ways he might not choose for himself, and (2) that social interaction is a balancing of rewards and costs by each individual so that he achieves the highest rewards possible.

She found that speakers' choice of a particular code/language in a face-to-face interaction was dictated by a strong sense of accommodation and perceived rewards and costs in terms of group membership, irrespective of the recognized "prestige" of the other available code(s) to the speaker-hearer. She showed that speakers were rather consistent in their choice of language in speaking with lower status interlocutors, peers, strangers, and people of higher statuses (pp. 117-21).

Scotton's (1971, 1972) findings provide empirical support from an African multilingual setting for the long-held hypothesis initially advanced by Firth (1935) that code-selection in social interactions is determined by the context of situation. A similar finding based on an American datum is presented in Fishman (1969). Scotton's contribution lies in the fact that the respondents were observed making code-selections in real-life situations, rather than simply responding to a questionnaire about the potential, and therefore, hypothetical, choice they might make. In this regard, Scotton appears to have been the first scholar to have introduced the theory of accommodation that was subsequently popularized in the work of scholars such as Giles (1973, 1979).

A second major contribution that Scotton made in this study concerns the determinants and direction of language spread. She found, for example, that 75% of her respondents chose Swahili as a language that their children should study; 98% of them considered it very useful over-all; 84% of them considered it to be the language that the government should require of all its employees; 77% viewed it as the language that is capable of serving as a medium of administration in Uganda; and 43% chose it as a potential official/national language, comparing favorably in this regard with the 50% preference expressed for English (p. 117). According to the study, these choices were

motivated by perceived socioeconomic benefits. If this is correct, then such considerations would influence and predict the direction of language infusion and spread as the author subsequently argued in part in a recent study (Scotton 1982).[4]

2.2 Language planning

Language spread as a sociolinguistic area of inquiry represents one of the phenomena that bears crucially on the issue of language planning (LP) to which we now turn. As currently understood, language planning is characterized as

an explicit and systematic effort to resolve [perceived] language problems and achieve related goals through institutionally organized intervention in the use and usage of languages [or language varieties] (Christian 1988:197).

As this definition suggests, it has been assumed since the early study of LP that the formulation of language policy (LPo), which is the outcome of planning, proceeds in a systematic and step-wise manner from the perception of a language structure and/or language function problem. Once such a problem is perceived at the local, regional or national level, an organized effort is made to address it through a constituted body at the societal level concerned. Now, while in general LP is often initiated and carried out by and through authoritative institutions, not all cases LP or aspects thereof, as Cooper (1989) convincingly argues, are undertaken by institutions: individuals can initiate LP or aspects of it. Noted historical cases where this has occurred include Ben Yehuda's efforts in the revival of Hebrew in Palestine (now modern Israel) as amply documented in Fellman (1974) and Cooper (1989), Samuel Johnson's (of England) dictionary work (Bates 1975), Aasen's work on Norwegian (Haugen l966), and Webster's work on the dictionary of the American English. These facts, as Cooper (1989:29-45) correctly maintains, argue for a less restrictive and yet expanded definition of LP such as the following:

Language planning refers to deliberate efforts to influence the behavior of others with respect to the acquisition, structure, or functional allocation of their language codes (Cooper 1989:45).

Both Christian's (1988) and Cooper's (1989) definitions have evolved from a body of key studies some of which require summation here in order to better contextualize the developments in this area of research.

The classical conception proposed in Haugen (1966a-b, 1969) on the basis of Norwegian identified four major tasks in the process of LP: (1) code/language selection, (2) codification, (3) implementation, and (4) code elaboration. This model concerned itself primarily with language form, rather than function. *Code* or *language selection* involved the choice of a particular language or variety for the purpose of communication at the national, regional or local level; and *codification* dealt with the standardization procedures (e.g.,

graphicization, spelling, and policy regarding the selection of vocabulary, including loanwords). *Implementation* referred to the act of executing the adopted LPo, whereas *code elaboration* involved the modernization of the language in terms of the expansion of the registers and styles to accommodate the communicative needs to which the language is put. Tasks (1) and (3) came to be known subsequently as *status planning* (SP), and tasks (2) and (4) as *corpus planning* (CP) (cf. Kloss 1969) where the former set involves largely decision-making by organized authoritative bodies and the latter set addresses linguistic issues.

A number of studies undertaken in the 1970s (e.g., Rubin 1971; Das Gupta 1973; Fishman 1974, 1978; Karam 1974; Neustupny 1974; etc.) led to important modifications in the classical conceptualization of LP by emphasizing equally the significance of SP and CP. The currently accepted view of LP that incorporates Haugen (1983) and subsequent research (e.g., Kennedy 1982; 1984; Neustupny 1983; Rubin 1984) is essentially as follows:
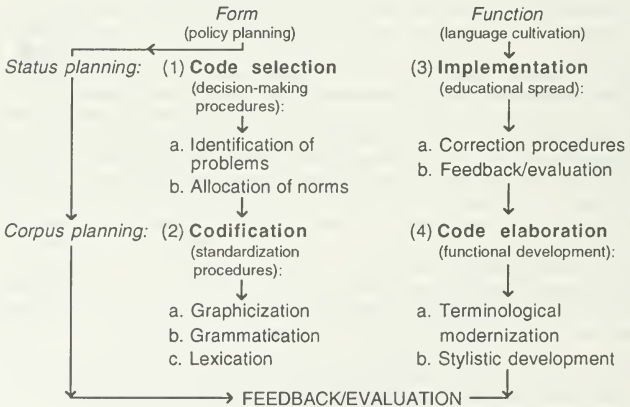
Figure 1: Schematized view of Language Planning

A few comments are necessary here to flesh out what this elaborated view of LP assumes and represents. Specifically, if we regard Figure 1 as a four-cell matrix, four conceptual facts are observable here. First, *language policy* is understood as the outcome of *language planning* that affects language form or structure through the decisions of an individual, group of individuals, or some authoritative body at the micro and/or macro level. Second, *status planning*, which is seen in Figure 1 as encompassing code selection and implementation, is regarded as an aspect of decision-making that is driven by underlying socio-cultural and economic goals and is acted upon largely by the society concerned through individuals or groups thereof at the micro level and through organized institutions at the macro level. The decisions made at this phase are

characteristically societal or political, and therefore language external. As indicated earlier, these decisions are assumed to be initiated by the perception of language-related problems and are informed by fact-finding and planning (Rubin 1971). The fact-finding subphase involves the gathering of demographic and attitudinal data about the language situation; whereas the planning subphase concerns the formulation of goals, means to achieve them, and the articulation of expected outcomes. Cost-benefit analysis is seen as a crucial aspect of the planning sub-phase. Third, *corpus planning*, which comprises codification and code elaboration, is viewed as the phase that addresses language-internal issues and thus falls within the purview of linguists. Fourth, *language cultivation* is motivated by functional objectives and demands on the language(s) under consideration. Finally, each phase of LP requires both decision-making and evaluation of some sort, with an ultimate assessment of the success of the LPo being undertaken after it has been implemented for a determined period of time (e.g., ten, fifteen years). Thus feedback/evaluation loops around the four cells in a U-shape fashion. It is this kind of step-wise progression and interrelationship of the phases that characterizes language planning in theory as a "systematic effort" undertaken "to resolve [perceived] language problems and achieve related goals" (Christian, op.cit.)

The study of LP in the African context constitutes one of the most important aspects of sociolinguistic research on African languages. There is a significant body of descriptive literature which offers partial support for as well as contradicts the LP model presented in Figure 1. Several conclusions emerge from this research which began to appear in the early 1960s following the accession to independence of many of the countries in the continent.

The first conclusion is that LP in Africa has been less systematic than Christian's (1988) definition and the model presented in Figure 1 above suggest. This conclusion is supported by the fact that most of the language policies in the continent have been imposed, rather than developed systematically as discussed above, by the various governments that have come to power and the private institutions (e.g., churches and commercial enterprises) that have supported them since the European occupation of the continent in the 17th and 18th centuries (cf. Brosnahan 1963; Spencer 1963, 1971; Alexandre 1963, 1968; Ansre 1968; Foster 1971; Whiteley 1971; Gorman 1974; Bokamba & Tlou 1977; Scotton 1978; Cooper 1976, 1989; Turcotte 1981a-b; Marshad 1984). For example, the LPo of Ethiopia which involves the use of Amharic as the official/national language, and which is often cited as an example of success in the adoption of an indigenous language, was imposed by the ruling Amhara Emperors Minilik II and Haile Silasie (Cooper 1978, 1989; Bender 1986; Seyoum 1989). Similarly, the French and Portuguese colonial administrations imposed French and Portuguese, respectively, to their respective colonies as the exclusive languages of administration and education. In the case of the French a 16th century decree, known as the "ordinance" of Villers-Cotteret issued in 1539 by King François I, forbidding the use of languages other than French in all official functions of the state within French territories was extended to the African colonies without debate in 1826 (Spencer 1971; Turcotte 1981b; Bokamba 1984). The decree was further

strengthened by subsequent colonial administration executives orders and decrees throughout the colonial era (Turcotte 1981b; Bokamba 1984).

The LP literature in the African context reveals further that while the Belgian, British, and German colonial administrations had adopted a laissez-faire policy vis-à-vis the education of the colonized by relegating this responsibility to religious organizations, they did nonetheless impose from the outset their own languages as the media of administration while allowing the missionaries to develop and implement language policies which advocated the use of selected African linguae francae in primary education (Ansre 1968; Spencer 1971; Whiteley 1971; Apronti 1974; Gorman 1974; Awoniyi 1976; Bokamba & Tlou 1977; Ndoma 1977; Yates 1981). When these colonial administrations eventually became involved in education, initially through the provision of subsidies towards the end of the 19th century and then more significant involvement in the first quarter of the 20th century (1920-24), they over-rode the religious establishments-based language policies by extending the imposition of the official languages into this sector (Awoniyi 1976; Ndoma 1977; Yates 1981).

The second major conclusion that emerges from the African LP literature is that religious organizations developed and implemented language policies vis-à-vis education and religious work, often with the acquiescence of the colonial administrators and without significant input from the Africans (Ndoma 1977; Yates 1981; Awoniyi 1976; Scotton 1978; Stumpf 1979; Marshad 1984). LP and LPo formulation by missionaries were mainly driven by one major objective and related subsidiaries considerations: evangelization and provision of pre-university education to maintain and attract converts. Fact-finding in regard to demographic and attitudinal considerations was rarely undertaken to inform LPo; missionaries did, however, carry out investigations on CP and had considerable success in all aspects of this dimension of LP. The general African linguistic and the sociolinguistic literature consistently show that religious organizations were the first ones to undertake the study of African languages, produce monographs, dictionaries, grammars, and other reference tools (cf. Birnie & Ansre 1969; Cole 1971; Bendor-Samuel & Hartell 1989).

The third major conclusion which arises from the LP literature in Africa since the 1970s is that post-colonial African states, with a few exceptions, have continued the inherited colonial era language policies in spite of perceived and demonstrated problems with such policies (Champion 1974; Apronti 1974; Ansre 1976; Bokamba 1976, 1984a-b; Bokamba & Tlou 1977; Mateene 1980). The exceptions to this fact are Rwanda, Tanzania, Somalia, Malagasy, Botswana, and Lesotho which have each adopted Kinyarwanda, KiSwahili, Somali, Malagasy, SeTswana, and SeSotho, respectively, as national/official languages. Ethiopia, which was never colonized, but freed itself from the Italian occupation in W.W.I, has adopted Amharic as the national/official language. A few other countries, including the Arabic-speaking North African states, Nigeria, Togo, Kenya, and South Africa have adopted multilingual policies that recognize European and African languages as co-official languages in specific domains. A number of studies have argued persuasively that the retention of the

status quo on the inherited colonial languages policies demonstrates both the lack of political will on the part of African political elites (Ansre 1976; Kashoki 1978; Bokamba 1976, 1981, 1984a) and the existence of an "elite closure" mentality (Scotton 1978).

Fourth and finally, unlike in most other regions, LP in Africa has been hampered further by pervasive multilingualism, combined with unstable political structures. Bendor-Samuel (1989: vi) states that there are 1900 languages spoken in Africa, and several other previous studies have documented the extent of multilingualism of most of the continent's nations (cf. e.g., Ladefoged & Cripper 1972; Whiteley 1974; Bender, et al., 1976; Hansford, et al., 1976; Ohannessian & Kashoki 1978; Polomé & Hill 1980; Confermen 1986). Pervasive multilingualism within each nation has been used by most African political leaders as an excuse and a rationale to avoid the initiation of indigenously-based language policies, even in cases where certain languages have served as dominant linguae francae for decades (cf. Spencer 1971; Apronti 1974; Ansre 1976; Bokamba & Tlou 1977; Scotton 1978; Dumont 1983). As a consequence, most African states have retained the status quo whereby English, French, and Portuguese continue to serve as the exclusive official languages and media of instruction in education.

Four main arguments, which Ansre (1976) characterizes as "rationalizations", have been advanced by various African political leaders to support their retention of the pre-independence language policies: (1) national unity, (2) national development/progress, (3) efficiency of European languages of wider communication (ELsWC), and (4) cost-effectiveness of ELsWC (Spencer 1971; Foster 1971; Whiteley 1971; Ansre 1976; Bokamba & Tlou 1977; etc.). The national unity argument holds that the adoption of a language policy which involves the use of an African language as a national/official language in a multilingual nation will lead to ethnic conflicts which could destroy the delicate national unity created since the liberation struggles. To prevent such social unrests, it is argued, African states must choose ELsWC, because they are perceived as neutral or "atribal". The national development argument maintains that progress, understood as "westernization," for the African people will be possible and unimpeded only if ELsWC are used as media of instruction (cf. Ansre & Birnie 1968; Spencer 1971; Gorman 1974); African languages are perceived by such political leaders as obstacles to "progress". Similarly, African languages are viewed as less-developed (in the sense of Ferguson 1968) than ELsWC and are, therefore, unsuitable as media of instruction. In contrast, it is argued that ELsWC have had a long tradition of writing and research that make them efficient for teaching of all sorts that is difficult to carry out in African languages. A closely related argument maintains that the adoption of indigenously-based language policies would be extremely costly as they will necessitate the translation and writing of textbooks, reference tools, and the training of teaching personnel. The adoption of ELsWC-based policies, in contrast, would be cost-effective as the requisite pedagogical materials and personnel are available and can be imported from elsewhere, especially Western Europe.

I have shown elsewhere (Bokamba 1981, 1984a,b) that while these arguments have some validity, the conclusions that African languages are unqualified at this stage to serve as national/ official languages are unwarranted on empirical grounds. At least two sets of facts can be cited in support of this claim. The first set of data include the successful utilization of selected national or state languages in India and the USSR; the revival of Hebrew by Yehuda in 1898 as a medium of instruction; the use of Japanese and Korean by Japan and Korea, respectively, as languages of education, and the recent adoption and utilization of languages such as Amharic (Ethiopia) and Swahili (Tanzania). These facts demonstrate that any language can be cultivated to serve as a vehicle of education without impeding developments of all sorts (e.g., educational, economic, and political, etc.). The second set of data consist of the well-documented high failure, class repetition, and drop-out rates in the educational systems (from elementary to university) in African states, and the extremely high illiteracy rates resulting in part from such systems (cf. Foster 1971; Bhola 1990; Bokamba 1984a; UNESCO 1981, 1988).

It has been argued rather convincingly in several studies that the inefficiency of African states educational systems that is characterized by high failure and attrition rates is largely ascribable to poor mastery of the official language by both teachers and students (Champion 1974; Awoniyi 1976; Barnes 1981; Bokamba 1981, 1984a). Educational inefficiencies, combined with structural disarticulations, have in turn made African education extremely less cost-effective: Governments expand disproportionately high percentages of their national budgets on education only to have incommensurably small numbers of students complete their education. The arguments about the level of development and efficiency of ELsWC become, therefore, vacuous in the face of such facts, and the envisaged benefits to be accrued to the nations concerned are mere mirages. A careful reading of the research on LP/LPo in the African context shows that the vast majority of language policies in the continent are more driven by historically-based external political and economic considerations, including direct pressure from former colonial powers, than by internal factors as Fishman's (1968) typology of LPo and Christian's (1989) definition would lead us to believe. African states characteristic political instability due to lack of general mass support further makes it difficult for political leaders to develop the political will to initiate and implement the kinds of language policies that would be consonant with the aspirations of the African people. Thus in Africa the perception of the language-related problems to which LP is assumed to offer solutions is colored, if not highly constrained, by external politico-economic considerations.

2.3 Language variation

Consider now the phenomenon of language variation. The research paradigm that prevailed in the 1960s and 1970s and is still influential today is predicated on the major assumption that each language consists of two phases: an invariant or homogeneous phase and a variant or heterogeneous phase. Variation under this perspective, therefore , is explained as a deviation from the perceived or hypothesized norm arising from a combination of language

internal mechanisms and the context of situation (interlocutors, topics, context/settings) (Labov 1966, 1972; King 1969; Giles 1979; etc.). This deviationist view is based on the historical linguistic approach as modified by dialectology studies.

Under this deviationist framework, the language internal mechanisms that contribute to and/or cause variation are structural rules from all levels of the grammar: phonology, morphology, syntax and semantics. For example, the non-occurrence of certain types of consonant clusters in Black English (in America) and West African English, as in the illustrations below, is viewed as a case of consonant cluster simplification:

(1) a. next   →   *nest*
    b. needs   →   *nees*

Similarly, the occurrence of the so-called equational sentences in Black American English and other inner city Englishes, as in examples (2)-(5) below, is analyzed as an instance of copula deletion in various structural contexts (cf. Labov 1972):

(2) NP:
    a. She the first one started us off.
    b. Means he a faggot or sump'm like that.

(3) Predicate Adjective:
    a. He fast in everything he do.
    b. I know, but he wild, though.

(4) Locative:
    a. You out the game.
    b. We on tape.

(5) Negation:
    a. But everybody not black.
    b. They not caught .

At the level of the lexicon, however, various semantic processes such as semantic extension, semantic shift, and semantic change are regarded as language internally and externally motivated variation. It is argued in this connection that semantic variation in any language cannot be adequately accounted for simply through an examination of language-internal mechanisms: one must take into consideration the sociolinguistic context of the language acquisition and use (Kachru 1982, 1983, 1986; Bokamba 1982, 1991; and Kapanga 1991). This argument is amply supported in the literature, including the works of scholars such as Labov (1972), Kachru (1982, 1983, 1986), and Trudgill (1983), where it is shown that acquisitional, socio-cultural, motivational and functional factors combine with other parameters such as interlocutors, topics and context/setting to structure the form that a given language takes.

Linguistic rules, while important and crucial, cannot alone explicate the phenomenon of language variation and the eventual change it entails.

The framework summarized here has been utilized successfully in accounting for language variation in a variety of languages, including notably English and to a certain extent French, in their global contexts. Much of the research on variation in the African context, however, has focused mainly on English as exemplified by anthologies edited by scholars such as Spencer (1963), B. Kachru (1982), Lanham (1985), Cheshire (1991), McArthur (1992), and doctoral dissertations by Sey (1973), Chishimba (1984), Magura (1985), among others.

The main change in orientation that has occurred to this deviationist paradigm is the recognition of the fact that language variation constitutes an inherent property of all languages: Homogeneity or invariation is in fact a linguistic construct that has little basis in reality (cf. Guy 1986, 1989). Under this view, language variation is increased or enhanced, but not initiated, by sociolinguistic factors and the grammatical rules involved in such change represent essentially an encoding of these otherwise non-linguistic factors (Labov 1972, Kachru 1982, 1986; Bokamba 1977, 1982; Guy 1989; Kapanga 1991). Substratal influence, or the influence of mother tongues on a second/foreign language, which lead to processes such as nativization of lexical elements at the phonetic, semantic and morphological levels, serves as the best illustration of this view.

Except for English and English-based pidgin languages (e.g. Krio, Cameroonian Pidgin English and Nigerian Pidgin English), there have been very few studies of language variation involving African languages. In depth studies of variation in African languages include Derek Nursse and Thomas Hinnebusch (forthcoming) on Swahili in Kenya; Jan Fabian (1986) on Zairean Swahili; Timothy Wilt (1989) on Kenya Swahili; Mwamba Kapanga (1991) on Shaba Swahili; and Janice Bernstein (1991) on Shona. Several article-length studies have appeared on several African languages (cf. e.g., Gilman 1979; Bokamba 1977, 1982; Stucky 1978; Mufwene 1979, 1988). This research is presented largely within the deviationist paradigm summarized earlier while taking cognizance of the inherent variability hypothesis. The authors provide sociolinguistic support for the hypothesis that language variation is both inherent and externally induced under conditions of language contact (Bloomfield 1933; Weinreich 1953; Weinreich, Labov & Herzog 1968.)

Over-all, research on language variation in the African context has made two major contributions to sociolinguistics theories with particular reference to the phenomena of language variation and change: (1) the provision of cross-linguistic data and descriptions thereof, and (2) the reaffirmation of the mechanisms of language variation, especially in pervasively multilingual societies. Perhaps the most important aspect of these contributions is the demonstration of the role played by non-linguistic factors in the structuring of language form.

2.4 Code-switching

Research on code-switching and code-mixing in the past has focused on the characterization of these phenomena from the socio-psychological and syntactic perspectives. Initially perceived as non-rule governed and pathological language behaviors by bilinguals (cf. Weinreich 1953; Lambert 1967; Gumperz 1967), code-switching and code-mixing, as defined below, have come to be regarded as natural and rule-governed behaviors that reflect the multilingual speaker's creativity (cf. Kachru 1978; Lipski 1978; Pfaff 1979; etc.).

Since the late 1970s research on bilingualism and multilingualism has provided a number of insightful findings about the nature and type of speech produced by speakers in bi- and multi-lingual communities. One of these findings is the determination that code-switching and code-mixing are two distinct aspects of the same general phenomenon of bi- and multi-lingual creativity triggered by specific conversational factors. Thus in view of the structural and psychological properties manifested and/or inferred from such linguistic behavior, the following operational definitions of these phenomena have been formulated and widely accepted (Sridhar & Sridhar 1980; Bokamba 1988, etc.):

   (6) *Code-switching* is the mixing of words, phrases and sentences from two distinct grammatical (sub-) systems across sentence boundaries within the same speech event. In other words, CS is intersentential switching.

   (7) *Code-mixing* is the embedding of various linguistic units such as affixes (bound morphemes), words (unbound morphemes), phrases and clauses from two distinct grammatical (sub-)systems within the same sentence and speech event. That is, CM is intrasentential switching.

For the purpose of this study, the focus will be on code-mixing (viz. definition 7).

Of the two research approaches that have been pursued with regard to code-mixing since the late 1970s, the most interesting and relevant from the perspective of this study has been the so-called syntactic constraints paradigm. The ultimate objective of this research paradigm which began in the mid-1970s is to provide a characterization of what is 'a possible sentence' in code-mixed speech (Gingras 1974; Pfaff 1979; Wentz 1977; Lipski 1978; Sridhar & Sridhar 1980; Sankoff & Poplack 1981; Poplack 1980, 1982; Woolford 1983; Ewing 1984; and Di Sciullo et al. 1986). Most of these studies, especially beginning with Lipski (1978), have attempted to address themselves to two fundamental questions: (1) how to describe and explain the morpho-syntactic characteristics exhibited in CM data; and (2) what kinds of psycholinguistic inferences can be drawn from the grammatical properties exemplified in code-mixed speech.

Several hypotheses have been advanced regarding the first question. First, it has been suggested that the production of well-formed code-mixed sentences necessitates the integration of the grammatical rules of the language pair involved in the speech event (Lipski 1978; Pfaff 1979; and Sridhar & Sridhar 1980). This integration is generally assumed to occur at the syntactic level, but may also extend to the morphological level (Gumperz 1982; Bokamba 1985, 1988, etc.), as illustrated in the Kin Lingala (KL) sentence (8), and the Puerto Rican English (PRE) sentence (9):

(8) KL: Mo-bali na yó **a-téléphon-àkà yó deux fois par jour**.
'Your husband calls you twice per day.' (Luambo, 1985)

(9) PRE: But I wanted to fight her **con los punos** you know.
'I wanted to fight her with my fists, you know.' (Poplack, 1980)

It is claimed in regard to facts such as these that, in the production of both sentences, the placement of the constituents from the guest language in each case (viz. French and Spanish, respectively) obeys the constituent structure of the host language (Lingala and English). In particular, the French verb root in (8) occurs precisely where a typical Lingala verb would appear, and it shows the characteristic subject-verb agreement and tense/aspect morphosyntactic markings. Further, the phrase *deux fois par jour* occurs in the same position where the equivalent Lingala phrase would have appeared. There is, however, a minor syntactic violation here in the placement of the numeral adjective before the modified noun *fois* , to which I shall return later. In sentence (9), the placement of the PP (prepositional phrase) *con los punos* is similarly consistent with the rules of English syntax.

The analysis of sentences such as (8) and (9), however, has not posed any problems for researchers, especially in view of the fact that little attention has been paid to derivational questions. What has concerned specialists in CM the most are putatively ill-formed utterances such as the following:

(10) a. *I want a motorcycle **verde**. (Pfaff, 1979)
'I want a green motorcycle.'
b. *El hombres car. 'The man's car' (Sankoff & Poplack, 1981).
c. She sees **lo**. 'She sees it.' (Timm, 1975).
d. *Yo went. 'I went' (Timm, 1975).
e. *EAT-**iendo**. 'Eating' (Poplack, 1980).
f. I told him that ram bahut bimar hai. (Di Sciullo et al., 1986
                    Ram very sick Aux
          {*ki
            that }
'I told him that Ram was very sick.'
g. **mujhe lagta hai Ram** will come tomorrow
                    {ki
                     *that }
me seem Aux
'I feel that Ram will come tomorrow.' (Di Sciullo et al., 1986)

Sentence (10a) is said to be unacceptable because of the occurrence of the Spanish adjective *verde* in an adjectival NP controlled by English; (10b) violates a similar restriction in that the English noun *car* occurs in a Spanish genitival NP. The next two sentences (10c,d) are ill-formed because the occurrence of an object and subject pronouns, respectively, in an otherwise English sentence. (10e) violates the restriction against the mixing of bound and free morphemes from two different languages, whereas (10f) and (10g) violate the complementizer constraint.

To account for the ungrammaticality and/or non-attestation of sentences such as these, several language-specific and general surface morpho-syntactic constraints have been proposed. They include the following constraints which are commonly viewed as general or universal restrictions on CM: (1) the-size-of-constituent constraints (Gumperz & Hernávez 1975; Poplack 1989), (2) the conjunction and/or complementizer constraints (Gumperz 1977; Kachru 1978; Singh 1981; Di Sciullo et al. 1986), (3) the adjectival phrase constraint (Pfaff, 1979), (4) the clitic pronoun constraint (Pfaff 1979), (EC) (Lipski 1978; Poplack 1980, 1982); and (7) the dual structure principle (DSP) (Sridhar & Sridhar 1980).[5] To my knowledge, all these constraints have been invalidated on the basis of either language-specific and/or cross-linguistic data (Bokamba 1987; Kamwangamalu 1989).

Research on CM in African languages by scholars such as Nartey (1982), Scotton (1983b, 1987), Bokamba (1987, 1988), and Kamwangamalu (1989), among others, has made significant contribution to the analysis and understanding of the phenomenon of code-mixing by demonstrating not only its morphological and syntactic complexity when the language-pairs comprise African languages, but also the invalidity of the putative universal syntactic constraints proposed on the basis of English-Spanish data (cf. Nartey 1982, Scotton 1983b, Bokamba 1987, 1988; Kamwangamalu 1989). These studies, especially Bokamba & Kamwangamalu (1988), and Kamwangamalu (1989), have further raised very interesting questions concerning the processing of code-mixed speech and its implications for syntactic theory. Bokamba (1988), for example, proposes an innovative model in which the production/processing of code-mixed speech across languages is analogized to the processing of cross-dialectal speech within an individual's code repertoire. He argues in essence that the main differences between the two cases lie in the manner in which the brain treats the lexicon and morphosyntactic rules, but not in the actual encoding and decoding of the messages. He suggests further that the multilingual lexica internalized by the code-mixer is treated as a thesaurus that can be accessed simultaneously, whereas the syntax of each language is treated separately and is accessed either sequentially or simultaneously depending on the type of speech (i.e., monolingual or mixed) is being processed (Bokamba 1988).

2.5 Summary

To summarize this part of the study, I began by pointing out the difficulties involved in the delimitation of the field of sociolinguistics. During the discussion

I have attempted to demonstrate that sociolinguistics is a macro-field consisting of several major subfields which have different research objectives and utilize different analytical frameworks. As a macro-field, it is impossible to make it amenable to a single theory or approach. The development of these different approaches to the study of language in its social context has been considerably aided by research on African and non-African languages such as English and French. Perhaps the most important contributions made by Africanist scholars has been in language planning and code-mixing where established paradigms have been seriously questioned and shown to be inadequate.

3. Research agenda for the 1990s

Having now reviewed critically the research on four major areas of sociolinguistics, we are now led to raise the question of where to go from here. What, in other words, should be the direction for future research and what should the contribution of Africanist scholars be in this regard? These questions entail first and foremost an examination of the significance of sociolinguistic research to the entire enterprise of the linguistic sciences to which I now turn.

3.1 Significance of sociolinguistic research

It is commonly argued that the ultimate objective of linguistic research is the construction of a general theory of language knowledge: What is it that a person knows when (s)he knows a language. The attempt to discover and characterize this internal knowledge takes different directions and dimensions which have commonly been recognized as fields and subfields of linguistics: phonetics, phonology, morphology, syntax, semantics, historical linguistics, psycholinguistics, sociolinguistics, etc. In order to provide a descriptively adequate theory of language knowledge, linguists must examine both linguistic and related non-linguistic factors exemplified by the classical dichotomy of competence/performance, because the interplay of these factors encompasses what we know intuitively as language knowledge. Further, such a study from this kind of perspective is bound to be more insightful than one that restricts itself to one of these factors or dimensions, contrary to Chomsky (1965) pronouncements.

In my considered opinion, there is no better subfield of linguistics to undertake this kind of research than sociolinguistics. The reasons for this are not difficult to find: sociolinguistics deals with the study of language structure, function, and usage in social context. It, therefore, subsumes the study of aspects of phonology, phonetics, morphology, syntax, and semantics. In this regard it reflects better than any other subfield of linguistics, the totality of language knowledge.

3.2 Role of African(ist) linguists

If the view offered here is correct, then African(ist) linguists have a major and essential role to play in the advancement of linguistics. With its estimated 1900 languages (Bendor-Samuel & Hartell 1989), Africa constitutes both a gold mine

and an unparalleled laboratory for linguistic discoveries and research. India, with its estimated 1600 plus languages is the closest competitor. What the facts of multilingualism in Africa indicate in practical terms is that African(ist) linguists are in a much better position to undertake sociolinguistic research of all sorts, because they understand better than anyone else the issues of multilingualism and should, therefore, be able to provide needed insight to this phenomenon and others that it entails. Thus far African(ist) linguists have done relatively little in the study of individual and societal multilingualism.

Research in sociolinguistic is a necessity for Africanists not simply on the account of theoretical considerations, but also and perhaps more importantly, because of practical considerations. African linguists must understand sociolinguistics in order to deal adequately with the various issues raised by multilingualism: language variation, pidginization/creolization, language policy and planning vis-à-vis education, language and literacy, second/foreign language teaching and acquisition, language and communication, language and developments of all sorts, including cultural, political and economic. The study of various aspects of multilingualism constitutes the agenda for the 1990s. If we do not undertake it, who else will and with what understanding of the issues involved? If we engage in such research, the practical benefits to be accrued will be considerable, and the role that African linguistics will play in the evolution of a sound and cross-linguistically informed theory of sociolinguistics will be pivotal as has been the case in contemporary phonological theory (see Goldsmith, this issue) and is increasingly becoming the case in syntactic theory (see Bresnan, this issue).

NOTES

[*]I am indebted to Braj B. Kachru and Salikoko S. Mufwene for comments on an earlier version of this paper. I alone, however, am responsible for the analysis presented here.

[1] Unless otherwise specified, I will use the term code-switching in this study in its generic sense to cover both intersentential and intrasentential language switching which are defined in (6) and (7) below.

[2] Fasold is alluding here to the British school of linguistics which views sociolinguistics and general linguistics as two aspects of the same, rather than separate, fields. This perspective is exemplified in the works of Firth (1957), Halliday (1973, 1974), and Hudson (1980).

[3] Clements' grouping of sociolinguistics theses include research on Pidgin and Creole languages which this study has excluded because of space limitations. Some scholars consider this area of study as a separate/distinct (sub)field from sociolinguistics (e.g., Mufwene, in personal communication), while others view it as an integral aspect of sociolinguistics (Hudson 1980;

Fasold 1984, 1990; Wardhaugh 1986; B. Kachru (in personal communication), and this writer).

[4] An interesting finding/datum is that those who claimed knowledge of English learned it at school, whereas "almost all [those] claiming ability in Swahili reported learning it on their own" (p. 119). Hence the latter learning mode is likely to contribute more to the spread of Swahili than the restrictive classroom learning mode.

[5] Of these syntactic constraints and principles on code-mixing, the last five have been treated in the literature as if they were universal. They are stated as follows:

(a) *The Adjectival [Noun] Phrase Constraint*: Adjective/noun mixes must match the surface word order of both the language of the adjective and the language of the head [noun]. (Pfaff 1979:306).

(b) *The Clitic Pronoun Constraint:* Clitic pronoun objects are realized in the same language as the verb to which they are cliticized, and in the same position required by the syntactic rules of that language (Pfaff 1979:303).

(c) *The Free Morpheme Constraint*: Codes may be switched after any constituent in discourse provided that [that] constituent is not a bound morpheme (Poplack 1980:585-86).

(d) *The Equivalence Constraint*: Code-switches tend to occur at points in discourse where the juxtaposition of L1 and L2 elements does not violate a syntactic rule of either language, i.e., at points around which the surface structures of the two languages map on to each other (Poplack 1980:586).

(e) *The Dual Structure Principle*: The internal structure of the guest constituent need not conform to the constituent structure rules of the host language, so long as its placement in the host sentence obeys the rules of the host language (Sridhar & Sridhar 1980:412).

REFERENCES

AFOLAYAN, A. 1978. Towards an adequate theory of bilingual education for Africa. International Dimensions of Bilingual Education. Georgetown University Round Table Conference on Languages and Linguistics (GURT 1978), ed. by J.E. Alatis, 330-390. Washington, D.C.: Georgetown University Press.

ALEXANDRE, P. 1963. Les problèmes linguistiques africaines vus de Paris. Language in Africa, ed. J. Spencer, 53-59. London: Cambridge University Press.

_____. 1967. Langues et langages en Afrique noire. Paris: Payot.

ANSRE, G. 1969. The need for a specific and comprehensive policy on the teaching of Ghanaian languages, ed. by J.R. Birnie & G. Ansre, 5-11.

_____. 1976. Four rationalizations for maintaining the European languages in education in Africa. Paper presented at the International Seminar on African languages in education; Kinshasa, Zaire. Mimeographed.

APRONTI, E. 1974. Sociolinguistics and the question of a national language: The case of Ghana. Studies in African Linguistics, Supplement 5, 1-20.

AWONIYI, T. A. 1976. Mother tongue education in West Africa: A historical background, ed. by A. Bamgbose, 27-42.

BAMGBOSE, A. (ed.) 1976. Mother Tongue education: The West African experience. London: Hodder and Stoughton.

BARNES, V. A. 1982. A review of literature on efficiencies in primary education for Sub-Saharan Africa. Paper presented at the A.I.D. seminar on education training in Africa; Baltimore, Maryland, March 1982.

BATES M., & Dudley-Evans A. 1975. Notes on the introduction of English courses for students of science and technology of the University of Tabriz, Iran. ELT Documents (74/4), London.

BENDER, M. L. 1986. Ethiopian language policy 1974-81. Anthropological Linguistics 27.273-79.

_____, J. D. Bowen, R. L. Cooper, & C. A. Ferguson (eds.) 1976. Language in Ethiopia. London: Oxford University Press.

BENDOR-SAMUEL, J., & R. L. Hartell (eds.) 1989. The Niger-Congo languages: A classification and description of Africa's largest language family. Lanham, MD: University Press of America.

BERNSTEIN, J. G. 1990. The integration of loans in Shona: Social correlates and linguistic consequences. Michigan State University at East Lansing Ph.D. dissertation in Linguistics.

BHOLA, H. S. 1990. An overview of literacy in Sub-Sahara Africa — Images in the making. African Studies Review 33:3. Special Issue for the International Year of Literacy, ed. by H. S. Bhola.

BIRNIE, J. R., & G. Ansre (eds.) 1969. Proceedings of the Conference on the Study of Ghanaian Languages. Legon: Ghana Publishing Corp.

BLOOMFIELD, L. 1933. Language. New York: Holt, Rinehart and Winston.

BOKAMBA, E. G. 1976. Authenticity and the choice of a national language: The case of Zaire. Présence Africaine 99/100:104-43.

_____. 1977. The impact of multilingualism on language structures: The case of Central Africa. Anthropological Linguisitcs 19:5.181-202.

_____. 1981. Language and development in Sub-Saharan Africa: A progress report. Studies in the Linguistic Sciences 11:1.1-26.

_____. 1982. The Africanization of English. The Other Tongue: English Across Cultures, ed. by Braj B. Kachru, 77-98. Champaign, IL: University of Illinois Press.

_____. 1984a. Language and literacy in West Africa. Annual Review of Applied Linguistics 1983, ed. by Robert B. Kaplan, 40-75. Rowley, MA: Newbury House Publishers.

_____. 1984b. French colonial language policy in Africa and its legacies. Studies in the Linguistic Sciences 14:2.1-36.

_____. 1986. Education and development in Zaire. The Crisis in Zaire: Myths and Realities, ed. by Nzongola-Ntalaja, 191-218. Trenton, NJ: Africa World Press.

_____. 1987. Are there syntactic constraints on code-mixing? Variation in Language: NWAV-15 at Stanford, ed. by Keith M. Denning, et al., 34-51. Stanford, CA: Department of Linguistics, Stanford University. Reprinted in Tej K. Bhatia & William Ritchie (eds.) Code-Mixing: English Across Languages. Special issue of World Englishes 8:3.277-92.

_____. 1988. Code-mixing, language variation, and linguistic theory: Evidence from Bantu languages. Lingua: International Journal of General Linguistics 71:1.21-62.

_____. 1991. [English in] West Africa. English Around the World: Sociolinguistic Perspectives, ed. by Jenny Cheshire, 493-508. London Cambridge University Press.

_____. In press. African English. The Oxford Companion to the English Language, ed. by Tom McArthur. Oxford: Oxford University Press.

_____, & J. S. Tlou. 1977. The consequences of the language policies of African states vis-à-vis education. Language and Linguistic Problems in Africa, ed. by Haig der Houssikian & Paul A. Kotey, 35-53. Columbia, S.C: Hornbeam Press. Reprinted in Kahombo Mateene & John Kalema (eds.) 1980. Reconsideration of African Linguistic Policies. Kampala, Uganda: The OAU Inter-African Bureau of Languages, 43-66.

BROSNAHAN, L. F. 1963. Some historical cases of language imposition. Language in Africa, ed. by John Spencer, 7-24. Cambridge: Cambridge University Press.

CALVET, L-J. 1982. The spread of Mandingo: Military, commercial, and colonial influence on a linguistic datum. Language Spread: Studies in Diffusion and Social Change, ed. by Robert L. Cooper, 184-97. Bloomington, IN: Indiana University Press.

CHAMPION, J. 1974. Les langues africaines et la francophonie. Paris: Mouton.

CHESHIRE, J. (ed.) 1991. English around the world: Sociolinguistic perspectives. London: Cambridge University Press.

CHISHIMBA, M. M. 1984. African varieties of English: Text in context. University of Illinois at Urbana-Champaign unpublished Ph.D. dissertation in Linguistics.

_____. 1991. [English in] Southern Africa, In Jenny Cheshire, ed. op. cit., 435-45.

CHOMSKY, N. 1965. Aspects of the theory of syntax. Cambridge, MA: M.I.T. Press.

CHRISTIAN, D. 1989. Language planning: The view from linguistics. Linguistics: The Cambridge Survey IV: Language, The Socio-Cultural Context, ed. by Frederick J. Newmeyer, 193-209. Cambridge: Cambridge University Press.

CLEMENTS, G. N. 1989. African linguistics and its contribution to linguistic theory. In Eyamba G. Bokamba, Rick E. Treece, and Dorothy E. Evans (eds.) The Contribution of African Linguistics to Linguistic Theory: Proceedings of the

20th ACAL, Vol 1. Special Issue of Studies in the Linguistic Sciences 19:2.3-42.

COLE, D. T. 1971. The history of African linguistics to 1945. In Thomas A. Sebeok, ed. op. cit., 1-29.

CONFERMEN. 1986. Promotion et intégration deslangues nationales dans les systèmes éducatifs. Paris: UNESCO.

COOPER, R. L. 1978. The spread of Amharic in Ethiopia. Advances in the Study of Societal Multilingualism, ed. by Joshua A. Fishman, 459-76. The Hague: Mouton.

_____, & S. Carpenter. 1976. Language in the market. Language in Ethiopia, ed. by M. L. Bender, et al., 244-55. London: Oxford University Press.

_____. 1982a. A framework for the study of language spread. In Robert L. Cooper (ed.), 5-36.

_____. (ed.) 1982b. Language spread: Studies in diffusion and social change. Bloomington, IN: Indiana University Press.

_____. 1989. Language planning and social change. Cambridge: Cambridge University Press.

DAS GUPTA. 1973. Language planning and public policy: Analytical outline of the policy process related to language planning in India. Georgetown University Roundtable Conference on Languages and Linguistics, ed. by Roger Shuy, 157-65.

DI SCIULLO, A. M., P. Muysken, & R. Singh. 1986. Government and code-mixing. Journal of Linguistics 22:1-24.

DUMONT, P. 1983. Le francais et les langues africaines au Senégal. Paris: Editions Karthala.

EASTMAN, C. M. 1983. Language planning: An introduction. San Francisco: Chandler & Sharp Publishers.

EWING, A. 1984. Polish-English code-switching: A clue to constituent structure and processing mechanism. Papers from the Regional Meeting of the Chicago Linguistic Society, ed by J. Drogo, V. Mishra, & D. Testen, 52-64. Chicago: Department of Linguistics, University of Chicago.

FABIAN, J. (1986). Language and colonial power: The appropriation of Swahili in the Belgian Congo 1880-1938. Cambridge: Cambridge University Press.

FASOLD. 1984. The sociolinguistics of society. Oxford: Basil Blackwell.

_____. 1990. The sociolinguistics of language. Oxford: Basil Blackwell.

FELLMAN, J. 1974. The role of Eliezer Ben Yehuda in the revival of the Hebrew language: An assessment, ed. by J. A. Fishman, 427-55.

FERGUSON, C. A. 1968. Language development. In J. A. Fishman, C. A. Ferguson, & J. Das Gupta (eds.), 27-36.

FIRTH, J. R. 1957. Papers in Linguistics 1934-51. London: Oxford University Press.

FISHMAN, J. A. 1968. Some contrasts between linguistically homogeneous and linguistically heterogeneous polities. In J. A. Fishman, C. A. Ferguson, and J. Das Gupta (eds.), 53-68.

_____, C. A. Ferguson, & J. Das Gupta (eds.) 1968. Language problems of developing nations. New York: John Wiley & Sons.

_____. 1969a. National languages and languages of wider communication in the developing nations. Anthropological Linguistics 11:111-135 (Bloomington, Indiana)

_____. 1972a. The relationship between micro- and macro-sociolinguistics in the study of who speaks what language to whom and when. Sociolinguistics, ed. by J. B. Pride & J. Holmes, 15-32. Harmondsworth, U.K.: Penguin Books.

_____. 1972b. Language and nationalism: Two integrative essays. Rowley, MA: Newbury House.

_____. 1974. A sociology of bilingual education. Final Report to Div. of Foreign Studies, HEW-OE, OECO-73-0588.

_____, R. L. Cooper, & A. W. Conrad. (eds.) 1977. The spread of English: The sociology of English as an additional language. Rowley, MA: Newbury House.

FOSTER, P. J. 1971. Problems of literacy in Sub-Saharan Africa. In T.A. Sebeok, ed. op. cit., 587-617.

GILES, H., D. Taylor, & R. Bourhis. 1973. Towards a theory of interpersonal accommodation through speech: Some Canadian data. Language in Society 2.177-92.

_____, & P. M. Smith. 1979. Accommodation theory: Optimal levels of convergence. Language and social psychology, ed. by H. Giles & R. St. Clair, 45-65. Oxford: Basil Blackwell.

GILMAN, C. 1979. Convergence in Lingala and Zairean Swahili. Anthropological Linguistics 21.99-109.

GINGRAS, R. C. 1974. Problems in the description of Spanish-English intrasentential code-switching. Southwest Areal Linguistics, ed. by G. Bills, 167-74. San Diego, CA: Institute for Cultural Pluralism.

GORMAN, T. P. 1974. The development of language policy in Kenya with particular reference to the educational system. In W. H. Whiteley (ed.), 397-453.

GREENBERG, J. H. 1965. Urbanism, migration, and language. Urbanization and Migration in West Africa, ed. by H. Kuper, 50-59.

GUMPERZ, J. J. 1967. On the linguistic markers of bilingual communication. Journal of Social Issues 23.48-57.

_____. 1982. The sociolinguistic significance of conversational code-swithcing. Discourse Strategies, 55-99. Cambridge: Cambridge University Press.

_____, & E. Hernández-Chavez. 1975. Cognitive aspects of bilingual communication. El Lenguaje de los Chicanos, ed. by E. Hernández-Chavez and A. Beltramo, 154-63. Arlington, VA: Center for Applied Linguistics.

GUY, G. R. 1980. Variation in the group and the individual: The case of final stop deletion. Locating Language in Time and Space, ed. by W. Labov, 1-36. New York: Academic Press.

_____. 1989. Language and social class. Linguistics: The Cambridge Survey, Vol. IV. Language: The Socio-Cultural Context, ed. by F. J. Newmeyer, 37-63. Cambridge: Cambridge University Press.

_____, B. Horvath, J. Vonwiller, E. Daisley, & I. Rogers. 1986. An intonational change in progress in Australian English. Language in Society 15:1.23-51.

HANCOCK, I. F. 1971. A study of the sources and development of the lexicon on Sierra Leone Krio. SOAS, University of London unpublished Ph.D. dissertation in Linguistics.

———. 1979. Readings in Creole Studies. Ghent: Story Scientia.

———. 1986. The domestic hypothesis, diffusion, and componentiality: An account of Atlantic Anglophone creole origins. Substrata Versus Universals in Creole Genesis, ed. by P. Muysken and N. Smith, 71-102. Amsterdam: John Benjamins Publishing Co.

———, & R. Angogo. 1982. English in East Africa. English as a World Language, ed. by R. Bailey and M. Gorlarch, 306-23. Ann Arbor: University of Michigan Press.

———, & R. Angogo. 1979. African English: Converging or diverging varieties?

HANSFORD, K., J. Bendor-Samuel, & R. Stanford. 1976. Index of Nigerian Languages. Ghana: Summer Institute of Language.

HAUGEN, Einar. 1966. Dialect, language, nation. American Anthropologist 68:922-935 (Menasha, Wisconsin).

———. 1983. The implementation of Corpus Planning: Theory and practice. Progress in language planning: International perspectives, ed. by Juan Cobarrubias and Joshua Fishman, 269-89. Berlin: Mouton.

HEINE, B. 1970. Status and use of African languages. Munchen: Weltforum Verlag.

HUDSON, R. A. 1980. Sociolinguistics. Cambridge: Cambridge University Press.

HULSTAERT, G. 1946. Les langues indigènes et les Européens au Congo. African Studies 5:126-35.

HYMES, D. 1973. The scope of sociolinguistics. Georgetown University 23rd Annual Round Table. Sociolinguistics: Current Trends and Prospects, ed. by R. W. Shuy, 313-334. Washington, D.C.: Georgetown University Press.

———. 1974. Foundations in Sociolinguistics. Philadelphia: University of Pennsylvania Press.

KACHRU, B. B. 1978. Code-mixing as a communicative strategy in India. International Dimensions of Bilingual Education. GURT, ed. by J. E. Alatis, 107-124. Washington, D.C.: Georgetown University Press.

———. 1982a. The bilingual's linguistic repertoire. International Bilingual Education: The role of the vernacular, ed. by B. Hartford & A. Valdman, 25-52. New York: Plenum.

———. 1983. The Indianization of English: The English language in India. Delhi: Oxford University Press.

———. 1986. The alchemy of English: The spread, functions, and models of non-native Englishes. Oxford: Pergamon Press.

———. (ed.) 1982b. The other tongue: English across cultures. Champaign, IL: University of Illinois Press.

KAHANE, H., & R. Kahane. 1979. Decline and survival of Western prestige languages. Language 55:1.183-98.

KAMWANGAMALU, N. M. 1987. French-vernacular code-mixing in Zaire: Implications for syntactic constraints. Papers from the 23rd Regional Meeting of the Chicago Linguistic Society, 166-80. Chicago: Department of Linguistics, University of Chicago.

_____. 1989. Code-mixing across languages: Structure, functions, and constraints. University of Illinois at Urbana-Champaign unpublished Ph.D. dissertation in Linguistics.

KAPANGA, M. T. 1991. Language variation and change: A case study of Shaba Swahili. University of Illinois at Urbana-Champaign unpublished Ph.D. dissertation in Linguistics.

KARAM, F. X. 1974. Towards a definition of language planning. Advances in language planning, ed. by J. A. Fishman. The Hague.

KASHOKI, M. E. 1978. The language situation in Zambia. In S. Ohannessian and M. E. Kashoki (eds), 9-46.

KAZADI, N. (ed.) 1987. Utilisation des langues nationales: Actes du colloque sur les langues nationales; Kinshasa, [Zaire], 11-16 mars 1985. Linguistique et Sciences Humaines 27, no spécial. Kinshasa: CELTA.

KENNEDY, C. 1982. Language planning. Language Teaching 15.266-73.

_____. 1984. Language planning and language education. London: George Allen and Unwin.

KING, R. D. 1969. Historical Linguistics and Generative Grammar. New Jersey: Prentice Hall.

LABOV, W. 1966. The social stratification of English in New York City. Washington, D.C.: Center for Applied Linguistics.

_____. 1972a. Language in the inner city. Philadelphia: University of Pennsylvania Press.

_____. 1972b. Sociolinguistic patterns. Philadelphia: University of Pennsylvania Press.

_____. (ed.) 1980. Locating language in time and space. New York: Academic Press.

LADEFOGED, P. R. Glick, & C. Criper. 1971. Language in Uganda. Nairobi: Oxford University.

LAMBERT, W. E. 1967. A social psychology of bilingualism. Journal of Social Issues 23.91-109.

LANHAM, L. W., & C. A. Mcdonald. 1985. The standard in South African English. Heidelberg: Groos.

LIPSKI, J. 1978. Code-switching and the problem of bilingual competence. Aspects of Bilingualism, ed. by M. Paradis, 250-264.

LUAMBO, M. F. 1985. Très impoli [a 33 RPM album]. Bruxelles: African Sun Music.

MAGURA, B. J. 1984. Style and meaning in Southern African English. University of Illinois, Urbana-Champaign unpublished Ph.D. dissertation in Linguistics.

MARSHAD, H. 1984. An approach to code elaboration and its application to Swahili. University of Illinois, Urbana-Champaign unpublished Ph.D. dissertation in Linguistics.

MATEENE, K. 1980. Failure in the obligatory use European languages in Africa and the advantages of a policy of linguistic independance. In K. Mateene and J. Kalema (eds.), 9-44.

_____, & J. Kalema. (eds.) 1980. Reconsideration of African linguistic policies. Kampala: OAU-Bureau of Languages.

MAZRUI, A. A., & P. Zirimi. 1978. Church, state and marketplace in the spread of Kiswahili: Comparative educational implications. Case Studies in

Bilingual Education, ed. by B. Spolsky and R. L. Cooper, 427-53. Rowley, MA: Newbury House.

MCARTHUR, T. In press. The Oxford companion to the English language. Oxford: Oxford University Press.

MUFWENE, S. S. 1979. Some grammatical changes and variations in Kikongo-Kituba and their implications for language planning. Paper read at the 10th ACAL, University of Illinois, Urbana-Champaign (April).

_____. 1988. Formal evidence of pidginization/creolization in Kituba. Journal of African Languages and Linguistics 10.33-51.

_____. 1989. La créolisation en bantou: Les cas di kituba, du lingala urbain, et du swahili du Shaba. Etudes Créoles 12.74-106.

MUMBANZA, B. 1973. Y a-t-il des Bangala? Zaire-Afrique 78.471-83.

_____. 1974. Les Bangala du fleuve sont-ils apparentés au Mongo? Zaire-Afrique 90.625-32.

_____. 1980. Histoire des peuples riverains de l'entre Zaire-Ubangi: Evolution sociale et économique (ca. 1700-1930). Thèse doctorale; Université Nationale du Zaire, Lubumbashi.

NARTEY, J. A. 1982. Code-switching, interference or fadism: Language use among educated Ghanaians. Anthropological Linguistics 24.183-92.

NDOMA, U. 1977. Some aspects of planning language policy in education in the Belgian Congo: 1906-1960. Northwestern University at Evanston, Illinois unpublished Ph.D. dissertation in Linguistics.

NEUSTUPNY, J. V. 1974. Basic types of language treatment of language problems. Advances in language planning, ed. by J. A. Fishman, 37-48.

_____. 1983. Towards a paradigm for language planning. Language Planning Newsletter 9:4.1-4.

NURSE, D., & T. Hinnebusch. In press. Swahili and Sabaki: A linguistic history. Berkeley: University of California Press.

OHANNESSIAN, S., & M. E. Kashoki (eds.) 1978. Language in Zambia. London: International African Institute.

PFAFF, C. W. 1979. Constraints on language mixing. Language 55.291-318.

POLOMÉ, E. C., & C. P. Hill. 1980. Language in Tanzania. London: Oxford University Press.

POPLACK, S. 1980. Sometimes I'll start a sentence in Spanish y termino en Espanol: Toward a typology of code-switching. Linguistics 18.581-618.

_____. 1982. Bilingualism and the vernacular. In B. Hartford and A. Valdman, eds., op. cit., 1-23.

_____. 1989. Language status and language accommodation along a linguistic border. GURT '87. Language Spread and Language Policy: Issues, implications, and case studies, ed. by P.H. Lowenberg, 90-118. Washington, D.C.: Georgetown University Press.

ROMAINE, S. 1982. Sociolinguistic variation in speech communities. London: Edward Arnold.

_____. 1988. Pidgin and creole languages. London: Longman.

_____. 1982. Colonization and pidginization on the Ubangi River. Journal of African Languages and Lingusitics 4.1-42.

_____. 1984/1985. Communication by Ubangian water and word. Sprache und Geschichte in Afrika 6.309-73.

_____. 1986. Protestant missions and the history of Lingala. Journal of Religion in Africa 16.138-63.

_____. 1989. The Black man's burden: African colonial labor on the Congo and Ubangi rivers, 1880-1900. Boulder, CO.: Westview Press.

RUBIN, Joan, & B. H. Jernudd. 1971. Can language be planned? Honolulu: University of Hawaii Press.

SAMARIN W. J. 1966. A grammar of Sango. The Hague: Mouton.

_____. 1982a. Colonization and pidginization on the Ubangi River. Journal African Languages and Linguistics 4.1-42.

_____. 1982b. Goals, roles, and skills in colonizing Central Equatorial Africa. Anthropological Linguistics 24.410-22.

_____. 1984/1985. Communication by Ubangi water and word. Sprache und Geschiste in Afrika 6.309-373.

_____. 1986. Prostestant missions and the history of Lingala. Journal of religion in Africa 16.138-63.

_____. 1989a. 'Official language': The case of Lingala. Status and Function of Languages and Language Varieties, ed. by Ulrich Ammon, 386-98. Berlin: Walter de Gruyter.

_____. 1989b. The Black man's burden: African colonial labor on the Congo and Ubangi rivers, 1880-1900. Boulder, Co: Westview Press.

SANKOFF, D., & S. Poplack. 1981. A formal grammar of code-switching. Papers in Linguistics 14.3-46.

SAVILLE-TROIKE, M. 1982. The ethnography of communication: An introduction. Oxford: Basil Blackwell.

SCOTTON, C. M. 1971. Towards a sociolinguistic theory of choosing a lingua franca (a system of costs and rewards where Swahili is often a "best buy"). Studies in African Linguistics. Supplement 2, 109-30.

_____. 1972. Choosing a lingua franca in an African capital. Edmonton, Canada: Linguistic Research, Inc.

_____. 1978. Language in East Africa: Linguistic patterns and political ideologies. Advances in the Study of Societal Multilingualism, ed. by J. A. Fishman, 719-60. The Hague: Mouton.

_____. 1979. Elite closures as boundary maintenance: The case of Africa. Manuscript.

_____. 1982. Learning lingua francas and socioeconomic integration: Evidence from Africa. In R. L. Cooper, ed., op.cit., 63-94.

_____. 1983. Roots in Swahili? A locative copula becomes a stative marker. Paper read at the LSA Annual Meeting; Minneapolis, Minnesota.

_____. 1988. Code-switching and types of multilingual communities. In P. H. Lowenberg, ed., op. cit., 61-82.

SEBEOK, T. A. (ed.) 1971. Current Trends in Linguistics, vol 7: Linguistics in Sub-Saharan Africa. The Hague: Mouton.

SEY, K. A. 1973. Ghanaian English: An exploratory survey. London: Macmillan.

SEYOUM, Mulugeta. 1989. The development of the national language policy in Ethiopia. Georgetown University unpublished Ph.D. dissertation in Linguistics.

SINGH, R. 1981. Grammatical constraints on code-switching. Recherches Linguistiques à Montréal 17:155-63.

SPENCER, J. (ed.) 1963. Language in Africa. London: Cambridge University Press.

_____. 1971a. Colonial languages and their legacies. In T. A. Sebeok, ed., op.cit., 537-47.

_____. 1971b. West Africa and the English language. In J. Spencer, ed., op. cit., xzw.

_____. (ed.) 1971c. The English language in West Africa. London: Longman.

SRIDHAR, S. N., & K. K. Sridhar. 1980. The syntax and psycholinguistics of bilingual code-mixing. Canadian Journal of Psychology 34.407-16.

STUCKY, S. U. 1978. How a noun class system may be lost: Evidence from Kituba (Lingua franca Kikongo). Studies in the Lingustics Sciences 8:1.216-33.

STUMPF, R. 1979. La politique linguistique au Cameroun de 1884-1960: Comparaison entre les administrations coloniales allemande, francaise, et britannique et du role joué par les sociétés missionnaires. Berne, W. G.: Peter Lang.

TABOURET-KELLER, A. 1968. Sociological factors of language maintenance and language shift: A methodological approach based on European and African examples. In Fishman, Ferguson, and Das Gupta, op. cit., 107-18.

TIMM, L. A. 1975. Spanish-English code-switching : El proque y how not-to. Romance Philology 28.473-82.

TRUDGILL, P. 1983a. On dialect. Oxford: Basil Blackwell.

_____. 1983b. Sociolinguistics: An introduction to language and society. Revised edition. Harmondsworth: Pelican.

TURCOTTE, D. 1981a. La politique linguistique en Afrique francophone: Une étude comparative de la Cote d'Ivoire et de Madagascar. Québec: Presses de l'Université Laval.

_____. 1981b. Repertoire chronologique de la politique linguistique en Afrique francophone. Manuscript.

UNESCO. 1981. Statistical Yearbook. Paris: UNESCO

_____. 1988. Compendium of statistics on illiteracy. Paris: UNESCO

WARDHAUGH, R. 1986. An introduction to sociolinguistics. Oxford: Basil Blackwell.

WEINREICH, U. 1953. Languages in contact: Findings and problems. The Hague: Mouton Publishers.

_____, W. Labov, & M. Herzog. 1968. Empirical foundations for a theory of language change. Directions for Historical Linguistics, ed. by W. P. Lehmann & Y. Malkiel, 95-188. Austin, TX.: University of Texas Press.

WENTZ, J. 1977. Some considerations in the development of a syntactic description of code-xwitching. University of Illinois at Urbana-Champaign unpublished Ph.D. dissertation in Linguistics.

WHITELEY, W. H. 1969. Swahili: The rise of a national language. Studies in African History 3. London: Methuen.

_____. 1971a. Some factors influencing language policies in East Africa. Can language be planned? ed. by J. Rubin & Bjorn Jernudd, 141-58. Honolulu: University of Hawaii Press.

_____. 1971b. Language policies of independent African states. In T. A. Sebeok, ed., op. cit., 548-58.

_____. (ed.) 1971c. Language use and social change: Problems of multilingualism with special reference to Eastern Africa. Studies presented and discussed at the ninth International African Seminar at the University College, Dar es Salaam [Tanzania], December 1968. London: Oxford University Press.

_____. 1974. Language in Kenya. Nairobi: Oxford University Press.

WILT, T. 1988. Bukavu Swahili: A sociolinguistic study of language change. Michigan State University at East Lansing unpublished Ph.D. dissertation in Linguistics.

WOOLFORD, E. 1983. Bilingual code-switching and syntactic theory. Linguistic Inquiry 14.520-35.

WORLD BANK. 1981. Accelerated development in Sub-Saharan Africa. Washington, D.C.: The World Bank.

YATES, B. 1980. The origins of language policy in Zaire. Journal of Modern African Studies 18.257-79.

_____. 1981. Educating Congolese abroad: An historical note on an African elite. The International Journal of African Historical Studies 14:1.34-64.

AFRICAN LANGUAGES AND SYNTACTIC THEORIES[*]

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Linguistic research on African languages has led to a number of discoveries that have important implications for syntactic theories. Nevertheless, this research has not yet had the same revolutionary impact upon syntax that Africanist research has had on phonology, where a fundamental restructuring of phonological theories was brought about. After a review of some of the syntactic research, I will discuss possible directions for the future. The four cases I will review are (1) logophoricity; (2) topic, pronoun, and agreement; (3) hierarchies and argument asymmetries; and (4) the syntax of verbs.

Case 1: Logophoricity

The phenomenon of logophoricity first came to the attention of theoretical syntacticians in the 70's with the report in work by Hagège (1974) and Clements (1975) that some West African languages have a morphologically distinct series of pronouns whose use differs from both personal pronouns and reflexive pronouns. These 'logophoric' pronouns are used in particular indirect discourse contexts to represent the speech, consciousness, or point of view of a person other than the speaker. Clements' work, "The Logophoric Pronoun in Ewe: Its Role in Discourse," published in the *Journal of West African Languages* in 1975, showed quite clearly that the phenomenon cannot be explained in terms of standard syntactic analysis, either by deriving the logophoric pronouns from underlying first person pronouns, or by analyzing their antecedents as the 'deep' or 'logical' subject at an underlying level of syntactic structure. Clements also suggested that certain puzzling properties of the reflexive pronoun in Latin and Icelandic could be explained if they were seen as having a logophoric use.

A variety of descriptive studies subsequently amassed evidence that certain non-clause-bounded uses of reflexive pronouns in European, East Asian, and South Asian languages are actually logophoric.[1] While morphologically distinctive logophoric marking has been found in American languages (e.g. O'Connor (1987)), the greatest number of cases has been discovered in African languages (Hyman (1979), Hyman & Comrie (1981), Frajzyngier (1985), von Roncador (1988)). However, until recently, the phenomenon of logophoricity had never been integrated into formal linguistic

theories of pronominal reference. Syntactic theories (such as Chomsky's (1981; 1986) binding theory) have defined the properties of pronominal reference completely in terms of syntactic structures, in which notions such as "represented consciousness" and "discourse context" have no place. Hence, syntactic analyses of logophoric pronouns within Chomsky's framework have generally attempted (without great success) to reduce their distribution to factors (such as grammatical mood and tense) that can be represented in syntactic structures (Kayne (1981;1983), Everaert (1984), Anderson (1986), Koopman & Sportiche (1989)). (For criticism of some of these works see Bresnan, Halvorsen, & Maling (1983), Maling (1984), Rögnvaldsson (1986), and Sigurðsson (1986).)

On the other hand, semantic theories of pronominal reference (most notably Kamp's (1981) discourse representation theory) have successfully characterized the truth conditions for quantification and pronominal reference relative to discourse structures. But formal semantic theories have nevertheless lacked a rich enough linguistic structure to characterize nonquantificational concepts like logophoricity. Thus, until recently, logophoricity had the status of a widespread linguistic phenomenon which had not been explicitly characterizable in any theoretical framework. An important recent development is Peter Sells' "Aspects of Logophoricity," published in *Linguistic Inquiry* in 1987. Sells proposes an explicit formal framework for representing and interpreting logophoricity, based on an extension of Kamp's theory of discourse representation structures. Sells also shows that logophoricity can be factored into three more primitive concepts (the source of communication, the represented consciousness, and the point of view or deictic center) that explain its common features as well as its variations across languages as diverse as Ewe, Japanese, and Icelandic. (See also Abaitua (1988) for work in this framework on Basque.) Another fascinating recent development is Culy, Kodio, & Togo's (1989) use of formal analysis of anaphoric binding systems to reconstruct the historical relations among three closely related dialects of Dogon, spoken in Mali, and to trace the evolution of a logophoric system to a nonlogophoric system.

What is notable about the African cases of logophoricity is that they exhibit distinctive grammatical marking of an important discourse-dependent dimension of pronominal reference that is indistinctly expressed almost everywhere else. I think it is quite likely that without the Africanist research cited, logophoric reference in all languages would remain obscured and confused with other phenomena, and our conception of binding theory would continue to be skewed to the purely syntactic factors that have been proposed on the basis of more familiar, especially European, languages.

Case 2: Topic, pronoun, and agreement

A second case where Africanist research has made a significant contribu- tion to syntactic theory is in our understanding of agreement and its relation to pronominal anaphora. The idea that verbal agreement affixes are incorporated pronouns appeared early in descriptions of American Indian languages

(DuPonceau (1819:xxxi) cited by Mithun (1987), Boas (1911:646), Bloomfield (1927, 1933, 1962)) as well as in the comparative grammar of Indo-European, and typologists have often noted the relation of agreement systems to pronominal anaphora across languages (Givón (1976), Lehmann (1982, 1984), Greenberg (1977, 1978)). But the evolution of anaphoric pronouns into agreement markers is nowhere more clearly exemplified than in the case of Bantu subject and object agreement markers, which often morphologically resemble reduced forms of independent pronouns or demonstratives. In his 1976 paper "Topic, Pronoun, and Agreement," Talmy Givón hypothesized that verb agreement arises when a subject or object pronoun used for reference to topics has become cliticized and then morphologically bound to its verb. The resulting grammatical agreement between a verb and its subject or object, he claimed, is indistinguishable from the anaphoric relation between a morphologically bound pronoun and a discourse topic. But research by Byarushengo, Hyman, & Tenenbaum (1976), Byarushengo & Tenenbaum (1976), Wald (1979), Allan (1983), Bresnan & Mchombo (1986,1987), and Demuth & Johnson (forthcoming) has shown that the two types of relations can indeed be distinguished within the grammars of individual languages. There are a variety of grammatical tests that clearly distinguish a topic from a subject or object: these involve word order, phrasal phonology, the discourse function of independent pronouns, interactions with relativization and question formation, and contrastive focus constructions. By these tests the Bantu subject and object markers are in some cases clearly incorporated pronouns in anaphoric agreement with topics, while in other cases they have evolved into markers of grammatical agreement with a subject or object.

In sum, there are clear formal differences between grammatical and anaphoric agreement, yet the one merges into the other historically. This state of affairs poses a problem for syntactic theories, formulated by Bresnan & Mchombo (1986) as follows: " ... exactly how does this change from a pragmatic to a syntactic relation take place? By what formal steps does pronominal anaphora to a topic become subject-verb agreement? Current linguistic theories have provided too little insight into the nature of agreement to answer this question, for the simple reason that these theories have ignored the relations between the morphological and syntactic subsystems of formal grammar on the one hand, and, on the other, the discourse functions such as *topic* and *focus* that these subsystems express."

Bresnan & Mchombo (1986, 1987) proposed a solution to this problem within a formal theory of syntax (LFG). In their framework, functional ambiguity (as between subject and topic, or agreement and pronoun) does not imply structural ambiguity — structure and function are independent planes of grammatical organization. In such a framework, one and the same morphosyntactic structure can be functionally ambiguous. In this situation the minimal change required for a pronominal affix to become an agreement marker is a change in one single functional property of the affix: when it loses the referential attribute that gives it pronominal meaning. The emergence of grammatical agreement then follows from general principles relating structure and function: since the affix lacks pronominal meaning of its own, but preserves

the pronominal classificatory attributes (person, number, and gender) of a subject or object, principles of completeness and uniqueness[2] require that it be identified ('unified') with a meaningful grammatical argument, necessarily giving rise to grammatical agreement.

This account provides a simple formal relation between grammatical and anaphoric agreement, but it does not explain why the pronominal affix loses its referential attribute in the first place. As Givón maintained, such an explanation must be functional. The agreement affix originates as a topicanaphoric pronoun, and the gradual process of erosion into an agreement marker begins with reference to the most highly topical types of arguments: subjects before objects, and among objects, those that are superior on a hierarchy of person or animacy (Givon (1976), Wald (1979), Allan (1983)). Although this progression is quite visible cross-linguistically, it has been largely ignored in formal syntactic theories, which have instead constructed mechanical accounts of special cases. (Indeed, phenomena that might be analyzed as cases of morphological agreement of a verb with the topic have been reported in several Bantu languages (Givón (1973), Bokamba (1980, 1985), Zaenen (1981)).)

Case 3: Hierarchies and argument asymmetries

This brings us to the third case I wish to consider: hierarchies and argument asymmetries. A major problem of contemporary syntactic theory has been to explain the syntactic asymmetries that occur among different arguments of a verb, such as subject-object asymmetries. Idioms are generally formed, for example, from verbs together with their objects, but not from verbs together with their subjects (Marantz (1984)). Grammatical agreement arises with the subject before the object, as pointed out by Givón (1976) and others. Extractions often treat subjects and nonsubjects differentially. Two entirely different traditions of syntactic theory have drawn heavily on the evidence in African languages in accounting for such argument asymmetries.

One tradition, functionalist in orientation, has maintained that semantic and pragmatic hierarchies determine which arguments of verbs can be subjects or objects (Hawkinson & Hyman (1974), Givón (1976), Morolong & Hyman (1977), Duranti (1979), Hyman & Duranti (1982), Kidima (1987)). The semantic hierarchy, for example, ranks agents above beneficiaries and recipients, and all of these above instruments and patients. Such a hierarchy has been shown by functional theorists to have quite general crosslinguistic validity in determining subject and object assignment.[3]

Within the formalist tradition of syntactic theory, in contrast, argument asymmetries have been attributed to hierarchical arrangements of syntactic functions. In Relational Grammar there is a hierarchy of syntactic functions (the relational hierarchy) which determines 'advancements' and 'demotions' among arguments (Perlmutter & Postal (1983)). Asymmetries among arguments arise from this hierarchical structure, together with other axioms of the theory, such as the uniqueness of relations at each stratum. The exact nature of this hierarchy was thrown into question in an important study by Gary & Keenan (1977) of

Kinyarwanda applicatives. Their study brought out the fact that Bantu languages vary in the extent of asymmetry among objects: in some, like Kinyarwanda, different arguments display nearly identical syntactic behavior. As the properties of objects in Bantu have been more widely studied, they have deepened the formalist inquiry into fundamental nature of the object relation (Kimenyi (1976, 1980), Kisseberth & Abasheikh (1977), Bokamba (1981), Hyman & Duranti (1982), Dryer (1983), Perlmutter & Postal (1983), Marantz (1984), Baker (1988a,c), and Bresnan & Moshi (1990)).

Within the formalist tradition, GB also accounts for argument asymmetries by means of a hierarchy of syntactic functions: syntactic functions are represented in different hierarchical positions in syntactic structure (Marantz (1981; 1984), Baker (1988a,b)). Thus the subject argument is represented as the NP external to the VP, and the agent role is projected into this structural position in D-structure. Among nonsubject arguments, asymmetries are derived from asymmetrical syntactic representations as well: for example, asymmetries in the behavior of applied objects in Fula (Sylla (1979)) and Chichewa (Baker 1988a,b) are traced by Marantz and Baker (in somewhat different ways) to the presence of an underlying preposition which assigns a theta role in one case but not the other before undergoing structural incorporation into the verb as a suffix. (A rather different account employing the thematic hierarchy is given by Machobane (1989).)

Quite recently work has appeared which attempts to combine aspects of both the functionalist and the formalist traditions in explaining argument asymmetries in Bantu and other languages (see Bresnan & Kanerva (1989), Alsina & Mchombo (1989), Bresnan & Moshi (1990), Harford (1988), and the references cited in these). This work appeals to semantic (and in some cases pragmatic) hierarchies which are independent of syntactic structure, but it aims to map these hierarchies explicitly onto formal morphosyntactic structures.

Case 4: The syntax of verbs

Most of the research I have discussed so far deals with nominal and pronominal arguments. But Africanist studies have also led to important advances in our understanding of the syntax of verbs. An impressively well-argued work in this area is Hilda Koopman's *The Syntax of Verbs: From Verb Movement Rules in the Kru Languages to Universal Grammar*, published in 1984 by Foris. Although the verb second rules of Germanic have been familiar topics in syntactic theory, Koopman showed that the Germanic phenomena can be viewed as a special case of a more general theory of verb movement more richly manifested in the previously undescribed Kru languages Vata and Gbadi. Partly through the influence of her work, the rule of verb movement has recently begun to play a central role in theoretical work in GB. (See Pollock (1988), Chomsky (1988).) However, not all instances of putative verb movement can be naturally analyzed in this way: unlike predicate clefting in Kru, for example, predicate clefting in some other African languages involves a change from verbal to nominal morphology (Mufwene (1987)).

Verb movement may be regarded as a special case of head-to-head movement in GB, and one of the most fascinating theoretical works in this area is Mark Baker's *Incorporation: A Theory of Grammatical Function Changing*, published in 1988 by Chicago University Press. Baker aims to show that all relation changing rules (e.g. passive, dative, causative) arise from general principles regulating the movement of lexical categories (verbs, prepositions, and nouns) into other lexical categories to form complex predicates. A centerpiece of this work is his analysis of causatives, applicatives, and passives in Bantu, which is partly revised and elaborated in Baker (1988b).[4]

Under the heading of the syntax of verbs I also include studies of serial verb constructions in the Kwa languages of West Africa and Caribbean Creole. These could have a major impact on syntactic theory in the future because they raise the issues of where the boundary is between syntax and the lexicon, and how general the principles of the $\bar{X}$ theory of phrase structure are across languages.[5]

Conclusion: A look to the future

There are many other specific contributions of Africanist studies to syntactic theories. The cases I have reviewed here are chosen to illustrate the four themes I have selected, and indicate, as I have suggested, that the linguistic study of African languages has the potential to take syntax to its theoretical boundaries and to transform it radically, just as it has transformed generative phonology. However, this potential has not yet been fully realized, and in closing I would briefly like to consider why not.

It is clear that practical considerations are an important part of the answer, as suggested to me by Eyamba Bokamba:[6]

There are also two practical considerations, however, that have slowed down progress in this area: (1) the paucity of Africanist syntacticians in the U.S. and Europe (I am discounting colleagues in Africa here because their research is highly restricted due to working conditions and lack of publication opportunities), and (2) the demanding requirements for syntactic investigation.

Until the beginning of the last decade, the number of established Africanist linguists conducting research on the syntax of African languages was negligible. As a result, there were very few publications in this area in the 1970s, and the teaching of Bantu syntax or the syntax of selected African languages became an extremely frustrating exercise. This situation, however, has changed and is changing dramatically in the last decade as the recent literature shows. The completion of advanced graduate studies by a significant number of younger scholars in the the syntax of African languages in the 1980s, combined with the expansion of specialization by established scholars ..., has rejuvenated and provided a new impetus to the field. The impact of this research is

beginning to be felt and is expected to grow this decade as more and more scholars engage in such work.

The paucity of Africanist syntacticians is exacerbated by the demanding requirements for syntactic investigation. In particular, the syntactic study of African languages, unlike its phonological counterpart, requires a much more extensive understanding of the language(s) concerned both in terms of structural characteristics and the development of a certain level of intuition as to "what is a grammatical sentence" in such (a) language(s). What this means is that the researcher has to collect a considerable amount of data and possibly gain some speaking knowledge of the language(s) under investigation. These requirements do not obtain in phonological research, especially in studies involving segmental and suprasemental phenomena based on the lexicon: All that one needs is to collect an adequate sample of lexical elements in isolation and limited context to permit a far-ranging analysis of the phenomenon under consideration. Now, tonal spread phenomena have recently pushed tonologists to go beyond the isolated lexical element to the phrasal/contextualized lexicon with some attention being given to syntax, but this work has not (to my knowledge) made any new discoveries that have significantly modified previous work based on the lexicon.

In fact, the study of phonology in syntactic context has recently been extremely productive and exciting. Significantly, much of this work draws heavily on research in African languages. For example, of the nineteen papers published in Sharon Inkelas and Draga Zec's volume on *The Phonology-Syntax Connection* (Inkelas & Zec, eds. (1990)), seven are devoted to African languages (all Bantu), and four more have substantial discussions of issues posed by African languages. But Bokamba's point still holds, in that the authors of these works in general have much more in-depth knowledge of the languages studied than is required elsewhere in phonology. The discovery that discourse factors as well as syntax are directly implicated in phonological phrasing in Bantu (Byarushengo, Hyman, & Tenenbaum (1976), Kanerva (1989)) will undoubtedly reinforce this development in phonology.

But apart from these practical problems, there is the question of whether current syntactic theory provides the appropriate intellectual tools for research on African syntax. It can be argued that the architecture of Universal Grammar as it is conventionally conceived is biassed against integrating what is most informative in African linguistic structure (cf. Bresnan (1988, 1990)). If we look at phonology, we see that a major development has been the factorization of different aspects of linguistic "substance" into partial structures which are co-present — that is, they are related nontransformationally by principles of structural correspondence (called 'association'). Each partial structure — such as the skeletal tier that represents "timing slots," or the feature geometry structures that represent "phonetic substance" — has its own distinct geometry.

Thus the modularity of phonological theory is embodied in the distinct geometry of the structures and their principles of correspondence.

Syntax also aims to represent different aspects of linguistic substance, but it has done so in a very different way. In conventional syntactic theory, all kinds of linguistic substance are represented in structures of the same formal geometry. For example, in GB we find semantic roles (θ-roles) represented in D-structures, surface arrangements of syntactic functions (θ-roles) in S-structures, and semantic scope relations in LF structures; all three structures share essentially the same formal geometry. Moreover, this uniformity of representation is necessary given the stipulated nature of the computations that relate syntactic structures — iterated movements and adjunctions. Hence the modularity of syntactic theory is not embodied in the hypothesized immanent structures of language, as in phonology, but in the groups of principles that regulate the stipulated computations and representations.

We see, then, that although a great deal is written about modularity in syntax, current syntactic theory lacks true structural modularity. It is a closed system — a very coherent, richly deductive system, but a closed system that cannot naturally encompass other dimensions of linguistic substance. It is this adherence to the basic computational architecture of transformations that I would argue has prevented syntax itself from undergoing a true theoretical transformation. If this is so, then African linguistics could have its largest impact on syntactic theory in the development of new architectures for Universal Grammar. This is the direction that I have taken in collaboration with my colleagues and students at the Center for the Study of Language and Information at Stanford. Our work on Chichewa, Kichaga, and other Bantu languages has led to a deepening and generalization of what I once believed to be the universal design of grammar. The organization of linguistic structure that is being explored in our research project departs from the conventional Chomskyan view. Semantic roles, syntactic constituents, and grammatical functions belong to parallel information structures of very different formal character. They are related not by proof-theoretic derivation but by structural correspondences, as a melody is related to the words of a song. The song is decomposable into parallel melodic and linguistic structures, which jointly constrain the nature of the whole. In the same way, the sentences of human language are themselves decomposable into parallel systems of constraints-structural, functional, semantic, and prosodic — which the whole must jointly satisfy. In this framework, linguistic dimensions such as logophoricity, topicality and focus, and semantic role hierarchies, which are highly important in African languages, can be studied in relation to syntactic phrase structures, morphology, and phonology. Such work could bridge between the rich and insightful descriptive traditions and the powerful formal and computational approaches. How can we judge which directions future research in syntactic theory should take in the domain of African linguistics? Here we can rely on a simple test: how well does current theoretical research elucidate African languages? how deep an understanding of African language structures is gained from theoretical study? Here the best judges here, I think, are those linguists who are speakers of African languages. They alone possess the deep, contextual knowledge required to evaluate the

alternative syntactic hypotheses. If they find intellectual satisfaction in the discoveries and results, and if they are drawn to make use of the conceptual tools in their own researches, then the approach is a good one.

NOTES

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[1] See Maling (1984), Barnes (1984), Sigurðsson (forthcoming), Kameyama (1984; 1985), Kuno (1986), von Bremen (1984)).

[2] The functional uniqueness condition of LFG requires that, regardless of where it may be expressed in the word and phrase structure, information about the same function must be consistent — and, in the case of meaning, unique. The completeness condition requires that every argument which is lexically required must be present (Bresnan & Mchombo (1987:745). See Kaplan & Bresnan (1982) for one formalization.

[3] See especially Dik (1978), as well as Givón (1984) and Foley & van Valin (1984).

[4] For criticism of this theory, see Alsina & Mchombo (1989), Alsina (1989), Bresnan & Moshi (1990), Machobane (1989), and Perlmutter (1988).

[5] See Sebba (1987), Baker (1989) and the references cited therein.

[6] In comments in a letter to the author dated January 27, 1990.

REFERENCES

ABAITUA, Joseba. 1988. Complex predicates in Basque: From lexical forms to functional structures. University of Manchester Ph.D. dissertation in Linguistics.

ALLAN, Keith. 1983. Anaphora, cataphora, and topic focusing: Functions of the object prefix in Swahili. Current Approaches to African Linguistics vol. I, ed. by Ivan R. Dihoff, xxx-xxx. Dordrecht: Foris Publications.

ALSINA, Alex. 1990. Where's the mirror principle? Evidence from Chicheŵa. Paper presented at the 13th GLOW Colloquium at St. John's Codllege, Cambridge University, April 6-8, 1990.
_____, & Sam A. Mchombo. 1988. Lexical mapping in the Chicheŵa applicative construction. Paper presented at the 19th Annual African Linguistics Conference, Boston University, April 14-17, 1988.
_____, & _____. 1989. Object asymmetries and the Chicheŵa applicative construction. To appear in Theoretical Aspects of Bantu Grammar, CSLI, Stanford University, ed. by S. Mchombo.
_____, & _____. 1990. The syntax of applicatives in Chicheŵa: Problems for a Theta theoretic asymmetry. To appear in Natural Language and Linguistic Theory.
ANDERSON, Stephen. 1986. The typology of anaphoric dependencies: Icelandic (and other) reflexives. Journal of Linguistic Research 2.1-22. Also in Topics in Scandanavian syntax, ed. by Hellan & Koch Christensen, 65-88.
BAKER, Mark. 1988a. Incorporation: A theory of grammatical function changing. Chicago: The University of Chicago Press.
_____. 1988b. Theta theory and the syntax of applicatives in Chicheŵa. Natural Language and Linguistic Theory 6.373-89.
_____. 1988c. Elements of a typology of applicatives in Bantu. Paper presented at the 19th Annual African Linguistics Conference, Boston University, April 14-17, 1988, Special Syntax Panel.
_____. 1989. Object sharing and projection in serial verb constructions. Linguistic Inquiry 20:4.513-53.
BARNES, Michael. 1984. Reflexives in the Scandinavian languages: A review of some new ideas. Duplicated MS, University College London.
BLOOMFIELD, Leonard. 1933. Language. New York: Holt, Rinehart and Winston.
_____. 1962. The Menomini language. New Haven: Yale University Press.
BOAS, Franz. 1911. Handbook of American Indian languages. Bureau of American Ethology Bulletin 40, Smithsonian Institution.
BOKAMBA, Eyamba G. 1980. Verbal agreement as a non-cyclic rule in Bantu. Papers from the Sixteenth Regional Meeting, Chicago Linguistic Society, April 17-18 1980, ed. by Jody Krieman & Almerindo E. Ojeda, 10-29. Chicago: Chicago Linguistic Society.
_____. 1981. Aspects of Bantu Syntax. Preliminary edition for comments, Department of Linguistics, University of Illinois, Urbana.
_____. 1985. Verbal agreement as a non-cyclic rule in Bantu. African Linguistics: Essays in Memory of M. W. K. Semikenke. Studies in the Sciences of Language Series, ed. by Didier L. Goyvaerts, 11-54. Amsterdam: John Benjamins Publication Co. A revised and expanded version of Bokamba (1980).
BREMEN, K. von. 1984. Anaphors: Reference, binding and domains. Linguistic Analysis 14.191-229.
BRESNAN, Joan. 1988. The design of grammar. Paper presented at the Interdisciplinary Conference, Women on the Frontiers of Research, in celebration of the Centennial of Clark University, March 31 and April 1, 1988, Worcester, Massachusetts.
_____. 1990. Levels of representation in locative inversion: A comparison of English and Chicheŵa. Revised and expanded version of an invited

address to the 13th GLOW Colloquium at St.John's College, Cambridge University, on April 6,1990; duplicated, CSLI, Stanford University.

_____, Per-Kristian Halvorsen, & Joan Maling. 1983. Invariants of anaphoric binding systems, Unpublished MS, Stanford University.

_____, & Jonni M. Kanerva. 1989. Locative inversion in Chicheŵa: A case study of factorization in grammar. Linguistic Inquiry 20:1.1-50. Also forthcoming Syntax and Semantics: Syntax and the lexicon, ed. by E. Wehrli & T. Stowell. New York: Academic Press.

_____, & _____. Forthcoming. The thematic hierarchy and locative inversion in UG. A reply to Paul Schachter's comments. Syntax and Semantics: Syntax and the lexicon, ed. by E. Wehrli & T. Stowell. New York: Academic Press.

_____, & S. A. Mchombo. 1986. Grammatical and anaphoric agreement. CLS 22 Part 2: Papers from the parasession on pragmatics and grammatical theory at the Twenty-Second Regional Meeting, ed. by A. M. Farley, P. T. Farley, & K.-E. McCullough, 278-297. Chicago: Chicago Linguistic Society.

_____, & _____. 1987. Topic, pronoun, and agreement in Chicheŵa, Language 63, 741-782.

_____, & Lioba Moshi. 1990. Object asymmetries in comparative Bantu syntax, Linguistic Inquiry 20:2.147-185.

BYARUSHENGO, Ernest A., Alessandro Duranti, & Larry M. Hyman (eds.) 1977. Haya grammatical structure. Southern California Occasional Papers in Linguistics 6, June 1977.

_____, Larry M. Hyman, & Sarah Tenenbaum. 1976. Tone, accent, and assertion in Haya. Studies in Bantu Tonology, Southern California Occasional Papers in Linguistics 3, ed. by Hyman, 183-205.

_____, & Sarah Tenenbaum. 1976. Agreement and word order: A case for pragmatics in Haya. Proceedings of the Second Annual Meeting of the Berkeley Linguistics Society, 89-99.

CHOMSKY, Noam. 1981. Lectures on Government and Binding. Dordrecht: Foris.

_____. 1986. Knowledge of language: Its nature, origin, and use. New York: Praeger.

_____. 1988. Some notes on economy of derivation and representation. MIT Working Papers in Linguistics 10.43-74.

CLEMENTS, George N. 1975. The logophoric pronoun in Ewe: Its role in discourse. Journal of West African Languages 10:2.141-77.

CULY, Christopher, Koungarma Kodio, & Patrice Togo. 1989. Reflexive and logophoric pronouns in Dogon. Unpublished MS, Department of Linguistics, Stanford University.

DEMUTH, Katherine, & Mark Johnson. Forthcoming. Interaction between discourse functions and agreement in Setawana. Journal of African Languages and Linguistics.

DIK, Simon C. 1978. Functional Grammar. Amsterdam: North-Holland.

DrYER, M. S. 1983. Indirect objects in Kinyarwanda revisited. Studies in Relational Grammar, ed. by D. Perlmutter, 129-40.

DUPONCEAU, Peter S. 1819. Report of the historical and literary committee to the American Philosophical Society. Transactions of the Historical and Literary Committee of the American Philosophy Society vol. 1.

DURANTI, Alessandro. 1979. Object clitic pronouns in Bantu and the topicality hierarchy. Studies in African Linguistics 10:1.31-45.

EVERAERT, Martin. 1984. Icelandic long reflexivization and tense-connectedness. Working Papers in Scandinavian Syntax 12, Department of Lingusitics, University of Trondheim, Norway.

FOLEY, William, & Robert Van Valin. 1984. Functional syntax and Universal Grammar. Cambridge: Cambridge University Press.

FRAJZYNGIER, Z. 1985. Logophoric systems in Chadic. Journal of African Languages and Linguistics 7.23-37.

GARY, Judith, & Edward Keenan. 1977. On collapsing grammatical relations in Universal Grammar. Syntax and Semantics: Grammatical Relations, ed. by Peter Cole & Jerry Sadock, 83-120. New York: Academic Press.

GIVÓN, Talmy. 1976. Topic, pronoun, and grammatical agreement. Subject and topic, ed. by Charles N. Li, 149-188. New York: Academic Press.

_____ (ed.) 1979. Syntax and Semantics 12: Discourse and syntax. New York: Academic Press.

_____. 1984. Syntax: A functional-typological introduction. Amsterdam: Benjamins.

GREENBERG, Joseph. 1977. Niger-Congo noun class markers: Prefixes, suffixes, both or neither? Studies in African Linguistics, Supplement 7, 97-104.

_____. 1978. How does a language acquire gender markers? Universals of human language, ed. by Joseph H. Greenberg et al., 47-82.

_____, et al. (eds.) 1978. Universals of human language, vol. 3. Stanford: Stanford University Press.

HAGÈGE, C. 1974. Les pronoms logophoriques. Bulletin de la Société de Linguistique de Paris 69.287-310.

HARFORD, Carolyn. 1988. Locative inversion in Chishona. Current Approaches to African linguistics 7, ed. by J. Hutchison & V. Manfredi, 137-144. Dordrecht: Foris Publications, 1989.

HAWKINSON, A., & L. Hyman. 1974. Hierarchies of natural topic in Shona. Studies in African Linguistics 5.147-170.

HELLAN, Lars, & Kirsti Koch Christensen (eds.) 1986. Topics in Scandinavian syntax. Boston: D. Reidel, 1986.

HOPPER, P. J., & S. A. Thompson (eds.) 1982. Studies in transitivity: Syntax and Semantics 15. New York: Academic Press.

HYMAN, Larry (ed.) 1979. Aghem grammatical structure, with special reference to noun classes, tense-aspect and focus marking. Southern California Occasional Papers in Lingustics No. 7, The Department of Linguistics, University of Southern California, Los Angeles.

_____, & Bernard Comrie. 1981. Logophoric reference in Gokana. Journal of African Languages and Linguistics 3.19-37.

_____, & Alessandro Duranti. 1982. On the object relation in Bantu. Studies in transitivity: Syntax and Semantics 15, ed. by Paul Hopper & Sandra Thompson, 217-239.

INKELAS, Sharon, & Draga Zec (eds.) 1990. The phonology-syntax connection. Chicago: The University of Chicago Press.

KAMEYAMA, Megumi. 1984. Subjective/logophoric bound anaphor *zibun*. Papers from the 20th Regional Meeting, Chicago Linguistic Society, ed. by J.

Drogo, V. Mishra, & D. Testen, 228-238. Chicago: Chicago Linguistic Society.

_____. 1985. Zero anaphora: The case of Japanese. Stanford University Ph.D. dissertation in Linguistics.

KAMP, J. A. W. 1981. A theory of truth and semantic representation. Formal methods in the study of language (Part 1), ed. by J. Groenendijk, T. Janssen, & M. Stokhof, 277-321. Amsterdam: Mathematical Centre Tracts. Also in Truth, interpretation and information, ed. by J. Groenendijk, T. Janssen, and M. Stokhof, 1-31. Dordrecht: Foris Publications, 1984.

KANERVA, Jonni M. 1989. Focus and phrasing in Chicheŵa phonology. Stanford University Ph.D. dissertation in Linguistics.

KAPLAN, R. M., & J. Bresnan. 1982. Lexical-functional grammar: A formal system for grammatical representation. The mental representation of grammatical relations, ed. by J. Bresnan, 173-281. Cambridge: MIT Press.

KAYNE, R. 1981. ECP extensions. Linguistic Inquiry 12.93-133.

_____. 1983. Connectedness. Linguistic Inquiry 14.223-249.

KIDIMA, L. 1987. Object agreement and topicality hierarchies in Kiyaka. Studies in African Linquistics 18.175-209.

KIMENYI, A. 1976. Subjectivization rules in Kinyarwanda. BLS 2.258-68. Berkeley: Berkeley Linguistics Society.

_____. 1980. A relational grammar of Kinyaruwanda. University of California Publications in Linguistics 91. Berkeley: University of California Press.

KISSEBERTH, C. W., & M. I. Abasheikh. 1977. The object relationship in chi-Mwi:ni, A Bantu Language. Syntax and Semantics 8: Grammatical relations, ed. by P. Cole and J. M. Sadock, 179-218. New York: Academic Press.

KOOPMAN, Hilda. 1984. The syntax of verbs: From verb movement rules in the Kru languages to Universal Grammar. Dordrecht: Foris Publications.

_____, & Dominique Sportiche. 1989. Pronouns, logical variables, and logophoricity in Abe. Linguistic Inquiry 20:4.555-588.

KUNO, Susumu. 1986. Anaphora in Japanese. Papers from the First SDF Workshop in Japanese Syntax, ed. by S.-Y. Kuroda, 11-70. Department of Linguistics, University of California at San Diego, La Jolla.

LEHMANN, Christian. 1982. Universal and typological aspects of agreement. Apprehension, vol. II, ed. by H. Seiler and F. J. Stachowiak, 201-267. Narr, Tübingen.

MACHOBANE, 'Malillo. 1989. Some restrictions on the Sesotho transitivizing morphemes. McGill University Ph.D. dissertation in Linguistics.

MALING, Joan. 1984. Non-clause-bounded reflexives in Modern Icelandic. Linguistics and Philosophy 7.211-241.

_____, & Annie Zaenen (eds.) Forthcoming. Modern Icelandic syntax. Syntax and Semantics 24. Orlando, FL: Academic Press.

MARANTZ, A. P. 1984. On the nature of grammatical relations. Cambridge: MIT Press.

MITHUN, Marianne. 1986. When zero isn't there. Proceedings of the Twelfth Annual Meeting of the Berkeley Linguistic Society, University of California, Berkeley.

MOROLONG, 'Malillo, & Larry M. Hyman. 1977. Animacy, objects, and clitics in Sesotho. Studies in African linguistics 8.199-218.

MUFWENE, Salikoko. 1987. An issue on predicate-clefting: Evidence from Atlantic creoles and African languages. Varia Creolica, ed. by Philippe Maurer & Thomas Stolz, 71-89. Bochum: Brockmeyer.

O'CONNOR, Catherine. 1987. Topics in Northern Pomo grammar. University of California at Berkeley Ph.D. dissertation in Linguistics.

PERLMUTTER, David M. (ed.) 1983. Studies in Relational Grammar 1. Chicago: The University of Chicago Press.

_____, & Paul Postal. 1983. Some proposed laws of basic clause structure. Studies in Relational Grammar 1, ed. by D. Perlmutter, 81-128.

_____. 1988. Inactive 'objects' in Kinyarwanda: Chomage or incorporation? Paper presented at the Nineteenth Annual Meeting of the North Eastern Linguistics Society, Cornell University. Revised and expanded manuscript under revision, Department of Linguistics, University of California, San Diego.

POLLOCK, Jean-Yves. 1988. Verb movement, Universal Grammar, and the structure of IP. Linguistic Inquiry 20:3.365-424.

RÖGNVALDSSON, Eríkur. 1986. Some comments on reflexivization in Icelandic. Topics in Scandinavian syntax, ed. by Hellan & Koch Christensen, 89-102.

RONCANDOR, Manfred von. 1988. Zwischen direkter und indirekter Rede: Nichtwörtliche direkte Rede, erlebte Rede, logophorische Konstruktionen and Verwandtes. Tübingen: Max Niemeyer Verlag.

SELLS, Peter. 1987. Aspects of logophoricity. Linguistic Inquiry 18:3.445479.

SIGURÐSSON. 1986. Moods and (long distance) reflexives in Icelandic. Working Papers in Scandinavian Syntax, Department of Linguistics, The University of Trondheim. Also in Maling & Zaenen, eds. (in press).

SEBBA, Mark. 1987. The syntax of serial verbs: An investigation into serialisation in Sranan and other languages. Amsterdam: John Benjamins Publishing Company.

WALD, Benji. 1979. The development of the Swahili object marker: A study of the interaction of syntax and discourse. Syntax and Semantics 12, ed. by Talmy Givon, 505-524.

ZAENEN, Annie. 1981. Characterizing syntactic binding domains. Occasional Paper No. 17. Cambridge: The MIT Center for Cognitive Science.

PHONOLOGICAL THEORY AND AFRICAN LANGUAGE PHONOLOGY[*]

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1. Introduction

What is the relationship between phonological theory and African language phonology? And what does it matter? These are the two questions I would like to consider in this note. To some degree, the difference between phonological theory and African language phonology or more generally, phonological work in an areal subdiscipline — lies in the eye of the beholder. What may strike one reader today as a highly theoretical work may seem in forty years' time to be hardly theoretical at all, perhaps no more than a passing description of some facts, while another analysis — ostensibly a simple account of some observations — may be seen decades after the fact to be heavy-laden with new and original perspectives going well beyond the immediate subject matter of the paper.

A part — a large part — of the reason we may have so much difficulty in determining whether a particular work is a contribution to theory or to African linguistics derives from our unanalyzed assumptions regarding what the difference between linguistic theory and a descriptive/historical field such African linguistics is. It is difficult for most of us, I daresay, to remove ourselves from what we may call the "data versus analysis" myth: the myth that holds that there is in principle, or in practice, a line that can be drawn between linguistic *description*, which focuses on work with informants, and linguistic *analysis*, which consists of two parts: first, producing analyses of the data that have come from the informants, and second, producing and testing theoretical models which bear on the analyses of the data that the field-workers have so graciously provided us with; meanwhile, the theoretical models may bear on analyses by encouraging, discouraging, or even eliminating various such analyses.

The data vs. analysis myth encourages a particular view of what the relation must be between linguistic theory and African linguistics: African linguistics must be primarily data-collection, and linguistic theory must be primarily analysis-production. If we start with assumptions such as these, then we may end up with surprising conclusions, such as "how theoretical African linguistics has become in the last ten years," or "African linguistics is certainly making a major contribution to linguistic theory these days". Now, we do hear such things, and not infrequently (underscoring the sway of this myth); and while there is a good deal of truth to such statements, and while the self-

congratulatory back-patting that such statements lead to may well be in some measure justified, I would like to offer a different perspective on the relation of linguistic theory to African linguistics, which has as its central theme the following idea: that one of the functions[1] of linguistic theories is to establish professional affiliations and distances. Thus, while linguists working within a single theoretical framework may make serious efforts to remain knowledgeable about the work of their colleagues within the same framework, this effort is often counterbalanced by an unspoken sense that work which is not within one's own framework falls beyond one's immediate responsibility.

Theory, in such a way, can have the definite effect of fragmenting the field. A professional group such as constitutes the field of African linguists serves the opposite function: it serves to unite, over space and over time, the work of linguists in highly divergent theoretical frameworks. I will summarize my point briefly as follows: no historian of modern linguistics can understand the continuities in our field without tracing them through fields such as African linguistics, for that is where the important ideas of our times live, prosper, and remain fertile, often despite the Balkanizing effects of linguistic theory.

My goal, then, is to illustrate this perspective with a limited case study, the relationship between Firthian prosodic phonology and current theories of autosegmental and metrical phonology. I will suggest that the only way to make sense of the historical facts of the matter is to understand the competing and conflicting business of linguistic theory, on the one hand, and African descriptive linguistics, on the other.

2. Firthian phonology

The British linguist J. R. Firth established a way of thinking about phonological problems which is today generally referred to as "Firthian phonology" or "prosodic phonology", or as "the London School". As Hill (1966) wrote, "Prosodic Analysis made its effective debut with J. R. Firth's 'Sounds and Prosodies' in 1948 — effective, in the sense that from this point on there has been a continuous flow of published work from linguists practicing it." (223) As this dating suggests, Firthian developments were contemporaneous with similar developments in the United States of the sort discussed in Zellig Harris' (1944) work on long and simultaneous components, Charles Hockett's (1947) developments of this, and Bernard Bloch's (1948) work as well. I will not discuss this American development here, in part because I have discussed it elsewhere (Goldsmith 1976). Firth's work was also roughly contemporaneous with much of the work in this area by Kenneth Pike, though Pike's work continued after Firth's own ended; for a practical summary of Pike's work in the area of African linguistics (covered virtually not at all in his well-known *Tone Languages* 1948, see Pike 1966.)

The concerns that are central to papers written within the Firthian tradition in the 1940s, 1950s, and 1960s are much more in tune with the current spirit of theoretical concerns than are those of the bulk of papers written in other theoretical frameworks of the time.[2]

Firth's approach to phonological analysis began with a division of the sound features of a given language into phonematic units and prosodies. The phonematic units we might think of as corresponding to the elements of a skeletal tier in autosegmental terms, though typically they would have some phonological substance. Another useful analogy would be to equate Firth's phonematic units to a melody tier in an autosegmental model, a tier which was distinguished for only consonant and vowel features, as in, for example, McCarthy's work on Arabic (McCarthy 1979). Firth did see these phonematic units as being the core, irreducible point-like units of phonological analysis; prosodies used them to spread over. Firthian analysis also includes a kind of prosody that consists of C and V patterns, as when a particular grammatical pattern is always expressed with a CVCCVC pattern, which would be a Firthian prosody. Prosodies more generally correspond to autosegmentalized features, as well as to metrical structure, such as syllable, foot, and grid structure.

The notion of phonematic unit was not an easy one, it would seem, for American linguists to grasp, and indeed, little or no use was made of such notions in the North American context; Gleason has recently written about this, noting that from the point of view of American structuralism, it was only natural to interpret the word "phonematic" as an idiosyncratic variant of "phonemic", which was not at all what Firth meant; but American linguists were accustomed to Joshua Whatmough's inveighing against the word "phonemic", which he thought should be "phonematic" on purely etymological grounds. In short, Americans were equipped to misunderstand some of Firth's terminological decisions.

Now, to understand any linguistic movement, we must understand what it is a reaction against, of course; to understand phonemics, we must understand that it was in part a reaction to the deluge of irrelevant phonetic information that phoneticians were immersed in (see R. H. Robins' remarks, in Robins 1970, pp. 170-71, 210-13); to understand prosodic phonology, we must recognize that it was in part a reaction to phonemics, whose concern for determining what was phonologically contrastive within the segmentable speech signal was so thorough-going that it left little or no room for considerations of higher-level phonological structure. A phonemic analysis requires that phonetic information be sorted into the constrastive and the non-contrastive, and requires that the phonologically non-contrastive not be represented on the phonemic level. Firth saw that the move of eliminating all of the phonologically predictable material frequently made it impossible to draw the generalizations that involved higher level structure, such as that brought in with considerations of syllable structure or vowel harmony. Thus Firth was more interested in determining the broader sound patterns of a language than he was in developing a model or a notation in which all and only constrastive information would be represented. To put it another way, the phonemicists' move to eliminate redundant phonetic information was eventually viewed by the phonemicists themselves as a goal in itself, while for a Firthian such a step was a reasonable one, but only as a means to a higher end, the determination of the larger phonological pattern of the language.[3]

As Robins has observed, the phonemicists' emphasis on matters of contrast placed the focus on *paradigmatic* questions, and Firth, like the phonologists of the 1980s, was equally concerned with (if not more concerned with) questions of *syntagmatic* relations in phonology. Paradigmatic questions would naturally focus on issues of inventory, and in particular on inventory of sounds (rather than, say, inventories of syllable types or word-level tone melodies). Phonologists today have by no means lost this concern of the structuralists, of course; the renewed interest in the underspecification of features that plays a major role in discussions of both lexical and autosegmental phonology is the direct descendant of this issue. Any version of lexical phonology includes the premise that a rule of 'allophony' — as a structuralist would have put it — introducing non-contrastive phonetic differences — may not precede a rule sensitive to word-level morphological considerations. Within the African context, we can find cases that illustrate difficulties for that position, appealing though it is in general; for example, in KiRundi, the rule weakening voiceless stops to breathy aspiration (i.e., an /h/) after a nasal is an 'allophonic' post-lexical rule; however, it bleeds (i.e., blocks from applying) a well-known rule of Bantu lexical phonology, Dahl's Rule, which in KiRundi voices an obstruent in a morpheme that immediately precedes a noun or verb stem. Thus Dahl's Rule applies in the negative subordinate (present tense) in changing *u ta tem a* to *u da tem a* ('that you not cut') but it fails to apply in *n-ta-tem-a*) where instead of voicing, the form *ta* undergoes the post-nasal softening, becoming [n hi tem a].

Returning to the Firthian school, central to their concerns were phonological 'features' that spread over such units as the syllable and the word. Of these, clear cases that could be handled directed were vowel harmony, nasal harmony, and certain other harmonies of this sort. (The interested reader may consult various references in Bazell 1966, Langendoen 1968, and Palmer 1970).

2.1 Tone

But perhaps surprisingly, the Firthian treatment of tone (at least in the African context) was a good deal less insightful than its treatment of other prosodic effects, and I think that one of the reasons for this was that tone is not *just* like vowel harmony; it is not just something that spreads over a large domain in a homogeneous fashion. The Firthian approach encouraged noticing respects in which a tone pattern was a property of an entire word, and in the case of African languages, this was an important step toward the correct analysis, a step which permitted a correlation to be established between grammatical and lexical dimensions and the tone melody of the word abstracted away from the syllable template. But tone is not like nasalization, even when nasalization is as grammaticized as Bendor-Samuel showed that it is in Terena, where the first-person singular is marked by a prosody of nasalization (see Bendor-Samuel 1960). For in tone systems, it is necessary to come to grips with a kind of internal segmentation within the tonal melody or envelope. As we have come to see in the last ten or fifteen years, this autonomous segmentation of tone, and other prosodic levels, is an important characteristic of African tone

systems, and autosegmental analyses specifically differ from their Firthian counterparts in insisting on segmentation of a uniform sort on each tier. Indeed, it is fair to say that this is the central idea of autosegmental phonology: that the effects impressionistically called "suprasegmental" are still just as "segmental" as anything else, in the sense that they consist of linear sequences of more basic units which can be treated analytically.

But that kind of segmentation of prosodies has been quite foreign in spirit to prosodic analysis, I think it is fair to say; indeed, it was a Firth's antipathy, hostility, and mistrust of the segmentation that had led to traditional phonemic segmentation in the first place that brought him to the postulation of prosodies. This difference between the conception of autosegments and that of prosodies is one of the most important and distinctive. The end result was that Firthian tonal analysis was practical and insightful when applied to the treatment of tone languages with short words (such as many Asian languages) (Sprigg 1955, Scott 1956, e.g.), but of more limited practical and theoretical success when applied to the analysis of African tone languages, where the domain across which tones may be mapped, and may interact, is frequently much larger — as is certainly the case in the Bantu languages, as well as in Igbo and a number of other West African languages.

2.2 Degree of specification

Firthian analysis addressed a question that is very much with us today, that of the number of "values" that are specified for a given feature. In a general essay on prosodic analysis by Hill (1966) published in the collection dedicated to Firth after his death, Hill writes:

> ...there is nothing about the incidence of frontness and backness in the native Turkish word that would lead us to treat either one as the marked member of an opposition. The case of roundedness, however, is different: we can state a rule for its occurrence in the word, but there is no complementary rule, of the same order of simplicity, for the occurrence of spreadness....To illustrate the point further, we may take verbal tone in Nyanja [here the writer bases himself on his own work]. In Nyanja words...each syllable has a high or low tone: there are virtually no restrictions on sequences, except that final low-high does not occur...our natural inclination [would] be to treat high/low as a pair of equipollent alternant features. However, each Nyanja verb tense has a characteristic tone pattern. If we examine its operation with verb stems containing varying numbers of syllables, we shall see that the tense tone pattern is a set of high tones: so many syllables must have them, the rest are unmarked, therefore low.

This discussion is by no means isolated in the Firthian literature, and we see that the nature of specification — whether something akin to features should be monovalent (or privative), as Hill suggests, or bivalent (or equipollent) is an important question, one which still remains unresolved in its

entirety. Without reading too much into this passage, I think that one gets a sense that the issue is even more alive as a matter of the active architecture of the grammar, writing within a Firthian context, than the question would be for Trubetzkoy, for Hill does not simply want to conclude whether the feature is monovalent or bivalent — that is, privative or equipollent — he wants us to understand that this decision has further consequences with regard to other principles down the line that appear in our grammar.

2.3 Quantity and syllable structure

An insightful and influential paper on syllable structure in Luganda, and in fact more generally in Bantu, was published by A. N. Tucker in 1962. In this extended discussion, Tucker develops an account which brings out an "aesthetically satisfying" (122) picture, as he puts it, of the syllable in Luganda, treating a number of problems that have traditionally been recognized to be especially problematic areas for segmentally-oriented theories of phonology: the problem of geminate consonants; the problem of the long/short vowel contrast; the nature of syllable weight or quantity, and its relation to tone. There are a certain number of "dynamic" aspects to his analysis, that is, places where his analysis speaks of one thing "becoming" another under various conditions or subject to various constraints, and in this respect his analysis is amenable to a generative reinterpretation.

Tucker's conclusions focus on aspects such as the following: he says that "one of the outstanding characteristics of Luganda is that, although compensation for elision or contraction is made, this compensation must never allow a long syllable to contain *more than two morae*. Consequently if two lengthening features come together, their effect is not cumulative." While we might expect this to be stated in turn as a condition on what a possible syllable then is in Luganda, Tucker does not ever in fact do that; he does not take the step of equating limitations on dynamic processes to constraints on possible structures, though put in this way we may have little doubt that he would agree on the natural connection between the two.

Such notions of derivation subject to cumulative restrictions were quite uncharacteristic of most phonological theories of the time, including generative theories; Kisseberth's discussion of "conspiracies" was perhaps the first clear discussion in generative terms, and it was not published until close to a decade later.[4]

Tucker is at pains in this paper to motivate the notion of mora as the appropriate analytical tool for understanding vowel length, consonant length, and tonal association, and makes arguments that sound quite contemporary in this respect. For example (145), he argues that the first half of a geminate voiceless stop (as in *ku-coppa* 'to become a pauper') is to be associated with a mora, and is thus tone-bearing; analytically we would associate this mora with a Low tone, and the surprising consequence of this, Tucker notes, is that this Low tone does indeed trigger downstep on following overt High tones. He proceeds to argue (155), as well, on tonal grounds that the syllable must be maintained

as a distinct unit, as well as on the grounds that the syllable is the unit which cannot contain more than two moras.

2.4 Vowel Harmony

The treatment of vowel harmony in Igbo was an important example in the armamentarium of the Firthian linguist. Treatments by Ward 1936 and Carnochan 1960 were significant steps, and deserve our attention. Carnochan analyzed the Igbo vowel system into three distinct equipollent (i.e., bivalent) features which he called: L/R (today we would call +/- ATR), I/A (high/low), and Y/W (front/back, or unround/round). Two of these are prosodies—L/R, and Y/W; but I/A (high/low) is not prosodic, presumably because there is relatively little evidence that it spreads from one phonematic unit to another. Had there been more evidence of the feature low/high spreading, he would have extracted, or factored out, *three* prosodies, leaving him with abstract V elements. This would have been a good thing, I think it is fair to say, because there is a suffix which Carnochan suggests cannot be defined as anything but an empty V-slot (as we might put it today); Carnochan indicated this with a schwa (ə). Thus we end up with the following representation, in (1), which is Carnochan's, which we may compare with an autosegmental rewriting of this, as in (2), or a more thorough-going autosegmental reinterpretation, as in (3). Perhaps Carnochan felt some theoretical discomfiture with the idea of extracting out all phonological material into prosodies in the general case; in any event, he did not do so, even when it seems attractive to us today. Perhaps his notation encouraged the choice he made, because he expresses prosodies in the established Firthian way, resembling a kind of logical notation, with phonematic units being written as if they were arguments, and the prosodies were the functors, as in (1).

(1) o siri R [(A)w (CIrə)y]

(2)

(3)
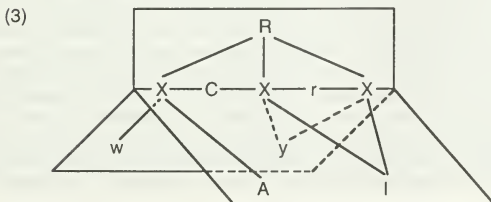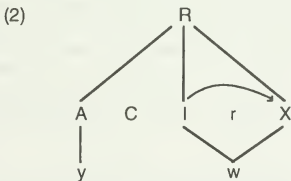
3.   Effects of Firthian work on autosegmental and metrical studies

What, now, have been the modes and manners of the influence of Firthian thought on current autosegmental and metrical theory? One thing is certain: working linguists in our tradition feel little obligation to offer any citation of Firth's theoretical or descriptive work, or to acknowledge a debt to London modes of thought. I have not found any references to Firth in any papers ever published in *Linguistic Inquiry*. But of the papers on African linguistics directly inspired by Firth's proposals, many are cited and developed at length in the theoretical literature. This ironic situation deserves our attention.

3.1 Tone

I shall begin with one personal example. In my own first work on autosegmental phonology, I was influenced by work by Will Leben, whose work in turn was a development within a generative framework of the work of such linguists as R. C. Abraham and J. T. Bendor-Samuel, to mention just two. When I looked for additional resources to develop the theory further, I went to find good grammars, and good grammars are necessarily based, to be sure, on the good linguistic insights of their authors. In the event, I found the grammar of Igbo published by M. M. Green and G. E. Igwe (1963), which in turn was heavily influenced by the earlier work of another linguist from the School of Oriental and African Studies, Ida Ward (1936), a linguist influenced, in turn, by J. R. Firth at SOAS.

Green and Igwe made little or no effort to develop a set of general rules for the material that they gathered, but the care and attention they gave to the tonal material, and the weight that they assigned to tone in the organization and presentation of their material, showed clearly their sense of the importance of these tonal factors for understanding the underlying phonological structure of the Igbo language. They also had a clear sense that apparent allomorphy in the language could reflect at times the syntactic structure of the Igbo sentence, and a sense that the apparent variety of surface tonal patterns on the verb in the various tenses must actually be the reflection of some deeper set of regularities in the language. It was this sense, I am convinced, that made subsequent autosegmental analysis using an autonomous tonal tier possible within an autosegmental framework.

Early generative thinking about African tone was not very successful, and much of it had little effect even on generative thought.[5] Carroll's (1966) generative account of Igbo syntax and phonology, for example, did not apply early generative techniques to the point of developing new insights into the language. Work such as that of Edmondson and Bendor-Samuel (1966) on Etung, and Arnott (1964) on Tiv, work that was prosodically based, was more influential, even among generativists. Arnott's work on Tiv led to a reanalysis by McCawley (published, 1978), which in turn drew the attention of Leben in his influential dissertation (1973), and of Goldsmith (1976), and most recently Pulleyblank (1983). In the treatment of Tiv, for example, if we look for it, we can be struck — and I believe we should be — by the continuity in the description

and the analyses of these authors. In the case of all the authors but the last, Pulleyblank, the focus was on the "tonal melody" as a unit, and how to treat this object that is distinct from the string of segments or phonematic units. There is a constant core of a body of data to be attended to, and to be reworked with tools that varied from case to case; but concern for the same core phenomenon lurking behind the data links all these analyses, despite changes in theoretical stance.

This is a prime example of the coherence that African linguistics lends to linguistic research and scholarship.

3.2 Quantity and syllable structure

The work on Luganda syllable structure by Tucker that I mentioned above has been fruitful in its effects on recent work in theoretical phonology. In a paper that circulated in a number of drafts before being published in 1985, Clements developed an account within an autosegmental model utilizing a skeletal tier that incorporated Tucker's insights and developed more deeply our understanding of syllable structure, and a number of researchers have subsequently pursued these notions additionally, in the Bantu context and elsewhere.[6] More generally, of course, the syllable as a unit in phonological theory has become indispensable, in one form or another.

3.3 Vowel Harmony

A striking example of acknowledged influence of prosodic thinking on generative theory can be found in Fromkin's 1965 article, in which she studies the segmental inventory of Twi, the morphological and syllable structure of the language, and its system of vowel harmony, drawing on her own work on Twi as well as work by such Firthians as Berry (1957) and Carnochan (1960), and work as well by Boadi (1963), which is more Harrisian in its phonological tone.

4. Prosodies, autosegments, and rules

It might become easy — too easy — to draw the conclusion that Firthian phonology already contained, in its essence, the key ideas in autosegmental theory. I have already suggested one reason why I do not believe that this is correct, and in general it is important, when looking at the history of linguistic theories, not to jump from the first step, in which we find scholarly continuity, to the second, which holds that the two are just one. Perhaps it is the fear of this admittedly illogical jump that drives some linguists to exaggerate the lack of scholarly continuity with the past in their own work. Be that as it may, we would be wise to recognize some major differences between Firthian and current autosegmental and metrical theory.[7] The Firthian approach to word-level regularities of any kind was to posit a prosody — even a regularity of the mundane sort in which a syllable-final consonant was devoiced. In our current conception of phonological theory, the part of the grammar responsible for such generalizations is quite separate from the strictly autosegmental part, i.e., the part which up till now we have seen as most directly tied to firthian prosodies. In

our current view, there are phonological rules, segregated into various components, which interact with well-formedness conditions on phonological structures such as the syllable and the foot; there are, in addition, several levels of phonological representation, though the details remain here a matter of considerable disagreement and research. In short, while the continuities between Firth and current work is real enough, no one should allow themselves to overlook the even greater disparities that separate prosodic analysis from the more articulated theories of our present decade.[8]

5. Conclusions

In this brief note, I have discussed the continuity that African linguistics offers to linguistics, and focused on the relationship between Firthian linguistics and current autosegmental and metrical phonology. I could have chosen other examples, to be sure; African linguistics has equally served as a link between the work of French and Belgian Bantuists and that of current theoreticians, as is, I believe, well-known; that would be a story for another day, with a similar moral, and similar stories could be told regarding Pike's work on syllable structure, and so forth and so on.

My review has attempted to be descriptive rather than normative — to provide a perspective from which the continuities that we perceive in our professional lives make sense, and from which there are, correspondingly, fewer ironies — ironies like the "rebirth" of the study of the syllable, or of tone, or of prosodies more generally. In acknowledging that I am being descriptive rather than normative, I trust it is nonetheless clear that I personally believe that the continuity that African linguistics provides is a good thing; what remains an open question, in all seriousness, is whether the divisive effects of linguistic theory are avoidable. I certainly do not wish to be taken to be saying working on linguistic theory *makes* a person narrow-minded, and unaware of what happens outside of their own framework, nor do I wish to be understood as saying that theorists *are* that way. After all, many linguists feel comfortable wearing both the hat of the African linguist and the hat of the linguistic theorist. What I do believe (though I have not substantiated this in these pages) is that as a professional and social matrix, linguistic theory can all too easily be taken, and has often been taken, to provide a rationalization and a justification for what I referred to before as the Balkanization of linguistics — the unfortunate lack of communication across frameworks or paradigms. It is not the theory *per se* that causes the fragmentation; it is rather that theory provides a convenient way for justifying an otherwise unfortunate, and ultimately unhealthy, narrowness.

But it can only be healthy to be aware of the nature of discontinuity in linguistic theory, so that we may not share the misplaced outrage and apparent frustration of a writer such as Geoffrey Sampson, who, writing in 1980, spoke despairingly of autosegmental phonology as a set of "half-baked ideas" that were "anticipated by far more solid work done in the "wrong" places" [meaning outside of MIT, of course], work that is "not rejected, just ignored" (235), and which is a reinvention of Firthian phonology "without acknowledgement to Firth" (258).[9] Autosegmental phonology is not a reinvention of prosodic phonology; it

is a different model which has intentionally maintained the insights of the prosodic school, while providing additional analytic possibilities for the treatment of tone, vowel harmony, syllable structure, and so on, in a number of areas where Firthian phonology had not succeeding in shedding light.

NOTES

* I am grateful to Stephen Anderson and Eric Hamp for comments on an earlier version of this paper.

[1] Several of my colleagues have expressed puzzlement or dismay at my use of the term *function* here, rather than some milder term, such as *effect*. They have raised the question as to whether I am endorsing, in what follows, a thorough-goingly sociological — and perhaps to that extent, non-rational — view of linguistic science. I can only remind such readers that science, like language itself or any other human field of endeavor, is a gridwork of motives subject to many simultaneous levels of analysis, none of which replace the other. A phonological account of a language does not, generally speaking, replace a syntax or a morphology; the one supplements the other. In certain notorious areas, these familiar components of the grammar can begin to impinge on each other, and affect their individual autonomies; so too for the levels of analysis of our field, as I indicate in the text. In linguistics, though, we may go so far as to draw normative conclusions as to how why prefer our field to operate, and I will do just that below, and suggest how some quite human and natural functions might just as well be less noticeably represented in our professional matrix.

[2] Which is not to say that American theorists did not have a good deal to say of relevance to current autosegmental and metrical models. I have attempted to illustrate that point — implicitly, but in some detail — in Goldsmith 1989, referring to the work of Hockett, Bloch, and others. Nonetheless, the heavy effect of Bloomfieldian assumptions about phonological representation in the United States made American work largely less relevant to our current interests when compared to Firthian work.

[3] A particular case of this kind of problem is well-illustrated and discussed by Fudge (1976), in a discussion of a thorough-going phonemicization of Bella Coola by S. S. Newman. (See also Hill 1961.)

[4] The importance of tactics as guiding rule application was first emphasized in Lamb 1966; I discuss this, and some other points related to the matter in the text, in Goldsmith (Forthcoming).

[5] One of the few extended discussions of African tone in the heyday of SPE phonology is in the West African context, *Tone in generative phonology* (1970), edited by Ian Maddieson, Research Notes vol. 3, parts 2 and 3, from the

Department of Linguistics and Nigerian Languages, University of Ibadan. Olasope Oyelaran reminds us in his paper of an interesting passage from Gleason 1961, one of the American linguists more aware of prosodic, Firthian trends, and also working on African languages:

> It is obvious that linguists in general have been less successful in coping with tone systems than with consonants or vowels....The ...need is for better theory. We should expect that general phonologic theory should be as adequate for tone as for consonants and vowels, but it has not been. This can be only for one of two reasons: either the two are quite different and will require totally different theory (and hence techniques) or our existing theories are insufficiently general. If, as I suspect, the problem is largely of the second sort, then development of a theory better able to handle tone will result automatically in better theory for all phonologic subsystems."

[6] See Katamba 1985, Borowsky 1983, for example.

[7] I was tempted to write, "Was SOAS the Port Royal of nonlinear phonology?" But in the case of the Port Royal grammar, too, all the questions about measuring continuity over disparate traditions remain thorny and unsettled.

[8] This is hardly the place for developing what I take to be the current view of phonology, but I have done this elsewhere; cf. Goldsmith 1989.

[9] This is not true, I might add; on p. 15 (Goldsmith 1976), I observe that a prime motivation for the study of suprasegmentals within the framework of generative phonology is that generative phonology is not as equipped as Firthian analysis to treat problems of suprasegmentals.

REFERENCES

ARNOTT, D. W. 1964. Downstep in the Tiv verbal system. African Language Studies 5.34-51.

BAZELL, C. E. et al. (eds.) 1966. In memory of J.R.Firth. London: Longmans.

BENDOR-SAMUEL, J. T. 1960. Some problems of segmentation in the phonological analysis of Terena. Word 16:3.348-55.

BERRY, J. 1957. Vowel Harmony in Twi. Bulletin of the School of Oriental and African Studies 19.124-30.

BLOCH, Bernard. 1948. A set of postulates for phonemic analysis. Language 24.3-46.

BOADI, L. 1963. Palatality as a factor in Twi Vowel Harmony. Journal of African Languages 2.133-39.

BOROWSKY, Toni. 1983. Geminate consonants in Luganda. Current Approaches to African Linguistics, ed. by Jonathan Kaye, Hilda Koopman, Dominique Sportiche, & André Dugas. Dordrecht: Foris Publications.

CARNOCHAN, J. 1960. Vowel Harmony in Igbo. African Language Studies 1:155-63.

CARROLL, Patricia L. 1966. A Transformational Grammar of Igbo. London: Cambridge University Press.

CLEMENTS, George N. 1985. Compensatory Lengthening and Consonant Gemination in Luganda. In Wetzels & Sezer 1985.

EDMUNDSON, T., & J. T. Bendor-Samuel. 1966. Tone pattern of Etung. Journal of African Languages 5.1-6.

FIRTH, J. R. 1948. Sounds and Prosodies. In Palmer 1970.

FROMKIN, Victoria. 1965. On System-Structure Phonology. Language 41:601-9.
_____. ed. 1978. Tone: A linguistic survey. New York: Academic Press.

FUDGE, Erik. 1976. Phonotactics and the syllable. Linguistic Studies offered to Joseph Greenberg vol. 2, ed. by Alphonse Juilland. Saratoga: Anma Libri.

GLEASON, H. A. 1961. An introduction to Descriptive Linguistics. New York: Holt, Rinhart and Winston.

GOLDSMITH, John. 1976. Autosegmental Phonology. MIT dissertation. Published by Garland Press, New York, 1979.
_____. 1990. Autosegmental and Metrical Phonology. Oxford: Basil Blackwell.
_____. Forthcoming. Phonology as an intelligent system. Bridges between Psychology and Linguistics: A Swarthmore Festschrift for Lila Gleitman, ed. by D. J. Napoli & J. Kegl. Lawrence Erlbaum.

GREEN, M. M. & G. E. Igwe. 1963. A Descriptive Grammar of Igbo. London: Oxford University Press.

HARRIS, Zellig. 1944. Simultaneous components in phonology. Language. 20.181-205.

HILL, A.A. 1961. Suprasegmentals, Prosodies, Prosodemes: Comparison and discussion. Language 37:4.457-68.

HILL, T. 1966. The technique of prosodic analysis. In Bazell 1966.

HOCKETT, Charles. 1947. Componential analysis of Sierra Popoluca. IJAL 13.259-67.

KATAMBA, Francis. 1985. A non-linear account of the syllable in Luganda. African Linguistics, ed. by Didier L. Goyvaerts. Amsterdam: John Benjamins.

LAMB, Sydney. 1966. Prolegomena to a theory of phonology. Language 42:536-73.

LANGENDOEN, D. Terence. 1968. The London School of Linguistics. Cambridge: MIT Press.

LEBEN, William. 1973. Suprasegmental Phonology. MIT Ph.D. dissertation in Linguistics.

MCCARTHY, John. 1979. Formal problems in Semitic phonology and morphology. MIT Ph.D. dissertation in Linguistics. Distributed by Indiana University Linguistics Club.

MCCAWLEY, James. 1978. What is a Tone Language? In Fromkin 1978.

PALMER, F. R. (ed.) 1970. Prosodic analysis. London: Oxford University Press.

PIKE, Kenneth. 1948. Tone languages. Ann Arbor: University of Michigan Press.

_____. 1966. Tagmemic and Matrix Linguistics applied to selected African languages. November 1966. U.S. Department of Health, Education, and Welfare. Ann Arbor: Center for Research on Language and Language Behavior.

PULLEYBLANK, Douglas. 1983. Tone in Lexical Phonology. MIT Ph.D. dissertation in Linguistics. Published by D. Reidel, Dordrecht, 1986.

ROBINS, R. H. 1970. Diversions of Bloomsbury. North-Holland Publishing Company. Amsterdam.

SAMPSON, Geoffrey. 1980. Schools of Linguistics. London: Hutchinson and Company.

TUCKER, A. N. 1962. The syllable in Luganda: A Prosodic approach. Journal of African Languages 1:2.122-66.

WARD, Ida C. 1936. An introduction to the Ibo language. London: Heffer.

AFRICAN LANGUAGES, AFRICAN LINGUISTICS, AND LINGUISTIC THEORY[*]

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The title of this discussion reflects variation in the ways the target papers by Joan Bresnan, John Goldsmith, and Eyamba Bokamba have been titled. They respond to an invitation by the organizers of the 20th Annual Conference on African Linguistics (ACAL) that we focus on contributions which the study of African languages have made to developments in syntactic, phonological, and sociolinguistic theories. Such variation is natural. Assuming linguistics to be an empirical discipline, any sound theory of language must be based on actual languages, especially if its hypotheses are claimed to have universal or typological significance. On the other hand, languages alone may not bear on theory unless they have been investigated. Thus, the notion 'African linguistics' as that areal subfield of linguistics dealing with African languages may, for the purposes of the theme of the 20th ACAL, be blurred with that of 'African languages'. The latter notion makes possible the identification of the subfield as a unified body of scholarship (one of the observations by Goldsmith), but it is through the subfield that African languages can bear on linguistic research.

'Linguistic theory' will be interpreted here in more or less the same intuitive way as in the target papers, viz., a body of hypotheses on the subject matters of a field of inquiry. The contribution that a particular areal subfield has made to the field at large may be interpreted as insights that the subfield has contributed toward our understanding of the field's subject. I see two perspectives from which the contribution of African languages and linguistic theory may be assessed. Though they provide pictures which are sometimes not convergent, together they reflect more accurately how much attention research on African languages has been given in syntax, phonology, and sociolinguistics, among other topical subfields.[1] The first perspective should assess the contribution that African linguistics has made to determining standard analyses of African languages, hypotheses based only on, e.g., Western European languages.[2] The second perspective should focus on the role of African linguistics in the identification of what philosophers of science call "anomalous problems," i.e., data which any analytical framework that claims to be more adequate than its competitors must account for, in addition to everything that they all can explain.

One way or another, the target papers focus mostly on research on aspects of African languages that has, or should have, had a significant bearing

on linguistic theory. As informative as they are, the papers do not provide a consistent measure[3] of what African linguistics has contributed to either the development of standard analyses or the identification of anomalous problems. Perhaps there is really no across-the-board measure, as different topical subfields of linguistics do not approach their subject matters in the same ways and as syntacticians, phonologists, and sociolinguists do not form the same kinds of collaborative affiliations (in the sense suggested by Goldsmith).[4]

Nonetheless, I think that textbooks on syntax, phonology, and sociolinguistics, regardless of their analytical frameworks, may provide just the kind of obvious evaluation needed. The reason is that normally they summarize the knowledge that may be assumed as established in an analytical framework; they may be expected to include the standard problems and analyses, as well as to identify the anomalous problems. They determine the picture that the novice develops of the subfield and, in a way, his/her future contribution to the field. Which languages are particularly well cited on particular topics in the relevant textbooks determines what kinds of literature the motivated novice will read, even without advice from the instructor, to further his/her knowledge.[5]

Using textbooks, one develops a differential assessment of the contribution of African linguistics to linguistic theory, consistently with Bresnan's initial observation (p. 35, this volume) that:

> Linguistic research on African languages has led to a number of discoveries that have important implications for syntactic theories. Nevertheless, this research has not yet had the same revolutionary impact upon syntax that Africanist research has had on phonology, where a fundamental restructuring of phonological theories was brought about.

Some of the authoritative works cited by Bokamba suggest that Bresnan could likewise have contrasted the general failure of syntactic theory to incorporate insights from African linguistics with the relative success of sociolinguistics. Just as it is difficult to read a good phonology textbook that does not cite examples from African languages regarding, e.g., prosodic features, vowel harmony, and rule ordering, it is difficult to think of a decent sociolinguistics textbook that does not cite African languages and countries regarding societal and individual multilingualism, lingua francas, language planning, code-switching and mixing, diglossia and related phenomena, and the role of colonization, of religion, and of trade in language spread. On the other hand, it is virtually impossible to find a syntax textbook that discusses serial verb constructions, even though the literature on this topic in the Kwa languages is older than today's syntactic theories; in fact studies of it have increased since the 1970s. Ironically, current research on the subject matter is even likely to discover the relevant West African literature backward through creole studies! I cannot think of any textbook that mentions Bantu languages with regard to agreement or cites them regarding the ability to drop the subject. The same applies to the other topics discussed by Bresnan, though no one will dispute her observation that they have been well studied in African linguistics.

While what I say above is true of syntactic theory in terms of textbooks representing standard analyses of standard problems, there is the other sense in which Bresnan is absolutely right in noting that research in African linguistics has started making the impact expected from the long tradition of research on African languages. The theoretically-oriented studies cited in her paper (many of them recent) converge to build the body of anomalous problems that may no longer be ignored, especially after Bresnan herself has done a great job of stating the problems explicitly and of summarizing competing analyses thereof, and as more and more eminent theoreticians like herself continue research both on African languages and in linguistic theory. The impact will be easier to measure when the insights she identifies in these studies find their way into textbooks; new scholars will learn these phenomena as standard problems with hopefully standard analyses.

It now seems relevant to ask why so much work on the syntax of African languages has failed "to take syntax to its theoretical boundaries and to transform it radically" (Bresnan). It seems to me that an important factor in this state of affairs is how the problems that have preoccupied syntacticians, phonologists, and sociolinguists have been determined from the beginning of each subfield.

It is not surprising that the contribution of African linguistics to sociolinguistics is not in variation analysis or the covariance of language with sociological factors such as gender and status, but rather in areas such as multilingualism, language planning/development, colonialism and language spread, diglossia, and code-switching. These areas developed not only at about the same time current trends in linguistic theory began but also when several African and other Third World countries becoming independent needed quick solutions for their developments. Part of the problems for most countries were located in societal multilingualism. African new nations and other Third World countries then determined the standard problems and African linguistics contributed to developing the standard explanations and the relevant theory. Many new expansions of sociolinguistics, some of them interfacing with other topical subfields of linguistics, have developed since then. Among these are concerns with the nativization of European languages in Third World countries and code-switching and mixing. They have given a new dimension to sociolinguistics, to which many of the studies cited by Bokamba have contributed with leadership.

The story is similar for phonology, a subfield whose subject matter was already well-defined before the Chomskyan revolution, as evidenced by Goldsmith's paper. While the subfield has definitely been affected by this revolution, much of what has happened in it probably was bound to happen even without the changes that took place in syntactic analysis. In terms of feature analysis, for instance, the Prague School had already laid the groundwork for the development. This set aside, both the standard and anomalous problems of phonology have, since the American descriptivist and the European structuralist schools, been defined significantly by non-European languages. While the Chomskyan revolution may be credited with novel

approaches and solutions to them, the problems themselves have continued to be defined by the (kinds of) languages in which phonologists have traditionally been interested. Thus being a phonologist has in most cases meant being an Africanist, or a Sinologist, or an expert in some other non-Indo-European language(s). Having played a central role in the development of phonology, it is normal that African languages and linguistics have contributed significantly to shaping phonological theory.

Things are different for syntax, where since the Chomskyan revolution, the standard and anomalous problems have been defined primarily by English and a handful of Western European languages.[6] This is the picture one gets from surveying both the technical literature and textbooks. It is only recently that some non-European languages such as Chinese, Japanese, and Korean have figured in textbooks and one can only hope that African languages will join their company. If they do, I hope that it will be primarily for the reasons advocated by Bresnan, viz., to adjust linguistic theory, rather than simply to increase variety in the sample of languages cited.

In all the above situations, syntax shares something with phonology and sociolinguistics: The standard problems of each subfield date largely from its beginnings and it takes a strong push to add new data and research questions to the initial research agenda. While it is normal to expect those working in the hard core of syntactic theory to show more interest in African languages and linguistics, it is also the responsibility of Africanists to try to break the barrier that has prevented their works from having the impact they should have had on syntactic theory.

NOTES

[1] The term "sociolinguistics" is used loosely here, as in Bokamba's target paper, for convenience, to subsume also the subfield that is more properly identified as "sociology of language", which deals, for instance, with language development and planning in multilingual countries.

[2] Clements (1989:14) recognizes the need "to single out those respects in which Africanists have been *producers* rather than just *consumers* of linguistics theories."

[3] I use "consistent measure" with emphasis on "consistent" rather than on "measure". I do not dispute the fact that by reading these papers one may

determine, in different ways, the extent to which syntactic, phonological, and sociolinguistic theories have been influenced by research on African languages.

[4] By the end of this essay, I speculate that the different ways in which the subfields have developed in the generative era account in part for the differential contribution that African linguistics has made to linguistic theory.

[5] One major shortcoming of this evaluation metric is that it says nothing about frameworks for which there are no textbooks yet. Thus, although much of what is being proposed in Lexical-Functional Grammar to remedy analytical shortcomings of competing frameworks is based on African languages, the contribution of African linguistics to the framework cannot be assessed without reviewing the original, more technical literature itself. Likewise, this evaluation metric does not do justice to reference works such as Givón (1979, 1984, 1990) and Baker (1988), which advocate theoretical adjustments dictated in part by African languages. Undoubtedly, such literature has contributed to linguistic theory at least by identifying anomalous problems to which it proposes solutions. However, it does not seem to have exerted the same kind of impact that good textbooks institutionalize by compelling competing frameworks to address the same problems.

[6] The considerations given here are intended to complement those of Clements (1989:19-20), especially regarding the limited number of extensive descriptions of the grammars of African languages.

REFERENCES

BAKER, Mark. 1988. Incorporation: A theory of grammatical function changing. Chicago: University of Chicago Press.
BOKAMBA, Eyamba G. 1990. African languages and sociolinguistic theories. This volume.
BRESNAN, Joan. 1990. The contribution of African linguistics to linguistic theory: African languages and syntactic theories. This volume.
CLEMENTS, G. N. 1989. African linguists and its contribution to linguistic theory. Studies in the Linguistic Sciences 19:2.3-39.
GIVON, Talmy. 1979. On understanding grammar. New York: Academic Press.
_____. 1984. Syntax: A functional-typological introduction. Vol. 1. Amsterdam: John Benjamins.
_____. 1990. Syntax: A functional-typological introduction. Vol. 2. Amsterdam: John Benjamins.
GOLDSMITH, John. 1990. Phonological theory and African language phonology. This volume.

II

Phonology

FEATURE GEOMETRY OF KIRUNDI PALATALIZATION[*]

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This paper provides an analysis of palatalization in Kirundi as the coalescence of a front vowel and a preceding consonant. Since consonants undergoing this coalescence with a front vowel exhibit a coronal articulation, the paper argues for a feature geometry in which both front vowels and coronal consonants are associated with a coronal articulator node.

1. Introduction

One aspect of the distinctive feature theory of Chomksy and Halle 1968 is an asymmetry in the sets of features used to characterize consonants and vowels, an asymmetry which has been maintained in most current extensions of this theory. One consequence of this asymmetry is a difficulty in describing certain consonant-vowel interactions. In this paper we examine the interactions between consonants and vowels in the Bantu language Kirundi, and argue for a revision of the theory which provides for a closer match between the feature characterizations of these two classes of sounds.

In SPE, vowel quality is described in terms of the tongue body features [back], [high] and [low] and the labial feature [round]. Consonantal place of articulation, on the other hand, is described in terms of two sets of features. Consonants are specified, first, for primary stricture features ([coronal] and [anterior]), features which are mainly irrelevant for vowels, which are assumed to be redundantly [-anterior] and, except for retroflex vowels, [-coronal]. Second, consonants are specified for tongue body features which serve to characterize secondary articulations (described as superimposition of a vocalic articulation on a consonant) or to make finer distinctions in place of articulation than are permitted by the stricture features.

Recent revisions of feature theory potentially obviate the need for vocalic features to characterize consonantal place of articulation, though this argument has not, to our knowledge, been made. The revision we will be concerned with here is that of Sagey (1986), which specifies place of articulation primarily in terms of (privative) articulator nodes [labial], [coronal], and [dorsal].[1] Since Sagey allows a segment to be characterized by more than one articulator node,

many of the secondary articulations that in SPE are described in terms of vocalic features can in Sagey's approach be described directly in terms of multiple articulator nodes (for example, a palatalized velar may be described as simultaneously [dorsal] and [coronal]) — thereby eliminating much of the contrastive function of the vocalic features on consonants. This development raises the question of the relationship between vocalic features and consonantal place features in an articulator-based theory.

One area in which assumptions concerning consonantal and vocalic features has clear consequences is in the description of the relationships between particular classes of consonants and vowels: for example, the common cross-linguistic association of front vowels and palatal consonants. As Clements (1976) argued persuasively, the SPE system fails to reflect this association in any satisfying manner. In this paper we examine the effect of vowels of different classes on adjacent consonants and argue that Sagey's system fares no better in reflecting the relationships between consonantal place of articulation and vowel quality. Kirundi exhibits a pattern of consonant mutation before front vowel suffixes that has traditionally been palatalizational. We argue below that these consonant changes, which range from addition of a secondary articulation in a consonant to a complete change in place of articulation, pose problems for Sagey's model of feature geometry. We argue further that palatalization in general is problematic for this model, and we propose a revision of the feature geometry that reflects the connection between front vowels and coronal consonants while also avoiding the redundancy inherent in a theory that characterizes consonants in terms of both multiple articulator nodes and vocalic tongue body features.

We begin with a discussion of the changes associated with each place of articulation in the formation of the perfective verb. We show that Sagey's model does not allow for a unified account of these changes, and we propose a revision of this model and an analysis of the Kirundi facts within this framework. Throughout we follow Kirundi orthography in the presentation of data, except where the orthography provides insufficient information concerning phonetic value; deviations from the standard orthography are identified as such in the text.

2. Consonant changes in the perfective

Palatalization occurs in a number of morphological environments, each associated with a suffixal front vowel. We will begin our examination with the perfective forms of basic (nonderived) verbs, since the infinitive/perfective alternation is a productive one, and the consonant changes of the perfective are generally representative of other palatalizations, with one exception noted below. The infinitive/perfective paradigm is illustrated in (1), where the root *kam* ends in a labial before the final vowel *-a* of the infinitive, but is transformed into *my* before the final vowel *-e* of the perfective suffix. (A detailed account of the perfective morphology is provided in section 3; at present our focus is on the output of palatalization.)

(1) a. bukama 'to dry' (intransitive)
    b. yakamye 'he dried' (intransitive)

Here we follow Sagey in assuming that *my*, like other multiply articulated units, represents a single segment in the phonological system of Kirundi. Sagey provides convincing evidence from closely related languages that such multiply articulated elements pattern like single segments with respect to processes like syllabification and reduplication, and that the various articulations of these segments are phonologically unordered. Similar arguments for Kirundi are provided by Bothner-By (1988), who argues that Kirundi syllable structure is uniformly CV, and that orthographic sequences of consonants actually represent single, multiply articulated segments. We therefore assume a structure for *my* roughly like that in (2):

(2)   root
                |
         . . . place . . .
                  .
                  .
                  .
              /   \
         labial   coronal
                     |
                   -ant
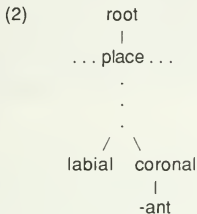
(2) illustrates a single segment with two simultaneous places of articulation, palatal and labial. Because *my* is a single segment, it has a single root node, but because it has two places of articulation, the place node branches into two articulator nodes, one labial and one coronal.

As (3b) illustrates, the labial obstruent also acquires a palatal articulation before the final vowel of the perfective:

(3) Labials
    a. m → my
       gukama/yakamye   'to dry/he dried'
    b. b (β) → vy
       kuraaba/yaraavdye   'to look at/he looked at'

Orthographic *b* in (3b) represents a labial fricative, which is realized allophonically as a labiodental fricative when combined with a palatal stop (*dy*); this combination is represented in the orthography as *vy*. The alternation *ku/gu* in the infinitive prefix is due to the well-known phenomenon of Dahl's Law: *gu* appears before roots beginning in voiceless consonants, while *ku* appears before voiced consonants.

As we would expect, palatalization does not affect consonants that are already palatal, as shown in (4). (*sh* represents a voiceless palatal fricative, *c* and *j* palatal affricates):

(4) Palatals
   a. sh → sh
      kugisha/yagishe   'drive cattle'
   b. j → j
      kumiija/yamiije   'sprinkle'

And glottal *h* becomes the palatal fricative *sh*:

(5) Glottals
      gutaaha/yataashe 'go home'

However, not all consonants exhibit such straightforward behavior in the perfective. Alveolars vary according to manner of articulation, as illustrated in (6):

(6) Alveolars
   a. n → ny
      gukina/yakinye   'play'
   b. t → s/sh
      kuroota/yaroose   'dream'
      kumata/yamashe   'stick'
   c. s → sh
      kumesa/yameshe   'do laundry'
   d. r → dz/y
      kurira/yaridze   'cry'
      kubarira/yabariye   'tell'

While alveolar nasals become palatal (as shown in (6a)), obstruents may either remain alveolar, or become entirely palatal, as in (6b-d). The choice of *s* vs. *sh* as the palatalized varient of *t* is determined by the number of moras in the verb root, as is the choice of palatalized variant of *r* (6d), which may surface either as *y* or as an alveolar affricate (which is represented in the orthography as *z*, reflecting the fact that *z* and *dz* are in free variation in this language).

Velars also exhibit a somewhat surprising pattern:

(7) Velars
   a. k → ts
      guteeka/yateetse 'cook'
   b. g → dz
      kwooga/yoodze   'swim'
   c. k → c
      iceera   'white ones'
      iki   +eera
      class marker +white
   d. b → vdy
      ivdyeera   'white ones'
      ibi   +eera
      class marker, pl. +white

Velars are generally replaced by alveolar affricates *ts* and *dz* (= orthohgraphic *z*), as in (7a) and (b). However, *k* in a noun class prefix is replaced by a palatal affricate, as shown in (7c). We assume that the palatalization rules are sensitive to the difference in morphological structure: in the noun class marker, the front vowel and the palatalizing consonant are contained within a single morpheme, while in the perfective they are in separate morphemes. A labial consonant contained in a class marker, however, undergoes the usual palatalization, illustrated in (7d). (See Niyondagara 1989 for a fuller account of these facts.)

Thus while the facts of palatalization are complex, exhibiting sensitivity to morphological and prosodic factors, one clear generalization emerges: the output of palatalization is always a coronal — a palatal segment, a doubly-articulated segment of which one articulation is palatal, or an alveolar segment. Oral segments also acquire a continuant articulation under palatalization, becoming either affricates, fricates, or glides. We will now consider what sort of theory can provide a unified account of the coronalization involved in the palatalization process.

As Clements (1976) points out, palatalization, when viewed as an assimilation of consonants to [-back] vowels, is problematic in an SPE model of phonology. Many languages have rules which convert front velars (for example *k*) to palatals (for example *c*), but the assignment of the feature [-back] to a velar the form of linking rules changing the value for [coronal] (at least), is required to convert a fronted velar into a palatal, as shown in (8):

(8)		k	k<	c	
	Cor	-	-	+	
	Ant	-	-	-	[-ant,-bk] $\rightarrow$ [+cor]
	Back	+	-	-	

The palatalization (or more accurately, coronalization) of Kirundi velars exhibits a similar and even more severe instance of this problem, since the output of palatalization may be a [+coronal, +anterior] segment.

The effect of palatalization is also a problem for Sagey's model of segment structure. Sagey, following Clements (1985), assumes that the features associated with a segment are organized in a hierarchical structure. Sagey's revision of Clements' model represents multiply articulated segments as those in which the place node dominates more than one articulator node. The maximal expansion of the place node is as shown in (9):

(9) Sagey's Model of Feature Geometry

```
                root
               / | \
        laryngel |  continuant, consonantal
            supralaryngeal
              |          \
              |           soft palate
            place           |
           / | \          nasal
        labial |  dorsal
       /    |   / | \
    round   | high low back
          coronal
          /   \
      anterior distributed
```
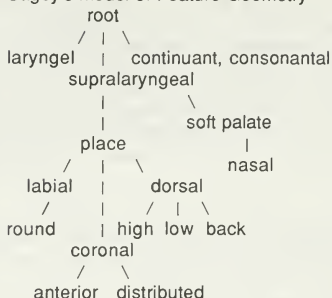
Palatalization of labials and of *n* can be described in this framework as spreading of the feature [-back] from the following vowel onto the preceding consonant. Sagey argues that spread of a dependent feature triggers interpolation of the articulator node needed to support that feature; therefore, spread of [back] will be accompanied by addition of an interpolated dorsal node (represented in parentheses) on an original *n*, as in (10a), or on *m* or *b*, as in (10b).

(10) a. n → ny:

```
              place          place
               | \            |
          coronal (dorsal)   dorsal
                    `--------- |
                        `---- -bk
```

b. m, b → my, by:

```
              place          place
               | \            |
          labial (dorsal)    dorsal
                    `--------- |
                        `---- -bk
```
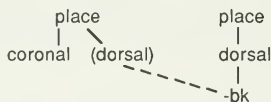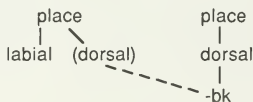
The structures shown in (10), however, require some additional interpretation. First, the output of palatalizing an alveolar nasal is a palatal nasal (that is, a nonanterior coronal sound), rather than the doubly-articulated segment shown in (10a). Discussing similar palatalization of a coronal in Zoque, Sagey argues that "the coronal and dorsal articulations, because they are so close to each other, are not pronounced as two independent constrictions, but rather fuse to a single, [-anterior] coronal articulation" (p.110): in other words, the dorsal articulation associated with the palatalizing vowel must be deleted. Thus Sagey's system requires the analogue of SPE linking rules to transform the output of palatalization to a coronal, since neither the SPE system nor Sagey's system makes any necessary connection between [-back] and coronality.

The doubly-articulated segments in (10b), on the other hand, are apparently not reanalyzed; rather, the added palatal articulation remains dorsal. Thus while palatals are characterized as coronal, palatalization is represented as addition of a dorsal articulation. This vitiates one of the most attractive features of Sagey's system: the parallelism between primary and secondary places of articulation in consonants. Furthermore, the assignment of vowel features to the dorsal node means that if the glide *y* is considered coronal, it cannot be seen as the nonsyllabic counterpart of *i*, which must of necessity be dorsal. Yet it is well known that *i* and *y* alternate in a number of languages (for example, in conditioning the alterntion of *l* and *r* in Ewe).

Furthermore, this approach is even less successful with other places of articulation. Once again, palatalization — spread of [-back] from a front vowel — is analyzed as addition of a dorsal node. But while consonants which are originally coronal remain coronal under palatalization, VELARS — segments with an original dorsal articulation — become CORONALS when palatalized. It is a mystery in Sagey's system why addition of a second dorsal articulation to an original dorsal should change the dorsal to a coronal. Similarly, there is no apparent reason why the palatalized counterpart of *h* — a segment with no inherent place feature — should surface as a coronal segment, *sh*.

The creation of coronal segments under the influence of a neighboring front vowel is of course by no means restricted to Kirundi; in many languages velars are fronted to palato-alveolars by front vowels. And, as Mester and Itô (1989) note, coronals are more likely than other segments to serve as landing sites for palatalizing autosegments. We conclude, therefore, that the stipulation that the feature [back] must be dominated by the dorsal node prevents us from giving a natural account of the prevailing association between front vowels and coronals in a wide array of languages.

As a possible but ultimately unsatisfactory means of overcoming this inadequacy in the formalism, we might try moving the feature [back] under the coronal node. In this case, spreading of [-back] would cause interpolation of a coronal node, producing a segment with at least one coronal articulation. However, this would simply shift the problem to another area of the grammar: while providing an adequante account of the effect of front vowels on preceding consonants, it would then create a similarly knotty problem in describing the effect of back vowels. Kirundi has, along with palatalization, a parallel consonant mutation caused by a following nonlow back vowel. This can be illustrated by the effect of the passive suffix *-u*, which is added to a verb before the final vowel. This suffix is realized in its effect on the preceding consonant. When added to a velar, it produces an additional labial articulation, an effect of the roundness of this vowel, as shown in (11):

(11) Active/Passive
    a. Velars
        guteeka/guteekwa   'to cook/to be cooked'
        kuraga/kuragwa   'to bequeath/to be bequeathed'

This is analyzed in Sagey's system as spread of the feature [+round], dominated by [labial]. The labial node is interpolated on the consonant to carry the [round] feature, and the resulting segment thus displays two articulator nodes, the original dorsal node and the added labial node, as shown in (12):

(12) kw: place
                / \
          (labial) dorsal
             | |
           +rd   +bk
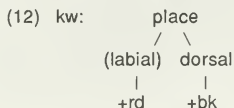
All consonants other than velars show up with not only a labial articulation but also an added velar articulation. This is the process known as velar fortition, illustrated in (13). Labials receive only the additional velar articulation, since they are already labial. Coronals take on both a labial and a velar articulation, as shown in (13b) and (c). (Here we depart from the orthography, which does not indicate the presence of the velar nasal in (13a) or the velar stop in (13b,c).

(13) a. Labials
        gukama/gukamna   'to dry/to be dried'
        kuraaba/kuraabga   'to look at/to be looked at'

     b. Alveolars
        kubona/kubonŋwa   'to see/to be seen'
        gukubita/gukubitkwa   'to beat/to be beaten'
        kugura/kugurgwa   'to buy/to be bought'
        kuramutsa/kuramutskwa   'to visit/to be visited'
        gutereredza/gutereredzgwa 'to ask/to be asked (for help)'

     c. Palatals
        gukoresha/gukoreshkwa   'to hire/to be hired'
        kwiica/kwiickwa   'to kill/to be killed'

It seems clear that velar fortition is an effect of the following back vowel; coalescence of the back vowel with the preceding consonant adds a velar articulation to that consonant. In Sagey's analysis this is handled by spread of [+back], with interpolation of a dorsal node to carry the back feature. But given her assumpions that [back] is dominated by [dorsal], front vowels and back vowels should be equally likely to induce velar fortition.

The generalization is clear, however: a front vowel induces coronality, while a back vowel induces velarity.[2] This is not easily accounted for in a system in which [back] is lodged under the dorsal node. Nor is this effect expected in the revision of Sagey's system proposed by Steriade (1987), which goes even further in segregating vocalic and consonantal features by locating all vowel features, including [back], under a dorsal node, while consonants are characterized by labial, coronal, and velar nodes.

It might seem at this point that the way to reflect the widespread association of front vowels with coronality and back vowels with velarity is to assign [-back] to the coronal node and [+back] to the dorsal node. To do this, however, would obviously be to give up the binary nature of [back] as a feature. Alternatively, we might consider front vowels to be doubly-articulated, both dorsal and coronal. Under this assumption, front vowels would have the representation in (14a), while back vowels would be represented as in (14b):[3]

(14) a.   place   b. place
           /   \ |
        coronal   dorsal   dorsal
                     | |
                   -bk   +bk
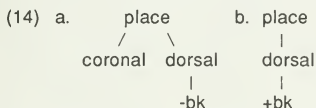
However, this account maintains the association of front vowels and [dorsal], with the result that front vowels should be as likely to induce velar fortition as back vowels, since the spread of [-back] should still trigger interpolation of a dorsal (velar) node. The representations in (14) also introduce a problem of redundance: the feature specification [-back], while dominated by the dorsal node, is always associated with the presence of an additional coronal articulation.

Our proposal, then, is to simply eliminate the feature [back] from the inventory and to assign front vowels and back vowels to different articulator nodes: back vowels to the dorsal node and front vowels to the coronal node, as in (15):

(15) a. front vowels   b. back vowels

            place   place
              :   :
            coronal   dorsal
              |
            -ant
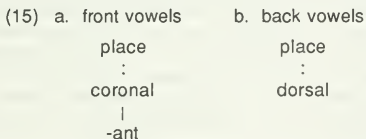
Clements' (1976) arguments for the assignment of the feature [+coronal] to both front vowels and coronal consonants are arguments for this proposal as well. Furthermore, Clements' proposed characterization of retroflex vowels as [+distributed] — motivated both on articulatory grounds and on the basis of the distribution of retroflexed vowels and consonants — would require that coronality be associated with at least some vowels, since in Sagey's system [distributed] is a dependent of the coronal node, and therefore cannot be specified for solely dorsal segments. In fact, the correct characterization of retroflex vowels (often described as similar to schwa in tongue body position but with an additional retroflex articulation) may in fact be as doubly-articulated segments, both coronal and dorsal. Thus the theory allows both doubly articulated consonants and doubly articulated vowels.

The proposal outlined above is consistent not only with the assimilatory nature of palatalization but also with the common tendency of palatalization processes to single out coronal segments as their target. Mester and Itô (1989) in their discussion of Japanese palatalization analyze the process as docking of a [-anterior] autosegment on an appropriate consonant; since [anterior] is

dominated by the coronal node, the palatalizing autosegment seeks out coronals.[4]

Furthermore, in giving up [back] as a separate feature we are eliminating a potential redundancy in Sagey's system. One function of the features [back], [high], and [low] on consonants was to further subdivide the articulations described by the stricture features [coronal] and [anterior]. Thus velars, uvulars, and pharyngeals, which shared the same specifications for stricture features, could be distinguished by their specifications for tongue body features. However, this system of classification has been argued to be inadequate, at least in the description of pharyngeals.[5] Recently, McCarthy (1989) has suggested the addition of a fourth major articulator node, [pharyngeal] to the inventory, and he provides compelling arguments that the distinction between velars and uvulars in Arabic is best described not as a difference in tongue body features but rather in terms of an added pharyngeal articulation in uvulars which is not present in velars.[6]

One major argument for retaining the feature [back], on the other hand, harks back to one of the original motivations for employing vowel features as dependents of articulator nodes: the postulation of separate vowel features makes possible a description of vowel harmony in which vowel features spread across intervening consonants, regardless of the place of these consonants. If backness harmony is analyzed as spread of the articulator node of a vowel, then we would expect harmony to be blocked by intervening consonantal articulations. However, this is a problem only under the assumption that consonants and vowels always occupy a single plane, except when they constitute separate morphemes. If, however, as McCarthy (1989) argues, this assumption is too strong, then it is possible that any language that has backness harmony independent of the articulation of intervening consonants arranges its vowels and consonants on separate planes at some point in the derivation. This is clearly too broad a topic for us to explore here, so we will simply present a feature geometry for Kirundi and offer an analysis of palatalization using this geometry.[7]

The feature geometry we are proposing, then, is as in (16):

```
(16)              root (cont,cons)
              /        \
      laryng.    supralaryngeal
                    |        \
                  place    soft palate (nasal)
                  /    \
            labial      lingual
              |        /     \
          round   backness   height
                  /   \      /   \
                cor   dors  high (low)
                /  \
             ant   dist
```
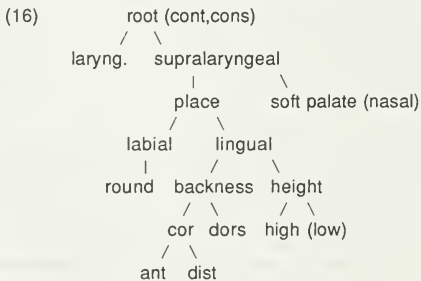
In this model, the place node branches into the labial and the lingual nodes. The lingual node in turn branches into the backness node, which dominates

[coronal] and [dorsal], and the height node, which dominates the features [high] and [low]. (We assume, following McCarthy (1989), that a pharyngeal node is necessary at least for languages with pharyngeal consonants, and leave open the possibility that certain vowel contrasts might be a function of pharyngeal articulation.) Association of the features [high] and [low] with a height node rather than with the coronal or dorsal nodes ensures that backness harmony and height harmony can take place independently: backness harmony is spread of the lingual node. (If, as seems likely, low vowels can be characterized as vowels with an added pharyngeal articulation, the feature [low] can be dispensed with; under this account, the pharyngealized vowels of Arabic will be doubly articulated (corono-pharyngeal or dorso-pharyngeal)). Front vowels will be characterized by the presence of a coronal node dominating [-anterior], while back vowels will be characterized by the presence of a dorsal node. We turn now to an analysis of the Kirundi palatalization facts discussed above.

3. Palatalization in perfective and transitive verbs

Following Sagey's analysis of Kinyarwanda (Sagey 1986, Walli-Sagey 1985; see also a similar analysis of Kirundi by Kenstowicz & Kisseberth 1979 in a linear framework), we assume that palatalization involves the coalescence of a vowel with a preceding consonant. Sagey argues convincingly that Kinyarwanda syllable structure is strictly CV, with no underlying distinction between vowels and glides. Sequences of unlike vowels are not permitted; CVV sequences may be syllabified by coalescence of the consonant and the first vowel, as most clearly illustrated in forms (6c) and (6d), repeated below as (17a,b). (17c,d) illustrate roots begining with back vowels, while (17e,f) illustrate consonant-initial roots:

(17) a. iceera   'white person'
        iki+eera
     b. ivdyeera   'white person'
        ibi+eera
     c. icoobo   'pit'
        iki+oobo
     d. ivdyoobo   'pits'
        ibi+oobo
     e. ikiraato   'shoe'
     f. ibiraato   'shoes'

As the forms in (17) illustrate, a single following front vowel is not a sufficient condition for palatalization, since a single vowel is syllabifiable. Similar facts obtain in the verbal system. (18) shows the derivation of perfective and transitive verb forms. The final consonant of the verb root is palatalized in (18b), the basic perfective, and in (18c), the transitivized form of the verb, but in the perfective transitive (18d) the underlying *m* re-emerges.

(18) a. gukama   'to dry (intransitive)'
     b. yakamye   'he dried (intransitive)'
     c. gukamya   'to dry (transitive)'
     d. yakamije   'he dried (transitive)'

In light of the forms in (18), we assume that the perfective takes an *i* suffix before the final vowel -*e* which is realized as palatalization on the root-final consonant.[8] Similarly, the transitives are formed by a suffix *i* placed before the final vowel (-*a* for infinitives, -*e* for perfectives). Since Kirundi insists on CV syllables, the first of the two suffixes coalesces with the preceding consonant, as represented in (19):

(19)   syll
          / |
         C V V
         | \ |
         m i e/a

The coalescence of the *i* with the *m* in (19) leaves a vacant vowel slot which would normally be filled by lengthening the *e* or *a*; however, Kirundi does not normally permit long vowels in final position. The underlying representations of the forms in (17), then, are as in (20):

(20) a. basic infinitive: INF ku- + ROOT + FINAL VOWEL -a
                              ku+kam+a → gukama
     b. basic perfective: 3MSG ya- +ROOT + PERF -i +FV -e
                              ya+kam+i+e → yakamye
     c. trans. infinitive: INF + ROOT + TRANS -i +FV -a
                              ku+kam+i+a → gukamya
     d. trans. perfective: 3MSG + ROOT + TRANS -i + PERF -i +FV e
                              ya+kam+i+i+e → yakamije

For (20d), we assume a rule which takes intervocalic *i* to *j*:[9]

(21) i →j / V _ V

After the application of this rule to (20d), all vowels and consonants in the word may be accommodated in a CV syllable structure. Rule (21) does not apply in the (b) and (c) forms, however, since these have only two vocalic suffixes, which can be incorporated into a well-formed prosodic structure by coalescence of the first vowel with the preceding consonant and retention of the second vowel as a syllable nucleus.

The output of the consonant-vowel coalescence illustrated in (19) is a consonant which always has a coronal component (it is either palatal or alveolar) and, except for nasals, a [+continuant] component (it is either a fricative, affricate, or glide). We interpret this coalescence formally as spreading of the place node from the vowel to the preceding consonant, with delinking of the rest of the vowel features from their original timing slot. For the labials *m* and *b*, this gives the structure in (22):

(22) m → my, b → by

```
    m, b              i
    ROOT             ROOT
     :                :
     : ~ _ _ _        =
     :       ~ _ _ _
    place            place
     |                |
    labial           lingual
                      |
                     coronal
                      |
                     -ant
```
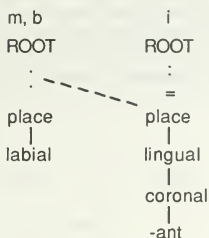
For alveolar *n*, since both the *n* and the following vowel are coronal, the pruning of shared features will combine the two place nodes into a single coronal articulation. While *n* is [+anterior] and *i* is [-anterior], the result of palatalization is *nv*, a [-anterior] segment. We can account for this by assuming that [+anterior] is the default setting for coronals, and that therefore *n* is unspecified for [anterior], in which case the [-anterior] specification of the vowel is the one assigned to the resulting consonant. Or alternatively, we might assume that docking features win out over those already associated to a node. We will not attempt to choose between these alternatives here, but simply note that either one will also account for the change of *s* to *sh* under palatalization. Sounds which are already palatal will not be affected, since the place features spread to them will be identical to those already specified.

(23) n → ny, s → sh

```
     n                i
     : ~ _ _ _        =
     :       ~ _ _ _
    place            place
     :                :
    lingual          lingual
     |                |
    coronal          coronal
                      |
                     -ant
```
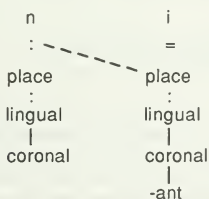
Palatalization of non-nasal stops requires an additional wrinkle, since the output of the palatalization of obstruents or *h* is always either a fricative or an affricate, as illustrated in (24):

(24) a. gutaaha   (basic inf: ku+taah+a)   'to go back home'
      b. yataashe   (basic perf: ya+taah+i+e)   'he went back home'
      c. gutaashe   (trans inf: ku+taah+i+e)   'to greet'
      d. yataahije (trans perf: ya+taah++e)   'he greeted'

We assume, therefore, that palatalization assigns the feature [+continuant] to
oral consonants, perhaps as spread of continuancy from the palatalizing vowel.
Once [+continuant] is assigned, the spread of the place features of *i* to *h* will
result straightforwardly in *sh*; since *h* has no supralaryngeal features of its own,
the spread of a minus anterior coronal articulation to a voiceless continuant
produces *sh* with no additional machinery:

(25) h → sh

```
        h              i
      root           root
       |              :
     +cont - - - - -  =
                      :
                    place
                      :
                   coronal
                      |
                    -ant
```
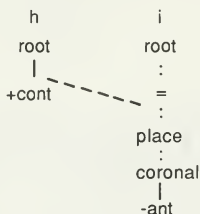
Next to be accounted for are the alveolar stops *r* (which becomes *y* or *dz* in
the perfective), and *t* (which becomes *sh* or *s* in the perfective). It is apparently
unpredictable for any given lexical item which alternant it will take; examples of
each are illustrated in (5), and (26) provides a full paradigm of perfective and
transitivized forms of an *r*-final and a *t*-final verb:

(26)   r → y/dz
        a. gukira/yakidze   'recover (inf./perf.)'
        b. gukidza/yakirije   'heal (inf./perf.)' (~yakijije)

        t → sh/s
        c. kuruta/yaruse   'be bigger than (inf./perf.)'
        d. kurusha/yarushije   'do better than (inf./perf.)'

The change of the flap (that is, noncontinuant) *r* to *y* and *t* to *sh* represents the
triumph of [-anterior] over [+anterior] and the triumph of [+continuiant] over
[-continuant]. For *r*, the change to *y* maintains the original sonority of *r*, while
simple addition of [+continuant] gives *dz*. We assume that certain verb roots are
lexically marked to maintain [+anterior]. An additional rule of consonant
harmony takes *r* to *j* before *j*, transforming *yakirije* to *yakijije* in (26b). This
rule is blocked, however, in certain syntactic contexts, in which the form with *r* surfaces
(see Niyondagara 1989 for discussion).

The final question to account for is why the velar stops surface as alveolar
affricates, as illustrated in (6) and in (27):

(27)   k,g → ts/c, dz
        a. kwaaka/yaatse   'light (intrans.)'
        b. kwaatsa/yakije   'light (trans.)'
        c. iki+era → iceera   'white one'

The change from stop to affricate is consistent with the behavior of the other sounds: all non-nasals acquire a [+continuant] articulation under palatalization. What is unusual about the velars is that the original dorsal articulation is lost entirely, leaving only the added coronal articulation. We assume that velars undergo the spread of the place node from the following vowel that we have seen for other sounds, illustrated in (28):

```
(28)    k                i
      root             root
        :                =
   [-cont, +cont]        :
        : ~ ~ ~ ~        :
      place ~ ~ ~ ~ place
        |                |
      dorsal            cor
```
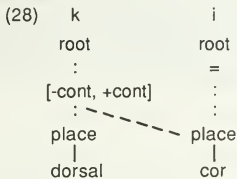
The structure shown in (28) requires an additional rule delinking [dorsal]:

```
(29)  Dorsal Delinking
            root
              :
            place
            /   \
          =      \
        dorsal  coronal
```
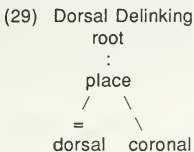
Rule (29) transforms segments which are simultaneously dorsal and coronal into solely coronal segments. Of course, dorsal and coronal articulations do cooccur in certain segments — specifically, in the output of velar fortition, discussed above, where the coalescence of the passive suffix *u* with an alveolar, for example, creates an alveolar-velar (*gukubita/gukubitkwa 'to beat/to be beaten'*). However, in these cases the segment always has a third articulation, labial. If we assume that the association lines in rule (29) must be interpreted as exhaustive (Hayes 1986), rule (29) will not apply to these triply-articulated segments. Thus (29) will convert segments that are exhaustively dorso-coronal to pure coronals, but will not apply to segments that are simultaneously labial, dorsal, and coronal.

The output of coalescence and dorsal delinking is either an alveolar or a palatal affricate, depending on word structure. The maintenance of the expected [-anterior] articulation seems to be specific to pre-root morphemes, and possibly to the morpheme *ki* (which may be used either as a class marker on nouns or as an object pronoun on verbs). Root-final velars and velars in morphemes following the root shift to a [+anterior] articulation. What is needed is a rule of anteriorization, sensitive to word structure; exact statement of this rule will require a more complete account of Kirundi word structure than we can provide here.[10]

4. Conclusion

To conclude, then, we have argued that palatalization is best described as addition of a coronal articulation to a consonant. The added coronal articulation either coexists with the original consonantal articulation or replacaes it (by means of a rule delinking the original articulator node). Formally, palatalization is accomplished by spreading the place node of a following vowel onto a preceding consonant, an approach which could be extended to the description of velar fortition as well.[11] The feature geometry we have proposed provides a unified description of vowels and consonants which reflects the widespread relationship between front vowels and palatalization.

NOTES

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[1] Though additional nodes have been motivated by McCarthy (1989); see discussion below.

[2] In a small number of cases — specifically CV morphemes consisting of a coronal consonant followed by a front vowel — coalescence of the consonant and vowel is associated with velar articulation of the resulting complex segment in addition to the expected palatal articulation (for example, *ku+se+a → guskya* 'to grind'; cf. *kumesa/yameshe* 'to do laundry/he did laundry'). However, noncoronals in CV morphemes do not undergo velarization in the same context: *ku+ke+a → guca* 'to set (of sun'); *ku+vi+aar+a → kuvdyaara* 'to give birth'. Therefore, this velarization is not an example of the general case of velar fortition, but instead requires rules specific to morpheme-internal coronal-V coalescence (Niyondagara 1989).

[3] A proposal somewhat similar to this is made in Pulleyblank 1989.

[4] However, since the palatalizing morpheme is not an autonomous segment, Mester and Itô are not committed to any particular representation of vowels.

[5] See, for example, Broselow 1976, 1979.

[6] McCarthy's account differs in other respects from the one adopted here, however.

[7] See Broselow (in preparation) for a discussion of this question in terms of vowel and consonant harmony and interactions in Turkish and Kirundi.

[8] Meeussen 1959 assumes a *y* suffix; however, since the syllabicity of high vowels and glides is entirely predictable in this language, there is in fact no evidence for positing underlying glides.

[9] This applies only when the first vowel is not part of the verb root; in the latter case, *i* is realized as *v*, as in *kumnwa/yamoye* 'to shave/he shaved', or *gusha/yahiye* 'to burn/he burned'. As suggested to us by one reviewer, the rule may actually be more general: *v* becomes *j* after *i*.

[10] See Myers 1987 for a suggestive account of Shona word structure.

[11] Sagey's arguments against velar fortition as spread of the place node rely on the use of the feature [high] to distinguish velars and uvulars; specifically, spread on the place features of a mid vowel should induce a uvular rather than a velar articulation. We find this argument unconvincing for two reasons: first, these languages do not employ a velar/uvular contrast, and second, as discussed above, this contrast is probably best characterized not by a difference in the specification of value of [high].

REFERENCES

BOTHNER-BY, A. 1988. Phonological representations of Kirundi. Unpublished M.A. thesis, SUNY Stony Brook.

BROSELOW, E. 1976. The phonology of Egyptian Arabic. University of Massachusetts at Amherst unpublished Ph.D. dissertation in Linguistics.
_____. 1979. Cairene Arabic syllable structure. Linguistic Analysis 5.345-382.
_____. In preparation. Consonant and vowel harmony in Turkish and Kirundi.

CHOMSKY, N., & M. Halle. 1968. The sound pattern of English. Harper and Row.

CLEMENTS, G. N. 1976. Palatalization: Linking or assimilation? CLS 12.90-109.
_____. 1985. The geometry of phonological features. Phonology Yearbook 2.225-252.

HAYES, B. 1986. Inalterability in CV phonology. Language 62.321-51.

KENSTOWICZ, M., & C. Kisseberth. 1979. Generative phonology. Orlando, Florida: Academic Press.

KIMENYI, A. 1979. Studies in Kinyarwanda and Bantu phonology. Carbondale: Linguistic Research Inc.

McCARTHY, J. 1989. Linear order in phonological representation. Linguistic Inquiry 20.71-100.
_____. 1989. Guttural phonology. Unpublished ms.

MEEUSSEN, A. 1959. Essai de grammaire Rundi. Tervuren: Annales du Musée Royal du Congo Belge.

MESTER, A., & J. Itô. 1989. Feature predictability and underspecification palatal prosody in Japanese mimetics. Language 65.258-293.

MYERS, S. 1987. Tone and word structure in Shona. University of Massachusetts at Amherst unpublished Ph.D. dissertation in Linguistics.

NIYONDAGARA, A. 1989. Phonological mechanisms in Kirundi perfective and transitive forms. Ms., SUNY at Stony Brook.

PULLEYBLANK, E. 1989. The role of coronal in articulator based features. Delivered at the Chicago Linguistics Society Meeting.

SAGEY, E. 1986. The representation of features and relations in non-liner phonology. MIT unpublished Ph.D. dissertation in Linguistics .

STERIADE, D. 1987. Locality conditions and feature geometry. NELS 17.595-618.

WALLI-SAGEY, E. 1985. On the representation of complex segments and their formation in Kinyarwanda. Studies in compensatory lengthening, ed. by L. Wetzels & E. Sezer, 251-278. Dordrecht: Foris Publications.

UNDERLYING FEATURE SPECIFICATION IN YORUBA*

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This paper discusses the nature of feature specification in Standard Yoruba in the context of the theory of lexical phonology. We postulate that Standard Yoruba has no underlying nasal consonants in major lexical classes (nouns, verbs, and adjectives). In these classes, nasals arise from two lexical rules, the first nasalizing /b/ and /l/ before nasal vowels, and the second nasalizing /l/ before /i/. Exceptions to these rules are restricted to loanwords. We further examine a lexical constraint prohibiting /a, ɔ/ as the first vowel in VCV stems in which the second vowel is a high oral vowel /i, u/. On the basis of this analysis, we show that Yoruba gives evidence for a theory of feature specification in which distinctive feature values are specified and redundant values are omitted (cf. Steriade 1987, Clements 1987).

1. Introduction

This paper concerns the question of phonological feature specification in Standard Yoruba (SY) within the context of lexical phonology. Recent work has shown that phonological segments must be underspecified for certain features at the level of underlying representation and for portions of the lexical and postlexical phonology. However, theories differ as to the extent to which representations can be underspecified. Some theories have proposed that only the marked or non-default value of each feature appears in underlying representations, the other value being introduced by redundancy rules (for variants of this position see Kiparsky 1982, 1985, Archangeli 1984, Archangeli & Pulleyblank 1986); let us call this theory *Radical Underspecification.* Other theories have proposed that underlying representations contain more feature information, and in particular that all distinctive feature values are underlyingly present (Steriade 1987), at least in the representation of vowels at the segmental level (Clements 1987); let us call these theories *Distinctive Feature Specification.* This paper presents evidence that the vowel [i] in Yoruba must be distinctively specified in the lexical phonology, that is, sufficiently specified for it to be distinguished from all other vowels. While this result is strictly speaking

compatible with both theories of feature specification, it is not consistent with the claim that [i] is totally unspecified for place features in the lexical phonology of Yoruba, a claim which has been recently offered in support of the theory of radical underspecification (Pulleyblank 1988).

For the purposes of this discussion, we adopt a "generic" theory of lexical phonology in which only the following principles are crucial:

(1) a. All phonological rules are assigned to one or more (lexical or postlexical) strata.
    b. Application of lexical rules takes place before application of postlexical rules.
    c. Only lexical rules have lexically- or morphologically-defined exceptions.

For further discussion of lexical phonology, see e.g. Mohanan (1982, 1986) and Kiparsky (1982, 1985). A further assumption, discussed and motivated in Clements (1987), is that phonological rules do not make crucial reference to zero, i.e. to the absence of a feature or class of features. We state this constraint as follows:

(2) *Invisibility of Zero:*
    Phonological rules cannot refer explicitly to the absence of a feature (or class node, in the sense of Clements 1985).

Within the context of a theory of distinctive feature specification such as that assumed here, this constraint expresses the generalization that natural classes are not defined in terms of redundant feature values. Thus, for example, in a language in which /p/ is redundantly voiceless (due to the absence of /b/) and sonorants are redundantly voiced, the set of all sounds in which the feature [voiced] is redundant (namely, the set consisting of all sonorants and /p/) is not a natural class. Constraint (2) makes it impossible for a phonological rule to designate such a class by referring to [Ø voiced].[1]

The consonant system of Yoruba is as follows (all symbols have IPA values):

(3) a.

		t			k	kp	
b	d	dʒ		g	gb		
f	s	ʃ					
m	n						
l, r			j		w	h	

We follow the standard orthography in representing [kp] by the letter <p>, [ʃ] by <ṣ>, [dʒ] by <j>, and [j] by <y>.

The vowel system is given below, with distinctive feature values for each vowel. It will be seen that just the minimum number of feature values is given to permit the unique identification of each vowel. For example, /O/ is the only [-high, -low, +back] vowel in Yoruba; [-high] is required to distinguish it from /u/, [-low] to distinguish it from /a/, and [+back] to distinguish it from /E/. All other features are redundant. Note that /ɛ̃/ occurs marginally in a few lexical items

only. /ã/ is frequently realized as [ɔ̃], especially after labial consonants. The segments /E, O/ are realized as either the [+ATR] vowels [e, o] or the [-ATR] vowels [ɛ, ɔ] according to the system of morpheme-level vowel harmony (Archangeli & Pulleyblank 1989).

(3) b.	i	u	E	O	a	ĩ	ũ	ã	(ɛ̃)
high	+	+	-	-		+	+		-
low				-	+			+	
back	-	+	-	+		-	+		-
nasal	-	-			-	+	+	+	+

We follow the standard orthography in writing [ɛ ɔ] as <e, o> and [ĩ ũ ã] as <in un an>, respectively, except for forms cited in slants or brackets, which are given in phonetic characters. Note that vowels are redundantly nasalized after nasal consonants (except for a few exceptions to be noted below) and are not specially indicated as nasal in the standard orthography; thus <din> stands for [dĩ] and <mu> for [mũ].

Our discussion proceeds in three parts. First, we discuss the status of the nasal consonants [m, n] and argue that they are not underlying segments, but derived by lexical rules from the archisegments /B, L/, underspecified for nasality (§2). We then examine alternations involving [n] and [l], and show that the alternations are created by a lexical rule that applies in the context of the vowel [i] (§3). Third, we discuss the consequences of this analysis for theories of feature specification (§4). We show that the vowel [i] must be specified for distinctive features if the full set of generalizations concerning [n] and [l] are to be captured; further support for this conclusion is adduced from a constraint on nominal stems.

2. Status of the nasal consonants [m, n]

For the most part, [m] occurs only before nasal vowels and [b] only before oral vowels: mù [mũ] 'to soak', bù 'to add'. This complementary distribution is broken in the native lexicon by a small number of exceptions:

(4) a. [b] before nasal vowels:

bùn	[bũ]	'to give' (and its derivatives)
ibon	[ibɔ̃]	'gun'
ibòn	[ibɔ̃]	'type of disease'
obìnrin	[obĩrĩ]	'woman'
àbọ̀n	[àbɔ̃]	'unripe'

b. [m] before oral vowels:[2]

i. verbal prefixes:
the negative imperative prefix [má ~ máà ~ mɔ́ɔ̀]
the habitual prefix [màá ~ mɔ́ɔ̀]

ii. lexical items:

àmódi	'sickness'	(dialectally àbòí, àbòrí)
màalù	'cow, beef'	

These forms constitute a very small number of exceptions to what is otherwise a strongly supported generalization in the Yoruba lexicon. To account for this generalization, we postulate the following lexical rule (which we state informally); "B" represents a labial stop unspecified for nasality:

(5)   Nasal Spread 1:

       B   V
        \ |
       [+nasal]

Elsewhere, /B/ is realized as oral. The examples in (4a) are marked as exceptions to the rule, and the forms in (4b) are regarded as containing marginal occurrences of underlying /m/.

The relation between [n] and [l] is similar to that between [m] and [b], except that in this case the complementary distribution is almost totally complete. [n] occurs only before nasal vowels and [l] only before oral vowels: *nà* [nã̀] 'to flog', *lọ* [lɔ] 'to go'. The only exceptions known to us (outside obvious loanwords) are *nàgúdù* 'Jodhpur-trousers', a possible loanword (although we do not know the source) and *naira* 'Naira' (unit of national currency), a recent coinage, not specific to Yoruba, possibly created from (English) *Ni(ge)r(i)a*. Notice that *Nigeria* itself is often regularized to [nɔ̃dʒírìà], which conforms to the rule. We postulate the following rule of Nasal Spread, in which "L" represents a lateral sonorant unspecified for nasality. This rule carries out both nasal spread and delateralization (the latter change is required to create [n] rather than [l̃]).

(6)   Nasal Spread 2:

       L → [-lateral] / __ V
                           \ |
                         [+nasal]
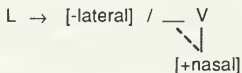
Elsewhere, L is normally realized as oral, although postlexically, [l̃] may occur as the result of a rule of sonorant nasalization (see below). (Nasal Spread 1 and 2 cannot be collapsed as the segments they apply to, /B/ and /L/, are not a natural class in Yoruba.)

There is a further argument for deriving [m, n] from underlying consonants unmarked for nasality: such an analysis explains the fact that [n, m] do not occur before mid vowels; thus, we do not find the syllables [ne, no, me, mo] in the native lexicon. The source for these syllables would have to be /lẽ, lõ, bẽ, bõ/ in our analysis, but as noted in (3) there are no nasalized mid vowels in Yoruba, with the marginal exceptions of /ɛ̃/ and the phonetic vowel [ɔ̃] which is the realization of /ã/ after labials.[3] This gap follows from an analysis which derives [m, n] from /B, L/ before nasal vowels.

There are reasons to believe that the rules of Nasal Spread described above are lexical rules. The first evidence is that Nasal Spread 1 has a small number of lexical exceptions, as noted in (4a). By (1c), this requires us to consider it as a lexical rule. (Nasal Spread 2 is exceptionless, however.) The lexical status of both rules is confirmed by the rule of gerundive reduplication. Gerundives are formed in Yoruba by prefixing a syllable consisting of a copy of the first consonant followed by the oral vowel [í]. Ordinarily, this vowel is oral even if the vowel of the stem is nasal, as the examples in the right-hand column of (7a,b) show:

(7) a. dùn [dũ̀]   'to be sweet'   dí-dùn [dídũ̀]   'being sweet'
     sín [sĩ́]   'to sneeze'   sí-sín [sísĩ́]   'sneezing'
   b. wín [w̃ĩ́]   'to borrow'   wí-wín [w̃iw̃ĩ́]   'borrowing'
     yón [j̃ɔ̃́]   'to yawn'   yí-yón [j̃ij̃ɔ̃́]   'yawning'
     rántí [r̃ãtí]   'to remember'   rí-rántí [r̃ir̃ãtí]   'remembering'
   c. nà [nã̀]   'to flog'   ní-nà [nĩ́nã̀]   'flogging'
     mò [mɔ̃̀]   'to know, understand'   mí-mò [mĩ́mɔ̃̀]   'knowledge'

We therefore consider the prefix vowel as inherently specified for [-nasal]. We see further in (7b) that the sonorants /w j r/ are nasalized before a nasal vowel, but remain oral before the oral vowel of the reduplicative prefix. (7c) shows that the stem-initial consonants /m, n/ are copied as such; thus Nasal Spread 1, 2 must have already applied at the time reduplication applies. But as reduplication is itself a lexical process, this means that Nasal Spread is also a lexical rule. We will assume that the nasalization of the sonorants in (7b) and of the prefix vowel in (7c) results from the operation of postlexical nasalization rules, which spreads nasality onto sonorants before nasal vowels and onto high vowels after nasal consonants.[4]

This analysis gives us the representative derivations in (8):[5]

(8)   dũ   wĩ̃   Lã   underlying representation
     -        -   nã   lexical: Nasal Spread
     di dũ   wi wi   ni nã   Reduplication
     -      wi w̃ĩ̃   nĩ́nã   postlexical nasalization rules

3. Alternations between [l] and [n]

We now consider a further type of relation between [l] and [n]. We find that the syllable [li] is highly restricted in native Yoruba words, occurring only in the reduplication of roots beginning with [l]: lí-lọ̀ 'the going', lí-là 'the saving', etc., and in a small number of roots, mostly in noninitial syllables: bọọli 'long and big', bọ̀ọ̀li 'roasted plantain', pààlì-paali 'hardened' (as in 'hardened unbeliever'), paali 'shriveled', lìkì (mọ́) 'stay for a long time in an enclosed place'. It might seem at first that we require a morpheme structure constraint to express this restriction. However, an alternative explanation is suggested by the existence of alternations between [nĩ] and [l] involving the formatives ní 'have', ní 'locative particle', ní 'to say', ní 'predicative particle', ni 'to own,' and the prefix

oní 'owner of'. The following representative examples are taken from Fọlarin (1987) and Ward (1952):

(9) [nĩ] ~ [l] alternations:
   a. nominals formed with the prefix /oLí-/:

bàtà	'shoes'	oníbàtà	'owner of shoes'
ìjà	'fight'	oníjà	'someone who loves to fight'
èso	'fruit'	eléso	'owner of fruit'
òkú	'dead person'	olókú	'owner of dead person'
ọmọ	'child'	ọlómọ	'owner of a child, parent'
aṣọ	'clothes'	aláṣọ	'owner of clothes'
ìtọ́jú	'care'	olùtọ́jú ~ onítọ̀jú	'caretaker'

   b. sentences with *ní* 'to have':

mo ní aṣọ	~ mo l'áṣọ	'I have clothes'
o ní ẹsẹ̀	~ o l'ẹ́sẹ̀	'you have legs'
ó ní ewé	~ ó l'éwé	'he has leaves'

   c. sentences with *kí-ni* 'what':

kí-ni o ń tà	~ kí-l'o ń tà	'what is it you are selling?'
kí-ni ọmọdé nà fẹ́	~ kí-l'ọmọdé nà fẹ́	'what is it the child wants?'
kí-ni èyìí	~ kí-l'èyìí	'what is this?'

As these examples show, [n] appears if the following vowel (after the application of a rule of vowel elision which deletes the first of two vowels in a sequence) is [i], and otherwise [l] appears.

We have already established that [n] is not an underlying phoneme of Yoruba. Since [n] alternates with [l] in (9), it would at first seem reasonable to derive it from underlying /Lĩ/ as we have done earlier. However, evidence that the vowel must be underlyingly oral comes from the rule of Vowel Deletion, which deletes the first of two vowels in sequence (Pulleyblank, Forthcoming; Ṣọnaiya, Forthcoming). When this rule applies to sequences of nasal vowels followed by oral vowels, nasality is transferred to the second vowel, as in examples like *dín* [dĩ] + *ẹjò* [edʒò] realized in combination as *dénjò* [dɛ̃dʒò] 'fry a snake' (cf. Pulleyblank 1988:251). When it applies to /oLí + aṣọ/ 'owner of clothes', on the other hand, it leaves an oral vowel: [áláṣọ], not *[alaṣọ]. If we assumed a base form of /lĩ/, we would have to postulate a special rule of denasalization to account for the oral vowel (note that denasalization cannot be considered an effect of structure-preservation since nasal vowels occur underlyingly). But what about the surface realization of this vowel? There is some unclarity regarding its phonetic status in the literature. Abraham (1958:xxii) reports that the vowel in *ní* 'possess' is normally oral; however, Ward finds that the vowel of *ni* 'be' has "considerable nasality" (13). Our observation, based on a survey of several speakers Obafemi Awolowo University, is that it is very difficult, if not impossible to get an oral vowel in these forms: the vowel is nasalized in both *ní* 'possess' and *ni* 'be', as far as we can tell. We explain this as an effect of the rule of postlexical nasalization, independently required as shown in (8) above to account for the nasal vowels in reduplication.

We propose, then, that the underlying representation of surface [nĩ] is /Li/, and that [L] is assigned nasality by the following rule:[6]

(10) L Nasalization (lexical, level 1):
      L → [-lateral, +nasal] / ___ [+high,-back]

Instances of /L/ not undergoing this rule or that of Nasal Spread 2 are realized as the oral lateral [l]. L Nasalization must be a lexical rule, since as noted, it has lexical exceptions. We further assume that it is a level 1 rule, since it does not apply to the output of the productive rule of gerundive reduplication in forms like lí-lò, which we have assigned to level 2 (see note 5).

We now come to the crux of any analysis of Yoruba nasality. As a lexical rule, L Nasalization should change /Li/ to [ni] before the operation of phrase-level phonological rules. But then we appear to have no way of accounting for the reduced form [l] appearing in examples such as mo l'áṣọ 'I have clothes' in (9b,c) in which [l] replaces the expected [n]. In such examples, the alternation between [l] and [n] is determined by the identity of the immediately following vowel only after the application of Vowel Deletion at the phrase level. But if L Nasalization is a lexical rule, it must change underlying /Li/ to [ni] before the phrase level rules apply, and we have no way of changing [n] back to [l].

In order to account for this apparent paradox, we propose that the [l] in forms life mo l'áṣọ represents a suppletive morphological alternant /L/ which replaces [ni] in the postlexical phonology just in case it is followed by a nonhigh vowel in the next word. If this condition is not satisfied (that is, if the next word begins with [i]; note that [u] never occurs in word-initial position), [n] remains in place. Thus the lexical entry of a form like ní 'to have' contains the information that beside its regular phonological shape /Li/, the suppletive alternant /L/ is available for substitution in the syntax if the appropriate phono-syntactic frame is satisfied; this alternant is a lexical property of ní 'to have' and of those of its homophones that show the same pattern of alternation. Interestingly, there is a further set of homophones that do not show this pattern of alternation, including ni 'to make uncomfortable', ní 'to come to the aid of', ẹní 'mat', and ẹní 'person'; these always retain [n] whatever the following vowel (Oyelaran 1986). Thus, for example, depending on whether the vowel elision rule applies or not, we find olú ni ọ̀gá rè lára or olú n'ọ̀gá rè lára 'Olu bugs his boss', but in neither case is l'ọ̀gá possible. Whether a given morpheme of underlying form /Li/ has the suppletive alternant [L] or not is an unpredictable, idiosyncratic fact about the morpheme.[7]

Many languages give evidence of syntactically-conditioned lexical alternations of a very similar type. In French, for example, we find two lexical variants of certain high-frequency adjectives and determiners, one selected just in case a vowel follows in the next word. Thus the masculine forms beau 'pretty', vieux 'old' are replaced by bel, vieil before vowel-initial (masculine) nouns, as in bel enfant, vieil homme. These morphological alternants cannot be derived by a postlexical phonological rule, given the assumptions in (1), since the rule would have to be sensitive to the lexical identity of the items in question.

Instead, both alternants are listed in the lexicon, and the appropriate surface allomorph is selected depending on the phonosyntactic context.[8] Whether a given determiner has a suppletive alternant or not is an idiosyncratic property of that morpheme; thus *joli* 'pretty' has the same shape whether a consonant or vowel follows. The alternation pattern of /Li/ in Yoruba seems quite parallel.

Hayes (1988), in a review of similar patterns of syntactically-determined alternations in other languages, concludes that syntactically-conditioned allomorphs may be generated in the lexicon by phonological rules sensitive to certain lexically-specified syntactic frames. The process of lexical insertion checks to see whether any such syntactic frame is satisfied in the particular structure into which substitution takes place: If it is, the lexically-generated allomorph is substituted, and otherwise, the unconditioned allomorph is selected. Applying this model to Yoruba, we would say that the allomorph [l] is lexically *precompiled* by the rule [Li] → [L], the latter allomorph being marked for substitution in the frame [___ [-high]]. Both forms undergo parallel lexical derivations, in particular receiving the feature [-nasal] by Nasal Spread 2. The syntactically-conditioned allomorph is then available for postlexical substitution if its context satisfies the syntactic frame.

A lexical analysis of this sort seems clearly superior to a purely phonological analysis in which a phrase-level rule of N Denasalization is postulated to change derived [n] to [l] before nonhigh vowels following vowel deletion. Although this would be descriptively adequate, N Denasalization would be the synchronic inversion of the rule of L Nasalization that created the [n] in the first place. Furthermore, though this rule would have to apply postlexically to account for the examples in (9b,c), the forms *ni* 'to make uncomfortable', *ní* 'to come to the aid of', *ẹní* 'mat', and *ẹní* 'person' would now constitute lexical exceptions to it, in violation of principle (1c); in the lexical analysis, in contrast, these forms are simply marked as exceptions to the lexical allomorphy rule. Since a model of lexical phonology must allow for phrasally-determined suppletion in any case, the lexical analysis seems to allow a more principled analysis in this case.

To summarize the discussion of this section, the proposed analysis explains both the near-absence of the syllable [li] in the native lexicon, and the [n] ~ [l] alternation, which is created by the rule of L Nasalization (10) and (in the phrase-level phonology) by the rule of suppletion. Thus the analysis of [ni] ~ [l] alternations does not provide an argument for underlying /n/, but on the contrary shows that in these cases, too, surface [n] derives from underlying /L/, consistently with our earlier analysis.

The evidence from loanwords is consistent with our analysis. We assume, following Mohanan 1982, that the level of lexical representation (defined as the output of the lexical rules) has a psychological status similar to that of the phoneme level in classical phoneme theory. Thus we expect postlexical rules (like allophonic rules) to be highly productive, applying freely to novel combinations created in the syntax as well as to loanwords, new coinages, speech errors, and the like. On the other hand, lexical rules (like

morphophonemic rules) are generally less productive, and their productivity depends on factors like rule opacity, number of exceptions, and the like. We thus expect loanwords to undergo postlexical rules quite regularly, but to be more resistant to lexical rules.

This is just what we find in Yoruba. Thus the lexical rules of Nasal Spread 1, 2 and L Nasalization have lexical exceptions in the loanword vocabulary, as the following examples show (Amadou 1989):

(11) a. [b] before nasal vowel:

	Bíntù [bĩ́tũ̀]	(female name)	< Hausa < Arabic 'daughter'
	bándírì	'boundary'	
	bóngálò	'bungalow'	
	àlùbánsì	'advance'	

b. [l] before nasal vowel:

	bàlónòn [bàlɔ̃́ɔ̃̀]	'ball'	< French ballon
	[lɛ̃́ʒ]	'bedlinen'	< French linge
	ìlèntírìkì	'electric'	< English
	síléndà	'slender	< English

c. [l] before [i]:

	lílì	'lily'
	Àlí	'Ali'
	olidé	'holiday'
	wúlínì	'woolen'
	telifóònù	'telephone'

Further instances of syllable [li] are created by a rule of epenthesis applying after syllable-final consonants:

(12) | kàlìkíìlì | 'calculation' | < Fr. calcul |
|--|--|--|
| bàálì | 'ball' | < Fr. bal |
| alifabéétì | 'alphabet' | |
| bélíìtì | 'belt' | |
| péèlì | 'pail' | |
| mílíkì | 'milk' | |

(In contrast, as far as we have been able to determine, the postlexical rules of nasalization mentioned in connection with (8) have no lexical exceptions). In other languages, too, loanwords frequently constitute exceptions to lexical rules. Thus in Mixtec, the underspecified lateral /L/ is generally realized as [n] before nasal vowels due to the operation of a lexical rule of Nasal Spread similar to the one of Yoruba, and is otherwise realized as [l] (Marlett 1989). Loanwords present exceptions, however: thus the [l] in [mālĩ̀] (< Sp. comadre) fails to undergo the rule.

In our analysis, [m] and [n] must have phonemic status in loanwords wherever they precede the oral mid vowels [e,o], since our rules cannot derive

them from underlying /B, L/ in this context. Thus we find a small number of examples like the following (Amadou 1989):

(13)   pènéè   'tire'   < Fr. *pneu*
        mèsíê   'sir'   < Fr. *monsieur*
        èméè   'love'   < Fr. *aimer*
        serímóní   'ceremony'   < Eng.
        sínétò   'senator'   < Eng.
        Mòósíìsì   'Moses'   < Eng.

This behavior is also not unexpected, as loanwords commonly introduce new phonemes, especially when they are identical to the surface realizations of native phonemes or phoneme sequences. In English, for example, [ŋ] can normally be derived from underlying /ng/ in the native lexicon, but has phonemic status in loanwords such as *dinghy* (from Hindi), *hangar* (from French), *gingham* (Dutch, from Malay), *orangutan* (Malay), and otherwise occurs phonemically only in onomatopoeic words (*ting-a-ling*) or foreign proper names (*Singapore*). Such examples suggest that /ŋ/ is slowly entering English as a phoneme, but still remains outside the native "core." The nasals /m,n/ in Yoruba appear to have the same status.

4. Theoretical considerations

We now consider how the analysis presented above bears on the theory of feature specification. In Pulleyblank's analysis of Yoruba (1988), [i] is the "default" vowel in the sense that it is uncharacterized for any place features in underlying representation. The default values of [i] are filled in late in the postlexical derivation. Therefore [i] remains featureless (as far as place features are concerned) throughout the lexical derivation, and much of the postlexical derivation.

As we have seen, however, the rule L Nasalization requires crucial reference to [i] in the lexical phonology. Under Pulleyblank's analysis, this rule must be able to identify the vowel [i] at a stage where it has no place features, and is therefore nondistinct from all other vowels. The problem for radical underspecification theory is obvious: the only way to do this is to make explicit reference to the fact that [i] has no place features, but this is prohibited, as we have seen, by the Invisibility of Zero Principle (2). This principle is required in a theory of radical underspecification to express the generalization that natural classes of sounds cannot be designated by the set of redundant *and* default values of a given feature. Without it, rules could designate unnatural classes of sounds by referring to all missing values of [voiced], both redundant and default, and could thus refer, for example, to the set of (distinctively) voiceless obstruents and (redundantly) voiced sonorants in a language, while excluding voiced obstruents, through the mention of [Øvoiced]. If we were to allow classes of sounds to be defined by missing values in this way, we would make false predictions about the natural classes that occur in the rules of the world's languages.

Further evidence that lexical rules must be able to refer to [i] comes from the study of a constraint on VCV nominal stems. In such stems, if the first vowel is [a] or [ɔ], the second cannot be one of the oral vowels [i] or [u] (Fresco 1970, Oyelaran 1973). We state is informally as follows:

(14)   *[{a,ɔ} C {i,u}]ₙ   (level 1)

This constraint is exceptionless in roots beginning with [a], and has only one exception in roots and stems beginning with [ɔ]. (14) states it as a constraint on the output of the level 1 phonology and morphology, where it has only the following exceptions, as far as we have been able to determine:

(15) a. roots:
          otí   'spirits'
      b. derived stems:
          a-dú   'one or something that is black'
          a-tú   'that which easily falls apart; soft type of yam'
          à-dí ~ à-dín   'oil from palm kernel'
          à-bí   'placenta'
      c. loanword:
          Àlí   (male name)

This constraint cannot be explained in terms of phoneme frequency, since /a, ɔ, i, u/ are all high-frequency vowels in Yoruba, and their random combination could be expected to yield many examples of the prohibited sequence. As an indication of this, we give in (16) a few of the many examples of well-formed VCV nouns in which the second vowel is a nasal vowel (recall that in the orthography, <mV> and <nV> represent nasals followed by nasal vowels).[9]

(16)   àmì   'sign'
       amí   'scout, spy'
       àmù   'large waterpot'
       àrún   'five'
       ahun ~ awun   'miser; tortoise'
       akin   'manly fellow'
       à-wìn   'buying on credit'

Similarly, violations are common in forms other than nominals. All verbs are consonant-initial, and therefore cannot present violations of (14) in principle, but (17) gives representative examples from other parts of speech:

(17)   àbí   'or'
       abi   'that which possesses'
       àfi   'except, unless, only'
       àti   'and'
       àní   'even, in like manner'

This constraint must make reference to the features [+high] and [-nasal] in order to designate the natural class of high oral vowels {i,u}. Thus, we must

assume that [i] bears the feature [+high] at the point where the constraint applies, that is, at level 1.

5.   Conclusion

We conclude that lexical rules in Yoruba must be able to refer to the following classes of vowels, among others:

(18) {i} :   [+high, -back]
      {i, u} :   [+high, -nasal]

This shows that [i] cannot be the default vowel in the lexical phonology. But if [i] is not the default vowel, what is? It cannot be [u], since [u] is subject to constraint (14), and to the further constraint that words cannot begin with [u] (Fresco 1970). It cannot be [a] or [o], due again to constraint (14). It cannot be one of the mid vowels or [a], since these vowels are crucially characterized as [-high] for the purposes of vowel harmony (Archangeli & Pulleyblank 1989). We are led to the conclusion that all vowels bear at least those features that distinguish them from other vowels in the lexical phonology — which is just the claim made by the theory of Distinctive Feature Specification.[10]

NOTES

[1] In the discussion following the oral presentation of this paper, Will Leben raised the question whether (2) might be too strong, in view of the fact that certain types of phonological rules appear to require a distinction between segments bearing a certain feature and segments not bearing that feature. The most familiar rules of this type are those which spread a given feature onto neighboring segments which do not bear a specification for the feature in question. For example, tone spreading rules are often restricted to apply only to toneless vowels, and rules of vowel harmony are typically restricted to apply only to underspecified vowels. We would argue, however, that these examples do not require that we abandon principle (2), given the independent proposal of Archangeli & Pulleyblank 1986 that spreading of a feature F onto segments not bearing F represents the default, or unmarked case of spreading rules, and may be considered the unmarked value of a spreading rule parameter. If we accept this position, then it is not necessary to stipulate in the formal statement of a spreading rule that its target does not bear the spreading feature, and such rules will not violate principle (2). Similarly, default rules, which introduce default values of features onto segments not yet specified for those features, are

generally thought to be constrained by the Strict Cycle Condition, which prevents the feature-changing application of (cyclic) lexical rules (Kiparsky 1982), so that again it need not be stipulated that the target vowel is underspecified for the feature in question. We are aware of only a few proposed rules referring crucially to unspecified feature values that cannot be accounted for in one of these two ways, and alternative analyses seem to be available in most or all of these cases. It seems, then, that (2) represents a strong and well-supported constraint on rules that we would not want to abandon unless forced to by strong and uncontrovertible evidence.

2 Other apparent counterexamples of this type can be analyzed as complex forms in which [m] precedes a nasal vowel. Numerals such as *méjì* 'two', *méta* 'three' can be analyzed into a prefix and a root, cf. *èjì* 'two', *ẹ̀ta* 'three' (Fresco 1970). The first person singular prefixes *mo, ma* in forms like *mo fẹ́ lọ* 'I want to go', *mà á lọ* 'I will go' can similarly be derived from the syllable [mĩ] followed by the subject prefix [ó] and the future tense prefix [á], respectively. Proper names such as *Monílọlá, Málọmọ́, Ọládiméjì* are sentential in structure, and contain *mo-, ma-, méjì* as components.

3 As our analysis also predicts, the labial nasal [m] occurs freely before [ɔ] representing /ã/: *mọ̀* 'to know,' *mọ* 'to build', *ọmọ* 'child', *sọ́mọ̀* 'sky'.

4 These two rules cannot be collapsed into a single, bidirectional rule of Sonorant Nasalization due to the rare forms in which nasals precede nonhigh oral vowels in surface representation (see the examples in (4b) and (13)). We thank Moira Yip for calling this point to our attention.

5 We assume that the productive rule of gerundive reduplication is a level 2 rule, along with certain compounding rules (for the latter, see Folarin 1987). Among other things, this explains why gerundive reduplications, unlike other reduplications, cannot be prefixed, with the isolated exception of *òtítọ́* 'truth', from *tọ́* 'be correct', which we treat as a lexicalized form.

6 There is a further reason for stating the rule as one nasalizing [L] before [i] instead of one oralizing [n] before [u e o ɔ a]: the latter rule is not formulated on a natural class of vowels. For discussion of variants like [olùtójú ~ onítójú], showing that [l] appears before the stem vowel [u], see Folarin (1987). Of course, if (contrary to our hypothesis) [i] were underlyingly featureless, and thus lacked a place node, the rule could oralize [n] before vowels with place nodes; however, we know of no precedent for rules which crucially mention class nodes as a contextual element (as opposed to an affected segment), and believe that phonological theory may be able to exclude such rules in principle.

7 We further assume that the alternant /L/ goes through a parallel morphological derivation of its own, acquiring a reduplicated form which may be substituted in the same way if it comes to precede a nonlow vowel in the phrase-level part of the derivation; this will account for the reduced reduplicated form *líl'ówó* 'having money' beside the unreduced *níní* 'having' (Pulleyblank 1988:266).

[8] The substitution takes place not only postlexically, but also lexically, as is shown by derivatives like *bellot* 'bonny', *embellir* 'to make pretty', *vieillot* 'antiquated', and *vieillir* 'to age'. The substitution also takes place in the feminine forms *belle, vieille,* which (historically, at least) involved a final suffix vowel [-ə].

[9] These forms provide further support for an analysis in which surface nasals are derived from oral consonants followed by nasal vowels. If instead, nasal consonants were followed by oral vowels in underlying representation, we could not explain why forms like *àmì* etc. are exceptions to constraint (14).

[10] We emphasize that our conclusion is not inconsistent with the theory of Radical Underspecification, which does not predict that every language has a default vowel or consonant throughout the lexical phonology but only requires that rules assigning default values of a feature must be assigned to the first stratum in which reference is made to that value, in the limit case stratum 1 (Archangeli & Pulleyblank 1989). The facts discussed here can be accommodated on the assumption that /i/ is partly specified as early as level 1 in accordance with this principle, and do not require us to abandon or modify Radical Underspecification theory. However, they do show that Pulleyblank's proposal that [i] is unspecified for place features in all lexical strata in Yoruba is inconsistent with a fuller range of observations in this language. Thus Yoruba does not provide crucial evidence for Radical Underspecification theory, and the evidence for the special status of /i/ in Yoruba must receive another explanation.

REFERENCES

AMADOU, W. 1989. "L'intégration linguistique des emprunts," chapter of University of Paris Ph.D. dissertation in Linguistics, in preparation.

ABRAHAM, R. C. 1958. Dictionary of Modern Yoruba. London: University of London Press.

ARCHANGELI, D. 1984. Underspecification in Yawelmani phonology and morphology. MIT Ph.D. dissertation in Linguistics.

_____, & D. Pulleyblank. 1986. The content and structure of phonological representations. University of Arizona and University of Ottawa, MS.

_____, & D. Pulleyblank. 1989. Yoruba Vowel Harmony. Linguistic Inquiry 20:173-217.

CLEMENTS, G. N. 1985. The geometry of phonological features. Phonology Yearbook 2:225-52.

_____. 1987. Towards a substantive theory of feature specification. NELS 18:79-93.

FOLARIN, A. Y. 1987. Lexical phonology of Yoruba nouns and verbs. University of Kansas Ph.D. dissertation in Linguistics.

FRESCO, E. 1970. Topics in Yoruba Dialect Phonology. Studies in African Linguistics, supplement 1. Department of Linguistics, UCLA, Los Angeles.

HAYES, B. 1988. Precompiled Phrasal Phonology. UCLA, MS. To appear in CSLI workshop on the syntax/phonology connection, ed. by S. Inkelas & D. Zec. CSLI, Stanford, CA.

KIPARSKY, P. 1982. From Cyclic Phonology to Lexical Phonology. The Structure of Phonological Representations, part 1, ed. by H. van der Hulst & N. Smith, 131-75. Foris Publishing, Dordrecht.

_____. 1985. Some consequences of Lexical Phonology. Phonology Yearbook 2:85-138.

MARLETT, S. A. 1989. Nasalization in Mixtec. S.I.L. and University of North Dakota, MS.

MOHANAN, K. P. 1982. Lexical Phonology. MIT Ph.D. dissertation in Linguistics. [Revised version published 1986 by Reidel Publishing, Dordrecht.]

OYELARAN, O. O. 1973. Yoruba vowel co-occurrence restrictions. Studies in African Linguistics 4:155-182.

_____. 1986. The alveolar /n/ in Yoruba: A bad dream which refuses to dissipate. Paper presented to the 17th West African Languages Congress, University of Ibadan, Ibadan, Nigeria.

PULLEYBLANK, D. 1988. Vocalic Underspecification in Yoruba. Linguistic Inquiry 19:2.233-70.

ṢONAIYA, R. Forthcoming. Vowel contraction in Yoruba. Dept. of Foreign Languages, Obafemi Awolowo University, Ile-Ifẹ, Nigeria, MS. To appear in Linguistique africaine.

STERIADE, D. 1987. Redundant values. Parasession on Autosegmental and Metrical Phonology (CLS 23.2), Chicago Linguistic Society, Chicago, ed. by A. Bosch.

WARD, I. C. 1952. An introduction to the Yoruba language. Cambridge University Press.

REDUPLICATION AND PROSODIC CONSTITUENTS IN WOLOF[*]

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A straightforward account of reduplication processes in Wolof —
a Northern West Atlantic language spoken primarily in Senegambia
— has been to consider those processes as always involving the
copying of an entire morpheme (cf. Sauvageot 1965, Diagne 1971,
Ka 1981), or the addition of a morpheme skeleton to a stem (cf. Ka
1988). This account however, did not examine language-external
data such as those provided by linguistic games. In this paper, I
attempt to show that, in fact, Wolof reduplication also involves the
copying of prosodic constituents such as the syllable, the foot, and
the prosodic word. I stress the central role played by those
constituents in the understanding of the prosody of the language.
Part of the data are drawn from different varieties of a Wolof secret
code called Kàll.

1. Background

In this section, I provide some relevant information concerning the syllable
structure of the stems, the representation of complex segments and the types of
reduplication found in the language.

1.1 The syllable structure of the stems

Stems susceptible of reduplication show the following surface syllable
types:

—monosyllabic stems:

a. C V V   dee 'to die'
    σ

b. C V C   gis 'to see'
    σ   mën 'can'
             Kow 'hinterland'

c. C V V C   gaañ 'to hurt'
    σ   tooy 'to be wet'
             Siin (Senegalese province)

d. C V C C   bëgg 'to want'
    σ   lakk 'to burn'
             wicc 'to shake head'

—disyllabic stems:[1]

e. C V C V C   Jolof (Senegalese province)
     Bawol (Senegalese province)
     patam (patam) 'hasty work'
     lambar (lambar) 'useless agitation'

f. C V V C V C   Saalum (Senegalese province)
     raakam (raakam) 'back and forth walk'
     xaatar (xaatar) 'angry walk'

g. C V C C V C   takkam (takkam) 'formula to propose
                              a guessing game'
     nokkos (nokkos) 'slow and hesitating
                              walk'

h. C V C V V C   Kajoor (Senegalese province)

i. C V C V   poto (poto) 'muddy location'

j. C V V C V   Waalo (Senegalese province)
     baana (baana) 'street peddler'
     taaba (taaba) 'to live on an
                              occasional income'

     As the data show, reduplicated stems belong to a variety of syllable types; only C V and C V C V V stems cannot be reduplicated. The data also reveal the existence of complex segments, such as long vowels, geminated consonants and prenasal consonants. I deal below with the representation of those segments.

1.2 Complex segments

     The Wolof phonological system includes simple segments such as short vowels and simple consonants, and complex segments such as long vowels, geminated and prenasal consonants (cf. Ka 1988).

     The phonological system of consonants is the following:[2]

(1)   Simples

p	t	c	k	
b	d	j	g	
m	n	ñ	ṅ	
f	s		x	
		y	w	
	r l			

       prenasals

mp	nt	nc	nk	nq
mb	nd	nj	ng	

       geminates

pp	tt	cc	kk	qq
bb	dd	jj	gg	
mm	nn	ññ	ṅṅ	
	ll	yy	ww	

The system of short vowels is depicted below:

(2)		front	central	back
	high	i		u
	mid	é	ë	ó
		e		o
	low		a	

Only ë (/ə/) has no corresponding long counterpart, except in borrowings.

In accordance with the Obligatory Contour Principle, which prohibits sequences of adjacent identical elements, geminate consonants and long vowels will be treated as simple elements of the segmental tier that are associated to two consecutive slots on the CV-tier:

(3) a.
```
    X
   / \
  C   C
```
b.
```
    Y
   / \
  V   V
```
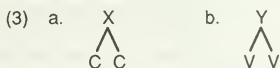
Stems such as *gaañ, bëgg, nokkos,* and *Kajoor* will be represented as in (4):

(4) a.
```
b  ë  g
|  |  /\
C  V  C C
```
```
n  o  k  o  s
|  |  /\ |  |
C  V  C C V  C
```

b.
```
g  a  ñ
|  /\ |
C  V  V  C
```
```
k  a  j  o  r
|  |  |  /\ |
C  V  C  V  V  C
```
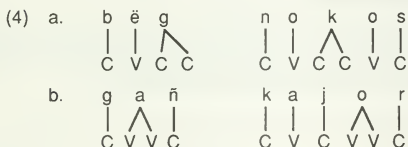
Prenasal consonants will be analyzed as sequences of a nasal and a stop segment mapped to a single C slot: /mb/ for instance, will have the following representation:

(5)
```
m  b
 \ /
  C
```

A stem such as *lambar* will be represented as in (6):

(6)
```
l  a  m b  a  r
|  |  \ / |  |
C  V   C  V  C
```

A number of compelling arguments can be given to support the above representations of complex segments; for a detailed discussion, I refer the reader to Ka (1988).

1.3 Types of reduplication

Two types of reduplication exist in Wolof: one that is dubbed "ordinary" reduplication in this study, and another one that occurs within the secret code *Kàll*.[3]

Ordinary reduplication always involves the copying of an entire morpheme of a word. There is no copying of parts of a morpheme, such as a phoneme, a syllable, or a metrical foot. It is thus possible to characterize ordinary reduplication as a case of total reduplication.[4] In contrast, the secret code *Kàll* involves the copying of prosodic constituents such as the syllable, the foot, or the prosodic word.

In the next sections, I provide an analysis of each type of reduplication. Section 2 describes ordinary reduplication in terms of the affixation of a morphemic skeleton to a stem. Section 3 analyzes the different varieties of *Kàll* as cases of transposition and reduplication of specific prosodic constituents. The definition of those constituents entails the examination of the syllabification principles and the stress algorithm of the language. I make several references to McCarthy and Prince (1986, 1987) and Ka (1988, Forthcoming).

2. Reduplication of a morpheme

In Wolof, "ordinary" reduplication is a derivational process, in that it is used to derive nouns from verb, noun or ideophonic stems; it can also be combined with suffixation to form derived verbs. Let us examine the data.

2.1 The data

2.1.1 Derived nouns

To form a derived noun, the entire stem is always copied; it is a verb, a noun, or an ideophone.

(7)	gis-gis	'vision'	(gis 'to see')
	bëgg-bëgg	'desire'	(bëgg 'to want')
	lakk-lakk	'burn'	(lakk 'to burn')
	gaañ-gaañ	'wound'	(gaañ 'to hurt')
	tooy-tooy	'wet spot, wetness'	(tooy 'to be wet')
	tàng-tàng	'heat'	(tàng 'to be hot')
	gàkk-gàkk	'stain'	(gàkk 'to be stained')
	bën-bën	'hole'	(bënn 'to pierce')
	dég-dég	'understanding'	(dégg 'to hear')

(In the last two examples only, degemination will take place before reduplication in stem-final position. This phenomenon is no longer productive, and appears to have been morphologized in the language.)

The noun stem refers to a region, a city or an ethnic group. The reduplicated from has the meaning 'inhabitant of, originating from' that region, city or ethnic group.

(8)	Pël-Pël	'race of sheep'	(Pël 'ethnic group of herders')
	Kow-Kow	'inhabitant of the hinterland'	(Kow 'hinterland')
	Ndar-Ndar	'inhabitant of Ndar'	(Ndar 'Saint-Louis')
	Siin-Siin	'inhabitant of Siin'	(Siin)
	Bawol-Bawol	'inhabitant of Bawol'	(Bawol)
	Jolof-Jolof	'inhabitant of Jolof'	(Jolof)
	Saalum-Saalum	'inhabitant of Saalum'	(Saalum)
	Waalo-Waalo	'inhabitant of Waalo'	(Waalo)

In contrast with the verb and noun stems, ideophonic stems never appear in isolation, they are always copied.

(9)	rañ-rañ	'loud metallic noise'	(*rañ)
	nes-nes	'brightness'	(*nes)
	yopp-yopp	'cross-country run'	(*yopp)
	ñukk-ñukk	'short steps run'	(*ñukk)
	waañ-waañ	'back and forth walking of a woman in labor'	(*waañ)
	yoor-yoor	'morning'	(*yoor)
	takkam-takkam	'formula to propose a guessing game'	(*takkam)
	lambar-lambar	'useless agitation'	(*lambar)

The data in (7) through (9) show a single process of stem copying. However, that copying may be combined with suffixation to form derived verbs, as is shown in the next section.

2.1.2   Derived verbs

To form derived verbs, the entire stem is copied before the addition of the following suffixes:

-al	'intensive'
-aat	'iterative'
-le	'participant'
-lu	'benefactive-reflexive'
-i	'verbalizing'

The reduplicated stem is either a verb (A) or an ideophone (B). Here too, the ideophonic stem is never found in isolation, it is always reduplicated.

(10) wis-wisal   'to rain lightly and continuously' (wis 'to rain lightly')
     toq-toqal   'to drop slowly and continuously' (toq 'to drop one
                                                             by one')

     wax-waxaat   'to repeat again and again' (wax 'to say')
     bey-beyaat   'to cultivate repeatedly' (bey 'to cultivate')
     xar-xarle   'to agonize' (xar 'to break')
     far-farle   'to take side with passion' (far 'to be allied to'
     baax-baaxlu   'to pretend to be good' (baax 'to be good')
     dee-deelu   'to simulate being dead' (dee 'to die')

(11) tés-tési   'to be very active'   (*tés)
     kuus-kuusi   'to try with great effort'   (*kuus)
     ñakk-ñakki   'to laugh uncontrollably'   (*ñakk)
     yëgër-yëgëri   'to walk heavily'   (yëgër)
     nokkos-nokkosi   'to walk slowly and with hesitation'   (*nokkos)
     ñeb-ñebal   'to fix grossly'   (*ñeb)
     tucc-tuccal   'to smash'   (*tucc)

2.2 The analysis

From the data in (7) through (11), it is clear that the stems are always copied, regardless of their phonemic makeup or syllable structure. Inf fact, the copied constituent borrows its phonemic melody, its CV structure and its syllabic structure from the stem to which it is attached. Therefore, we will conceive of ordinary reduplication in Wolof as involving the prefixation of a morphemic skeleton. That skeleton comprises a phonemic melody, a CV skeleton and a syllabic skeleton borrowed from the stem, as is shown in (12).
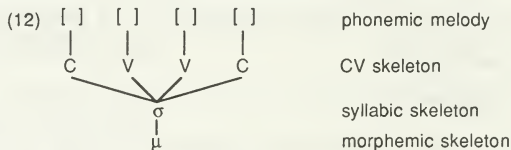
This structure will yield the following representations:

(15)
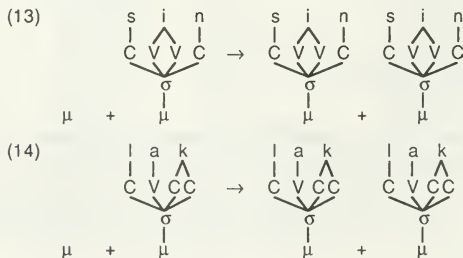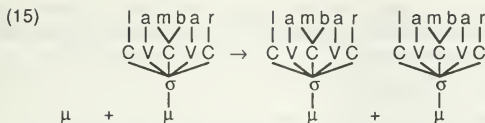
So far, the analysis of reduplication in Wolof seems to be straightforward, since it always involves a full copying of a stem. However, the purpose of this paper is to show that in fact Wolof reduplication also involves the copying of constituents of a prosodic nature: the syllable, the foot, or the prosodic word. Let us consider the language-external evidence coming from the secret code *Kàll*.

3. Reduplication of a prosodic constituent

Specific prosodic constituents are reduplicated in *Kàll*. This name refers to a secret code used for various purposes, all related to a need for unintelligibility (cf. Ka to appear). *Kàll* is still routinely used in the areas of Silmaxa and Ceneba, in the Kajoor-Bawol region of Senegal. Illustrative data[5] are provided below.

3.1 The data

Let us first examine the data in their "original" (i.e., non secret) form.

(16) a. jaay   ma   yàpp[3]
        sell   3 ps   meat
                   obj. pro.
        'sell me (some) meat'

   b. ma   yobbu   ko   sama   kër
      1 ps   bring   3 ps   1 ps   home
      subj. pro.   obj. pro. poss.
      'I bring it (to) my home'

   c. jox   ko   sama   jabar
      give   3 ps   1 ps   wife
             obj. pro. poss.
      'give it (to) my wife'

   d. mu   toggu   ko
      1 ps   cook   3 ps
      subj. pro.   obj. pro.
      'she cooks it'

   e. samay   doom   lekk
      1 ps-plural child   eat
      poss.
      'my children eat'

Before comparing these data with the corresponding "secret" forms, I shall review the Wolof syllabification principles and the prosodic constituents that will be relevant to the analysis.

3.2 Syllabification principles

In CV terms (cf. Clements & Keyser 1983, Ka 1988), the syllable structure of Wolof lexical items obeys the following syllabification principles:

(17) a. The syllable peak may consist of a short vowel V or a long vowel VV;

b. Each syllable begins with a consonant, hence the syllable left margin is an obligatory constituent: it consists of either a simple consonant or a prenasal;

c. The syllable right margin is an optional constituent (if it is present, it may consist of a simple consonant, a geminate or a prenasal), hence the "minimal" syllable is either CV or CVV;

d. Neither the LM nor the RM may consist of a sequence of consonants that is not a prenasal or a geminate structure.

3.3 Relevant prosodic constituents

In *Kàll*, the following prosodic constituents are reduplicated:

(18) Wd   "prosodic word"

F   "foot"

σ "syllable"

σ_c "core syllable"

A prosodic word consists of a lexical item and an optional clitic[6] (cf. Ka 1988). If the clitic precedes, it constitutes a separate prosodic word. The bracketing of the data in (16a) - (16e) will be as in (19a) - (19e).

(19) a. [jaay ma]   [yàpp]

b. [ma]   [yobbu ko]   [sama]   [kër]

c. [jox ko]   [sama]   [jabar]

d. [mu]   [toggu ko]

e. [samay] [doom]   [lekk]

In (19a) - (19e), the lexical items *jaay, yobbu, jox, toggu* form prosodic words with the clitics that follow them, i.e., the object pronouns *ma* and *ko*. However, in (19a) - (19e), the subject pronoms *ma, mu,* and the possessives *sama, samay* precede lexical items, and thus will form separate prosodic words.

The metrical foot is another prosodic constituent that will be relevant to the discussion. Following the analysis of stress given in Ka (1988), I will characterize the foot in Wolof as binary, left-dominant:

(20)

```
        F
       / \
      s   w
```
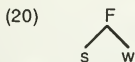
The core syllable σ_c is equated in McCarthy & Prince (1986) to the "minimal" syllable in a language. Recall the Wolof syllabification principle in (17c) which stated the optionality of the syllable right margin: the "minimal" syllable is then CV or CVV, and will correspond to σ_c .

Let us now turn to the analysis of the different varieties of *Kàll*.

3.4 Types of *Kàll*

Two major processes are involved in the different varieties of *Kàll*: one in which a syllable is transposed within a particular domain, and one requiring the copying of a designated prosodic constituent. I will call the first process True Transposition, and the second one Reduplication (cf. Ka Forthcoming).

3.4.1 True transposition

Consider the data in (21a) - (21e) which correspond to the "original" forms in (16a) - (16e):

(21) a. yë   ma   ja   pë   yaa

     b. ma   buko   yoo[7]   masa   rëkë

     c. ko   jo   masa   barja

     d. mu   guko   too[7]

     e. masa   mëdoo   kële

A comparison of the two sets of data clearly indicates that syllables (or parts of syllables) are transposed; in fact, it is not always the original syllable that is transposed, but specific parts of it, i.e., the left margin and the peak. Interestingly, these correspond to the core syllable: CV or CVV (cf. 17a) - (17c). Some examples are given below:

(22)	jaay	→	jaa
	yàpp	→	yaa
	kër	→	kë
	jox	→	jo
	jabar	→	ja
	lekk	→	le

(The reason for the deletion of /x/ in *jox* (21c), and of /y/ in *samay* (21e) remains unclear at this point).

After transposition has taken place, the syllabification principles of the language will fail to syllabify exhaustively the new segmental string. Syllable-sensitive rules will then apply, in accordance with Wolof syllable structure; those rules are: schwa insertion and degemination:

—schwa insertion:

After transposition, the original right margin becomes a left margin; in order to be syllabified, that LM needs a peak. A rule of schwa insertion will apply; it is independently motivated (cf. Ka 1985, 1988, Forthcoming), and has the form:

$$
(23) \qquad \emptyset \quad \rightarrow \quad \underset{\ddot{e}}{\overset{V}{|}} \Big/ \underset{\sigma}{\overset{C}{+}} \text{—}
$$

The following examples illustrate the rule:

(24)	jaay (ma)	yë (ma) jaa
	kër	rëkë
	doom	mëdoo

—degemination:

If the original right margin was a geminate, it will degeminate in its new left margin position, since only a single C is allowed in syllable-initial position: recall the syllabification principle in (17b). The rule can be formulated as follows:

$$
(25) \qquad \overset{x}{\underset{C \quad C}{\bigwedge}} \quad \rightarrow \quad \overset{x}{\underset{C}{|}} \Big/ \begin{bmatrix} \text{—} \\ \sigma \end{bmatrix}
$$

The rule is illustrated in (26):

(26)	yobbu (ko)	bu (ko) yoo
	toggu (ko)	gu (ko) too
	yàpp	pë yaa
	lekk	kë le

(Notice that, in the last two examples, both degemination and schwa insertion will apply).

The next question is to identify the domain within which True Transposition takes place. Recall the bracketing of prosodic words in the "original" data in (19a) - (19e). The same bracketing is preserved after transposition of the core syllable, as shown in (27a) - (27e):

(27) a. [yë   ma   jaa]   [pëyaa]

     b. [ma]   [bu   ko   yoo]   [masa]   [rëkë]

     c. [ko   jo]   [masa]   [barja]

     d. [mu]   [gu   ko   too]

     e. [masa]   [mëdoo]   [kële]

Thus, it appears that the core syllable (CV or CVV) is transposed from the left end to the right end of the prosodic word. The transposition rule will be formulated as follows:

(28)   Move σ_c from the left edge to the right edge of Wd.

Note that an alternative analysis — such as the one proposed in McCarthy & Prince (1986) — is also possible. It would consider this variety of *Kàll* as simply involving a copying of the prosodic word, since the same bracketing is preserved. Recall the bracketing of the "original" data in to prosodic words in (19a) - (19e); in (27a) - (27e), that bracketing is simply reduplicated, leaving intact the number of prosodic words. Compare for example (19b) and (27b):

(19) b. [ma] [yobbu ko]   [sama]   [kër]

(27) b. [ma] [bu ko yoo]   [masa]   [rëkë]

McCarthy and Prince (1986) would therefore consider this is an instance of reduplication of the prosodic word.

3.4.2 Reduplication

Two varieties of *Kàll* involving the reduplication of a prosodic category will be examined here: One requires the copying of only a single mora of σ_c, the other one entails infixation and copying of the metrical foot.

3.4.2.1 Monomoraic copy of the core syllable

Consider the data in (29), which correspond to the "original" form in (19a):

(29)   [ʔay ma jaa] [ʔapp yaa]

(19) a. [jaay ma] [yàpp]

Here again, the core syllable CVV is transposed from the left edge to the right edge of the prosodic word, in a manner similar to the transposition rule in (28). However, in (29), the transposed CVV leaves behind a copy of only one mora (assuming that in Wolof a heavy syllable contains two moras and a light syllable one mora: cf. Ka 1988, Forthcoming). The copied mora is followed of course by the original right margin. The process will look like this:
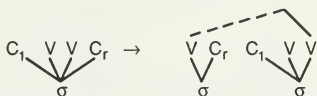
(where c_l = left margin, and c_r = right margin).

Taking into account the fact that in other cases of transposition the core syllable (i.e., the left margin and the peak) is moved, one would have expected the copied V in (29) to be heavy, but this is not the case. To account for this, McCarthy and Prince (1986) posit a Copy-Base Complementary Principle, paraphrased as in (30):

(30) If the base is heavy, consider the copy as light.

This principle would apply to the reduplication data found in several languages: cf. for instance Sanskrit verb reduplication (Steriade 1982, McCarthy & Prince 1986), Ponapean durative verb reduplication (McCarthy & Prince 1986), Southern Paiute reduplication (McCarthy 1983). In this paper, I will propose a somewhat more prosodic explanation of the mora problem. Note that, although vowel length is distinctive in Wolof, segmental quantity is not preserved in the copy. The transposition process is clearly not sensitive to the segmental make-up of the word. Within a prosodic framework, this is accounted for: Syllable size takes precedence over segmental size; the loss of vowel quantity still preserves the minimum size of the syllable, i.e., CV. The following principle of Prosodic Precedence will be posited:

(31) $\bar{V}$ < σ_c
       (where < reads: "is secondary to")

A last problem to account for is that of the left margin: The transposition of the core syllable leaves the copied mora and the right margin without a left margin. To obey the syllabification principle in (17b) which requires syllables in Wolof to have a left margin, the empty position in syllable-initial position will be filled in by a prothetic glottal stop:

(32) $\emptyset$ →   ?   /   [$\frac{\quad}{\sigma}$

The rule in (32) is independently motivated: It applies as a default rule on borrowed words that are vowel-initial in the source language (cf. Ka 1988, Forthcoming).

3.4.2.2 Infixation and reduplication of the foot

Consider the data in (33a) - (33d), which correspond to the "original" form in (16a):

(16) a. jaay   ma   yàpp

(33) a. jaray   mara   yara   përë

b. jalfay   malfa   yalfa   pëlfë

c. jancay   manca   yanca   pëncë

d. jañatlañay   mañatlaña   yañatlaña   pëñëtlëñë

On the surface, the data seem to involve the insertion of specific Cs after the peak of every core syllable; those Cs are followed by a copy of the V of the core syllable. These configurations are attested in various languages: Cuna, Javanese, Saramaccan Creole, Tagalog (cf. McCarthy 1982), English, German (McCarthy 1984, McCarthy & Prince 1986).

The analysis will be as in (34):

(34) a. determine a core syllable CV;
b. prespecify on a different tier a melody consisting of fixed consonants: *r lf nc ñtlñ*, and affix that melody to the CV tier;
c. spread the peak of the core syllable to all available V slots, from the left to right;
d. "linearize" the original and the infixed melodies on a single tier.

(34a) will trigger both degemination of a right margin when it is transfered to a left margin position, and schwa insertion;

(35) a. yàpp   →   yara   përë   (33a)
        →   yalfa   pëifë   (33b)
        →   yanca   pëncë   (33c)
        →   yañatlaña   pëñëtlëñë   (33d)

In contrast, if the right margin consists of a single C, no transfer will occur:

(35) b. jaay   →   jaray   (33a)
        →   jalfay   (33b)
        →   jancay   (33c)
        →   jañatlañay   (33d)

This again illustrates the difference in behavior between single and geminate consonants on the CV tier, and further confirms the conspicuous absence of the following disyllabic stem structures in Wolof: A form such as *yarapp*, therefore, is not licensed.

(36)   C V C V C C
          ＼／ ＼＿／
           σ   σ
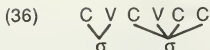
In (34b), prespecification takes precedence over any melodic element that is outside the core syllable (cf. Marantz 1982, McCarthy & Prince 1986). In (34c), spreading provides a peak to the prespecified consonants that have become left margins.

The representations in (37) and (38) will correspond to (33a) and (33d):

(37) CVVC → CVCVC   CV → CVCV   CVVCC → CVCV CVCV
      │∨│   │∨ │   ││   │↙   │∨ ∨   │∨ │↙
      j a y j a y   ma   ma   ya p   ya pë

(38) CVVC → CVCVCC VCVC   CV → CVCVCC VCV
      │∨│   │∨ ╱════│   ││   │∨ ╱════│
      j a y j a   y   ma   ma
                                    ñ t │ ñ

      CVVCC → CVCVCC VCV   CVCVCC VCV
      │∨ ∨   │∨ ╱══════   │∨ ╱══════
      ya p   ya   pë
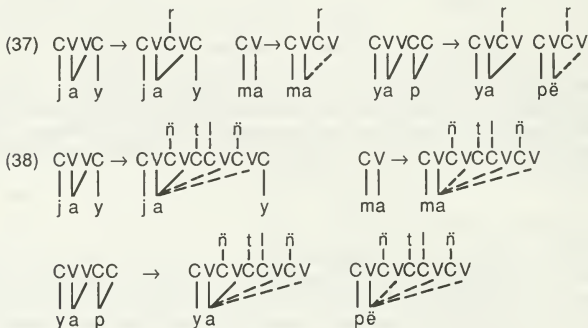
The important question to be answered then, is that of the nature of the prosodic category that is reduplicated in this type of *Kàll*. Notice first that each core syllable of the "original" form triggers a separate prosodic word in the "secret" form. Consider for instance (39), in which the core syllable CV is underlined:

(39)   jaay →   [jaray]   (33a)
             →   [jalfay]   (33b)
             →   [jancay]   (33c)
             →   [jañatlañay]   (33d)

Notice that the core syllable may be one created by degemination (cf. (25)) and schwa insertion (cf. (23)):

(40) a.   yàpp →   [përë]   (33a)
                →   [përifë]   (33b)
                →   [pëncë]   (33c)
                →   [pënëtlënë]   (33d)

In each of the newly created prosodic words, the structure of the metrical foot is uniform: it is always binary (and left-dominant), in conformity with the Wolof

stress algorithm (cf. (20) and Ka 1988). Consider (41), in which phonological words comprise either a single binary foot or two binary feet:

(41) a.   [ja ray]   [ma ra]   [ya ra]   [pë rë]
            \/   \/   \/   \/
            F   F   F   F

     b.   [jañat lañay]   [mañat laña]   [yañat laña]   [pëñët lëñë]
            \/   \/   \/   \/   \/   \/   \/   \/
            F   F   F   F   F   F   F   F
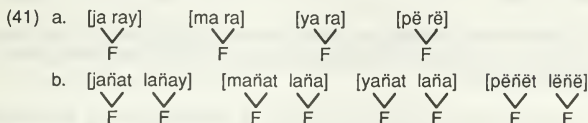
Since all feet have the same labelling in each sentence,[8] and since that labelling conforms to the canonical form of the foot in Wolof, uniformly replicating it, it is possible to characterize this *Kàll* variety as an instance of foot reduplication.

4. Conclusion

In this paper, I have shown that reduplication in Wolof involves more than a mere copying of a morphemic skeleton. The examination of language-external evidence — in particular the secret code *Kàll* — reveals that other constituents, of a prosodic nature, are also replicated. They are the core syllable and the metrical foot. This constitues another confirmation of the importance of the role of prosodic units in the phonology and morphology of the language.

NOTES

* I would like to thank two anonymous reviews for their comments and suggestions on an earlier version of this paper.

[1] Disyllabic stems susceptible of reduplication are underlyingly monosyllabic; they become disyllabic on the surface to obey the syllabification principles of the language. The only exceptions are borrowed words and names of locations that can historically be analyzed as involving more than one morpheme (cf. discussion in Ka 1988).

[2] I use here the orthography adopted in Senegal. The pharyngeal geminate /qq/ is represented in that orthography as *q*. Notice that geminate consonants do not exist in the Gambian variety.

[3] *à* is an orthographic device representing the low long vowel /aa/ before geminate and prenasal consonants (cf. discussion in Ka 1988).

[4] McCarthy and Prince (1987) propose to consider total reduplication as involving no copying at all, but rather compounding of a word with itself.

[5] The data are extracted from an interview of a *Kàll* speaker conducted by Mr. Abdoul Aziz Diaw, researcher at the *Centre de Linguistique Apliquée de Dakar* (C.L.A.D.).

[6] Clitic is being defined here from a syntactic point of view, as any element that does not constitute the head of a phrase (in Wolof, only lexical items may have a head status).

[7] The first vowel in *yobbu* and *toggu* is underlyingly long and shortens before a geminate consonant. Thus, the underlying representations of the above items are respectively /yoobbu/ and /tooggu/.

[8] McCarthy and Prince (1986) posit a Uniformity Parameter to explain this regularity.

REFERENCES

CLEMENTS, G., & J. KEYSER. 1983. CV Phonology. Linguistic Inquiry Monograph. Cambridge: MIT Press.

DIAGNE, P. 1971. Grammaire du Wolof moderne. Paris: Présence Africaine.

HAYES, B. 1986. Inalterability in CV-Phonology. Language 62:2.321-51.

HYMAN, L. 1985. A theory of phonological weight.

KA, O. 1981. La dérivation et la composition en Wolof. Dakar: C.L.A.D. 77.

_____. 1985. Syllable structure and suffixation in Wolof. Studies in the Linguistic Sciences 15:1.61-90.

_____. 1988. Wolof phonology and morphology: A nonlinear approach. University of Illinois at Urbana-Champaign Ph.D. dissertation in Linguistics.

_____. Forthcoming. Wolof syllable structure: Evidence from a secret code. Proceedings of the Fifth Eastern States Conference on Linguistics. University of Pennsylvania.

_____, & C. Kisseberth. Forthcoming. Prosodic domains in Wolof vowel harmony.

MARANTZ, A. 1982. Re-reduplication. Linguistic Inquiry 13.483-545.

MCCARTHY, J. 1982. Prosodic templates, morphemic templates, and morphemic tiers. The structure of phonological representations 1.191-223. Dordrecht: Foris.

_____. 1983. Morpheme form and phonological representation. University of Texas at Austin, MS.

_____. 1984. Prosodic organization in phonology. Language sound structure, ed. by M. Aronoff & R. Oehrle. Cambridge: MIT Press.

_____, & A. PRINCE. 1986. Prosodic morphology. University of Massachusetts & Brandeis University, MS.

_____, & A. PRINCE. 1987. Quantitative transfer in reduplicative and templatic morphology. University of Massachusetts & Brandeis University, MS.

SAUVAGEOT, S. 1965. Description synchronique d'un dialecte wolof: le parler du Dyolof. Dakar: Mémoires de l'I.F.A.N. 73.

STERIADE, D. 1982. Greek prosodies and the nature of syllabification. MIT Ph.D. dissertation in Linguistics.

STERIADE, D. 1986. Yokuts and the vowel plane. Linguistic Inquiry 17.129-46.

YIP, M. 1982. Reduplication and CV skeleta in Chinese secret languages. Linguistic Inquiry 13.637-62.

VOWEL HARMONY IN TURKANA[*]

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In this paper I describe two processes of vowel harmony in Turkana. Turkana has a nine vowel system which can be distinguished by the features [ATR] (Advanced Tongue Root), [round] and [low]. While the features [ATR] and [round] are equipollent features in Turkana, [low] is employed as a privative feature. I argue that [ATR] harmony operates to spread the feature [+ATR] to a vowel which is specified for either value of the equipollent feature [round] and to spread the feature [-ATR] to a vowel specified for the privative feature [low]. The features [round] and [low] are therefore conditioning factors in [ATR] harmony. While there is a two-way distinction underlyingly in roots ([+ATR] or unspecified), there is a three-way underlying distinction in suffixes ([+ATR], [-ATR], or unspecified). I claim that vowel harmony in Turkana is feature-changing.

Turkana is an Eastern Nilotic language which is spoken by approximately 250,000 people in Turkana District, Kenya. The aim of this paper is to analyze the most salient properties of the vowel harmony system of this language. The vowel harmony system of Turkana is unique in that both the plus and the minus value of the harmonizing feature [Advanced Tongue Root] spread. The data used in this description are from fieldnotes which I collected in Kenya in 1986 and from Dimmendaal's 1983 grammar of the Turkana language.

1. Vowel system

Turkana has a nine vowel system, which can be divided into two sets by the feature [Advanced Tongue Root] ([ATR]).

(1) [+ATR]   [-ATR]

     i   u   ɪ   ʊ
     e   o   ɛ   ɔ
                    a

The vowel system is asymmetrical since it lacks a [+ATR] low vowel [ə]. The low vowel [a] is phonetically always [-ATR] and patterns phonologically with the set of [-ATR] vowels.

Instead of using a set of binary features, I analyze the Turkana vowel system using a privative feature [low] and an equipollent feature [round]. The equipollent feature [round] gives rise to a ternary distinction. A vowel can be specified as [+round], [-round], or it can bear no specification for this feature at all. Rather than specifying the absence of rounding, a [-round] vowel is opposed not only to vowels which are specified as [+round] but yet to a third category: those vowels for which the absence of any such feature specification is distinctive.

(2)   a.   [+F]   b.   [-F]   c.
          | |
          V   V   V
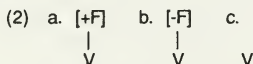
All vowels which are specified as [-round] are assigned the phonetic feature [front] by a late redundancy rule:

(3)   Default [front] Assignment: [-round] $\rightarrow$ [front]
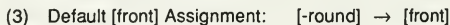
In contrast, the feature [low] gives rise to a binary distinction between those vowels which are underlyingly specified as [+low] and those vowels which do not bear a specification for this feature.

(4)   a.   [F]   b.
          |
          V   V
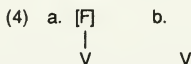
The combination of an equipollent feature [round] with a privative feature [low] gives rise to six possible vowels of which only five occur in Turkana. It has to be assumed that Turkana does not allow a completely unspecified segment in its inventory. Hence the five-vowel system in (5) emerges:

(5)   [+rd]   [-rd]   [+rd]   [-rd]
      | | | |
     V   V   V   V   V   V
                   | | |
               [low]   [low]   [low]

     /U/   /I/   /O/   /E/   /A/
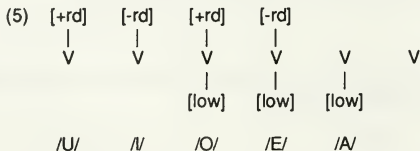
The advantage of using a privative and an equipollent feature to analyze a five vowel system over a traditional approach which uses the three binary features [high], [low] and [round] is that the first approach gives rise to less possible combinations. While the choice of features opted for here limits the number of possible vowels to six, the three binary features give rise to eight

possible combinations, of which two ([+high, +low, +round] and [+high, +low, -round]) have to be ruled out as impossible.

On top of a five vowel system Turkana has a distinctive autosegmental feature [ATR]. I will assume that [ATR] just like [round] is an equipollent feature, and that both the [+ATR] and the [-ATR] values are specified underlyingly. In addition, vowels can be unspecified for the feature [ATR] and receive a specification for this feature either by spreading or by complement assignment.

In this treatment of the Turkana vowel system I follow a suggestion made in Goldsmith (1985) and (1987). The choice of the features [ATR] and [round] as equipollent features is language specific. As will be seen later, this feature specification allows for a natural description of the rules of vowel harmony.

2. Vowel harmony

In general all vowels in a word must be chosen from the first or the second set of vowels in (1). Which kind of vowels occur in the word can either be determined by the root or by the suffix. I will first consider cases of root controlled harmony. If the word contains a [+ATR] root, then the prefixes and suffixes are [+ATR], and if the word contains a [-ATR] root then both prefixes and suffixes will be realized as [-ATR].

(6) a. [agolun] 'to close in' INF: close: MT[1]
     b. [adokun] 'to climb down' INF: climb: MT

Roots can therefore be classified into two groups depending on their specification for tongue root advancing. They are either lexically specified for the feature [+ATR] or they are unspecified for this feature. The reason for treating roots as lexically unspecified rather than as being [-ATR] is to avoid changing their feature specification when they are adjacent to a dominant [+ATR] suffix. If [+ATR] Spreading were a feature-changing rule, then it would not only delete the [-ATR] specification of a [-ATR] root, but it would also delink the [-ATR] specification of a dominant [-ATR] suffix. I will return to this point below.

(7) a. [+ATR]   b.
         |
         CV$_{root}$ CV$_{root}$

The [+ATR] feature of the root spreads to all prefix and suffix vowels which have no specification for this feature. In this respect vowel harmony in Turkana is root controlled.

(8) [+A]   [+A]
     | ⟋⟍⟍
     A-gol-Unl[2]   (9)   A-gol-uni   [agolun]   'to close in'
              →   INF-close-MT

The rule of [+ATR] Spreading is formalized as in (9) below.

(9) [+ATR] Spreading: [+ATR]
                          |\ \
                          V V   (bidirectional)

If a root is unspecified for the feature [ATR] it receives the feature value [-ATR] by a complement rule:

(10) Complement [-ATR] Assignment: [ ] → [-ATR]

An example of Complement [-ATR] Assignment is given in (11). The root as well as the prefix and suffix vowels in this example surface as [-ATR].

(11)   [-A]
                         (10)   / \ \
         A-dOk-Unl   →   A-dok-uni   [adokun]   'to climb down'
                                                       INF-climb-MT

In addition Turkana has dominant suffixes which cause the root and prefix vowels to assimilate. If a dominant [+ATR] suffix is added to the root, it will surface as [+ATR] and if a dominant [-ATR] suffix is added, the root will surface as [-ATR].

(12) a. [egole]   'way of closing'   M: close: GER
     b. [edoke]   'way of climbing'   M: climb: GER

(13) a. [agolere] 'to close'   INF: close: SBJV
     b. [adokere] 'to climb'   INF: climb: SBJV

Suffixes, unlike roots, have a three-way distinction for the feature [ATR]. Suffixes can be lexically specified as either [+ATR], [-ATR], or are unspecified for this feature.

(14) a. [+ATR]   b. [-ATR]   c.
         | |
         CV$_{suffix}$ CV$_{suffix}$ CV$_{suffix}$

If a suffix which is unspecified for the feature [ATR] is added to a root, it can receive a specification for this feature in one of two ways. The suffix either associates with the [+ATR] feature of the root as in (8) or it is assigned a [-ATR] feature by the complement rule, if the root itself is unspecified for [ATR] as in (11) above.

Suffixes which are specified for the feature [+ATR] spread this feature onto the preceding root and prefix vowels.

(15)
$$\begin{array}{ccc} [+A][+A] & & [+A]^3 \\ | \quad | & (9) & \diagup|\diagdown \\ \text{E-gol-e} & \rightarrow & \text{e-gol-e} \end{array}$$
[egole]   'way of closing'
M-close-GER

(16)
$$\begin{array}{ccc} [+A] & & [+A] \\ | & (9) & \diagup\diagup| \\ \text{E-dOk-e} & \rightarrow & \text{e-dok-e} \end{array}$$
[edoke]   'way of climbing'
M-climb-GER
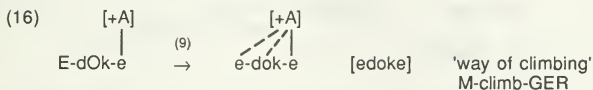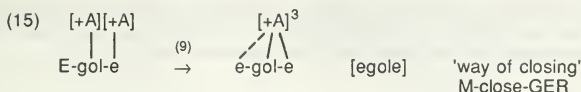
No effect of the dominant [+ATR] suffix can be observed in example (15) because both the suffix and the root are underlyingly specified as [+ATR]. In example (16), however, it can be seen that the [+ATR] feature of the suffix spreads to all preceding vowels, thereby causing the unspecified root to become [+ATR]. In these cases Turkana vowel harmony is of the dominant type. Suffixes can be dominant and determine the ATR-category of the word.

Finally there are those suffixes which are underlyingly specified as [-ATR]. Not only do these suffixes always surface with [-ATR] vowels, but they even spread this feature onto the preceding root and prefix vowels.

(17)
$$\begin{array}{ccc} [+A][-A] & & [+A][-A] \\ | \quad /\backslash & (19) & \ddagger\diagup/\backslash \\ \text{A-gol-ere} & \rightarrow & \text{A-gol-ere} \end{array}$$
[agolere]   'to close'
INF-close-SBJV[4]

(18)
$$\begin{array}{ccc} [-A] & & [-A] \\ /\backslash & (19) & \diagup\diagup/\backslash \\ \text{A-dOk-ere} & \rightarrow & \text{A-dok-ere} \end{array}$$
[adokere]   'to climb'
INF-climb-SBJV
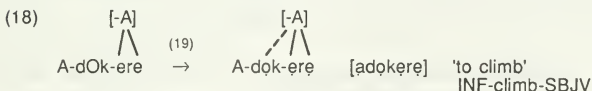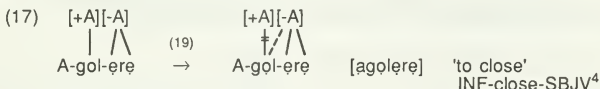
In example (17) the [-ATR] feature of the subjunctive suffix associates with the root vowel in a process of delinking and spreading. Since the underlying [+ATR] vowel surfaces as [-ATR], [-ATR] Spreading must be a feature-changing process. In example (18) a [-ATR] suffix is added to an unspecified root. All vowels in the word associate with the [-ATR] feature of the suffix. Apart from the rule of [+ATR] Spreading and Complement [-ATR] Assignment, a rule of [-ATR] Spreading is therefore needed. This process is formalized in the following rule:

(19) [-ATR] Spreading:
$$\begin{array}{l} [\text{-ATR}] \\ |\backslash \quad \text{(to be revised in (22))} \\ \text{V V} \quad \text{(bidirectional)} \end{array}$$
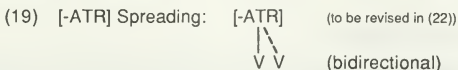
[-ATR] Spreading is, however, subject to the following restriction: the feature [-ATR] spreads only to vowels which have a specification for the feature

[low]. In Turkana not only /A/ but also the mid vowels /E/ and /O/ are specified as
[low] and are therefore a target for [-ATR] Spreading. Since high vowels have
no specification for this feature, [-ATR] can spread neither to /I/ nor /U/.

(20)   [+A] [-A]
         | / \
        A-buk-ere   [abukẹrẹ]   'to pour'
            \ /   INF-build-SBJV
          [low]
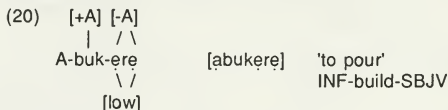
The [-ATR] feature of the subjunctive marker /-ẹrẹ/ in (20) does not spread
to the root, because the high root vowel has no specification for the feature
[low]. If the same suffix, however, is added to a [+ATR] mid vowel root, the
feature [-ATR] can spread and the underlying [+ATR] root becomes [-ATR].

(21)   [+A][-A]   [+A][-A]
         | /\   (22)   ‡/ /\
        A-gol-ere   →   A-gol-ere   [agolẹrẹ]   'to close'
         \\///   \\///   INF-close-SBJV
         [low]   [low]
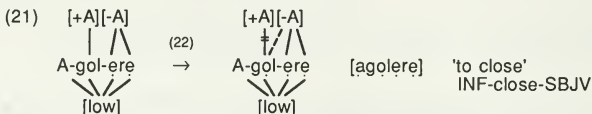
The rule of [-ATR] Spreading in (19) therefore has to be revised in order to
apply only to vowels which are specified for the feature [low].

(22)   [-ATR] Spreading (revised):   [-ATR]
                                       /˙\
                                      V   V   (bidirectional)
                                       \ /
                                      [low]
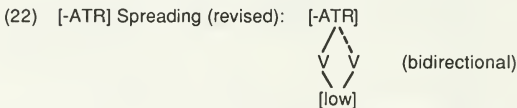
The different underlying specifications of roots and suffixes, as well as
their surface forms are summarized in (23):

(23)   suffix: motion towards   gerund   subjunctive
                               unspecified   [+ATR]   [-ATR]
                               /-UnI/   /-e/   /-ẹrẹ/
       root:
       [+ATR]   /-gol/   [agoluni]   [egole]   [agolẹrẹ]
       unspecified   /-dOk/   [adokụni]   [edoke]   [adokẹrẹ]
       [+ATR]   /-buk/   [abukuni]   [ebuke]   [abukẹrẹ]
       unspecified   /-dUk/   [adụkụni]   [eduke]   [adụkẹrẹ]

3. The analysis of low vowels

As was mentioned above Turkana does not have a [+ATR] low vowel [ə]
in its segment inventory. The low vowel always surfaces as [-ATR] [a]
phonetically. This means that the low vowel cannot associate with the feature
[+ATR] and therefore does not undergo harmony. /A/ also blocks the spreading

of the feature [+ATR]. Words consisting of a [-ATR] prefix and a [+ATR] root are common. They occur if the first vowel in the root is the low vowel /A/.

(24) [emakuk]   'chair'   M: chair: SG
      [ngimakukyo]   'chair'   M: chair: PL

(25)   [+A]   [-A]   [+A]
          | (10) | |
      E-mAkuk   →   e-mAkuk   [emakuk] 'chair'
                                                    M-chair: SG

In (25) the [+ATR] specification of the root does not spread to the prefix across the low root vowel. The prefix vowel surfaces with the complement value [-ATR].

Further evidence to show that /A/ is opaque in the vowel harmony system of Turkana comes from words which consist of a low vowel root to which a dominant [+ATR] suffix is added. In (26) the [+ATR] feature of the gerund suffix does not spread past the low vowel to the prefix vowel. The prefix vowel therefore surfaces with the complement value [-ATR].

(26)   [+A]   [-A]   [+A]
          \   (10) | |
      E-rAm-e   →   e-rAm-e   [erame] 'way of killing'
                                                    M-kill-GER

The question is how to analyze the behavior of the low vowel in a framework which uses both equipollent and privative features. One possibility is to represent the low vowel as underlyingly linked to a feature [-ATR]. If [+ATR] Spreading is a feature-filling and not a feature-changing rule, then spreading of the [+ATR] feature cannot delink the [-ATR] specification of a low vowel and the low vowel will surface as [-ATR].

(27)   [-A] [+A]   [-A] [+A]
          \ | / \ |
      E-makuk   →   e-makuk   [emakuk] 'chair'
                                                     M-chair: SG

(28)   [-A] [+A]   [-A] [+A]
          \ | / | |
      E-ram-e   →   e-ram-e   [erame]   'way of killing'
                                                     M-kill-GER

This solution is, however, untenable for Turkana since both the [+ATR] and the [-ATR] values spread. If /A/ is underlyingly specified as [-ATR] and if [-ATR] spreads in a feature-changing fashion, then we would expect the [-ATR] feature of the low vowel to spread to the surrounding vowels. While the [-ATR] specification of a low vowel can be prevented from associating to the following

root vowel in (27) by invoking the Strict Cycle Condition, it cannot be prevented from spreading to the suffix vowel in example (28). In (28) the [-ATR] feature should spread to the suffix vowel and thereby delink its underlying [+ATR] specification.

Another possibility to account for the opacity of the low vowel is to represent /A/ as underlyingly unspecified for [ATR] and to make it subject to a negative co-occurrence constraint which prohibits the occurrence of the feature [ATR] with the low vowel as in (29).

> (29) Negative Co-occurrence Constraint: *[ATR]
> |
>   V
> |
>   [low]

Since both the low and the mid vowels are specified for [low], this constraint would also apply to the latter and prohibit the association of the feature [ATR] with /E/ and /O/. This effect is clearly unwanted. A co-occurrence constraint of the form stated in (29) does not therefore express the correct generalization.

Instead of a negative constraint a positive co-occurrence constraint can be formed which makes the association of the feature [ATR] dependent on the presence of the feature [ß round]. If [ATR] can only associate with a vowel which is specified for [ß round], then all vowels except the low vowel itself represent suitable targets for the association with this feature.

> (30) Positive Co-occurrence Constraint: [ATR]
> |
>   V
> |
>   [ß round]

The filter in (30) states that only vowels which bear a specification for either value of the equipollent feature [ß round] can associate with the feature [ATR]. Since vowel harmony is structure preserving, (30) expresses both an existing constraint on the underlying representation of vowels as well as a constraint which holds throughout the lexical phonology. The low vowel /A/ therefore does not constitute a suitable target for either [+ATR] Spreading or [-ATR] Spreading. In addition, I assume that Turkana has a constraint which prohibits vowels from being skipped in the association process. If a vowel cannot be associated with the [ATR] feature, then spreading to the following vowel is blocked.

I will tentatively assume that the low vowel is underlyingly unspecified for the feature [ATR], although the behavior of low vowels in suffixes indicates that this restriction might be too strong and that Turkana does indeed have two low vowels in its inventory: a low vowel which is underlyingly unspecified for [ATR]

and a low vowel which is underlyingly linked to a feature [-ATR]. I will return to this point below. If the low vowel /A/ is represented as bearing no specification for the feature [ATR] underlyingly, then a default rule is needed which assigns the low vowel the feature value [-ATR] after round vowels have received their [-ATR] specification by the complement rule in (10).

(31) Default [-ATR] Assignment: [low]   →   [-ATR]

4. Low vowel rounding

Suffixes which contain a low vowel underlyingly undergo a morphophonemic rule which changes /A/ to a low round vowel /O/ if the suffix follows a [+ATR] root.

(32) Low Vowel Rounding:
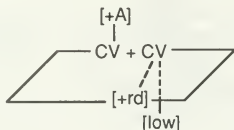
In (33) the low suffix vowel is rounded after a [+ATR] root. The rounded vowel then meets the structural description for [+ATR] Spreading and associates with the [+ATR] feature of the root, so that it will surface as [o]. No rounding takes place in (34) in which the root is unspecified for [ATR] and in which the structural description for rounding is therefore not met.

(33)

[ajulot] 'hair'
F-hair-SG

(34)
$$A\text{-}mUk\text{-}At \quad \overset{(10)}{\to} \quad A\text{-}muk\text{-}At \quad [amukat] \quad \text{'shoe'}$$
F-shoe-SG
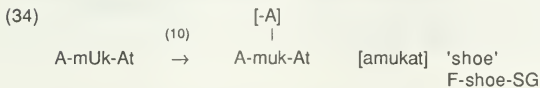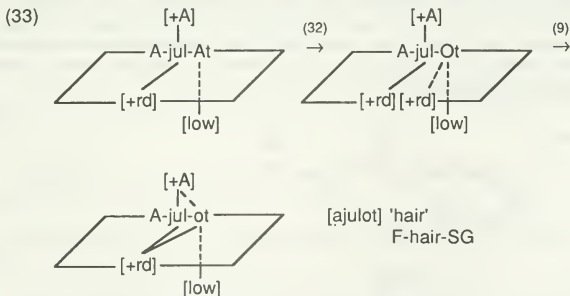
However, a slightly different process takes place when the suffix {-ari}[5] is added to a [+ATR] root. In this case the low vowel turns into a low [-ATR] round vowel [o]. I assume that the suffix {-ari} is underlyingly linked to a [-ATR] feature since it spreads this feature backwards and thereby delinks the underlying [+ATR] specification of the root.

(35)
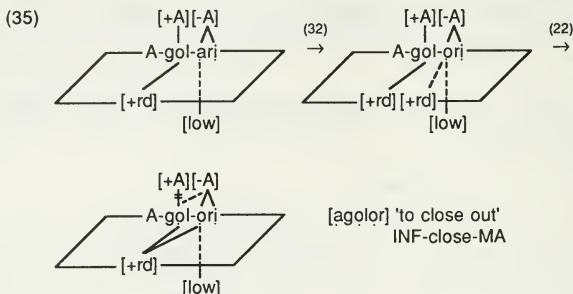
In example (35) [+ATR] Spreading fails to apply since the suffix {-ari} is already linked to a [-ATR] feature and [+ATR] spreading is not a feature-changing rule. However, in the same example the structural description for [-ATR] Spreading is met. The [-ATR] feature of the suffix spreads backwards to the root vowel, thereby delinking its [+ATR] feature. It is crucial to note that in this example Low Vowel Rounding applies to the suffix {-ari} although it is invariantly [-ATR]. This shows that it is not the spreading of a [+ATR] feature to a low vowel which causes it to be rounded, but that we are dealing instead with an insertion rule whose only condition is that the preceding morpheme be linked to the feature [+ATR]. Example (35) therefore provides another instance of feature-changing harmony.

(36)
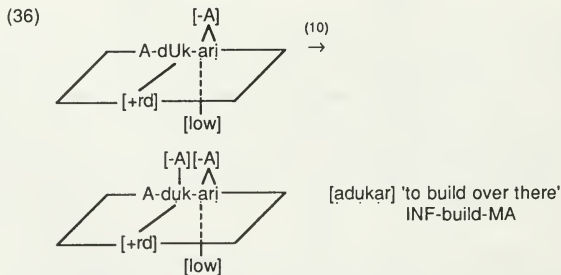
In contrast, in example (36) the root is unspecified for [ATR] and Low Vowel Rounding fails to apply. The suffix in this example surfaces with a [-ATR] low vowel [a].

[-ATR] Spreading (22) applies after the rule of Low Vowel Rounding (32), while [+ATR] Spreading (9) in its turn applies after [-ATR] Spreading.

(37) Low Vowel Rounding (32)
      [-ATR] Spreading (22)
      [+ATR] Spreading (9)
      Complement [-ATR] Assignment (10)
      Default [-ATR] Assignment (31)
      Default [front] Assignment (3)

In conjunction with the spreading processes described above it is of interest to note that all dominant suffixes in Turkana are mid vowel suffixes.[6] By first assuming that all vowels which are underlyingly linked to the [round] tier and the [low] tier also have to be associated to the [ATR] tier, the dominance of the mid vowel suffix is explained. It is then the multiple association of a segment to the different vowel tiers that causes it to be dominant and to spread the feature [ATR] onto preceding vowels.

NOTES

[*] I am thankful to two SLS reviewers for their useful comments and suggestions on an earlier version of this paper. Any remaining weaknesses or error of facts remain solely my responsibility.

[1] MT stands for the suffix /-UnI/ which denotes a motion towards the speaker. The underlying final high vowel of this suffix is devoiced or deleted before a pause.

[2] Capital letters indicate vowels which are lexically unspecified for the feature [ATR].

[3] Two adjacent identical autosegments are prohibited according to the OCP.

[4] The subjunctive is formed with the help of the voice marker /-A/ plus a word-final instrumental marker {-re}. The voice marker /-A/ is contracted with a preceding high front vowel to form the subjunctive marker {-ere}. I represent the [-ATR] feature as being linked to both mid vowels, though strictly it should only be associated with the latter.

[5] The suffix {-ari} indicates a motion away from the speaker. The underlying final high vowel is devoiced or deleted before a pause.

[6] Exceptions to this claim are the nominal plural marker {-i} and the abstract noun marker {-u}. Dimmendaal and Breedveld (1986) claim that the two suffixes contain voiced vowels underlyingly, which are devoiced or deleted in pre-pausal position. They are, however, fully voiced if followed by a vowel-initial word. My data do not include any examples formed with the abstract-noun marker {-u} which would allow me to judge its behavior. I do, however, have doubts about the claim that the nominal plural marker {-i} is dominant in Turkana vowel harmony. Suffixation of the the plural marker {-i} is not productive in Turkana.

REFERENCES

DIMMENDAAL, Gerrit Jan. 1983. The Turkana language. Dordrecht: Foris.
_____, & Anneke Breedveld. 1986. Tonal influence on vocalic quality. The phonological representation of suprasegmentals, ed. by Koen Bogers, Harry van der Hulst & Maarten Mous, 1-33. Dordrecht: Foris.
GOLDSMITH, John. 1985. Vowel harmony in Khalkha Mongolian, Yaka, Finnish and Hungarian. Phonology Yearbook 2.259-275.
_____. 1987. Toward a theory of vowel systems. Papers from the 23rd annual regional meeting of the Chicago Linguistic Society. Part two: Parasession on Autosegmental and Metrical Phonology, ed. by Anna Bosch, Barbara Need & Eric Schiller, 116-133. Chicago: Chicago Linguistic Society.

SONORANT-STRENGTHENING IN LAMA[*]

Meterwa A. Ourso and Charles H. Ulrich

In Lama, a Gur language, two distinct rules change sonorants to stops after another sonorant. W-Strengthening changes /w/ to /p/ after /m/, and R-Strengthening changes /r/ to a retroflex stop after any sonorant consonant. These two rules, along with a rule deleting glides in post-consonantal position, are motivated by the Syllable Contact Law (Murray & Vennemann 1983), which states that heterosyllabic consonant clusters are preferred in which the second consonant is less sonorous than the first. R-Strengthening interacts with a rule of Schwa Deletion that exhibits a relatively uncommon type of compensatory lengthening, where a vowel is lengthened to compensate for the loss of a vowel in the following syllable.

1. Introduction

Lama (also known as Lamba) belongs to the Grusi (or Gurunsi) branch of the Gur (or Voltaic) language family. It is spoken in northern Togo. Previous work on Lama includes a grammar by Prost (1963).

Lama has the following underlying consonants:

(1)	p	t		c	k	kp	
	f	s					h
	m	n		ñ			
	w	l	r	y			

Orthographic *d* represents a retroflex stop (derived from underlying /r/), not a voiced alveolar stop. All consonants can occur in syllable onsets. All non-palatal sonorants can occur in codas.

Lama has eleven underlying vowels. The [-ATR] non-low vowels /i e ə o u/ have [+ATR] counterparts /i e ə o u/. The [-ATR] low vowel *a* has no contrastive [+ATR] counterpart, although *a* occurs through vowel harmony (Ourso 1988). Tones, which are irrelevant to the phenomena under discussion, are not marked in this paper (but see Kenstowicz et al. 1988, Ourso 1989).

Lama has ten noun classes: four singular (classes 1, 3, 5, 7), four plural (classes 2, 4, 6, 8), and two mass (classes 9, 10). Noun class is indicated by a suffix on the noun root. Most singular nouns in class 1 have plurals in class 2, and so on for classes 3/4, 5/6, and 7/8. Third-person personal pronouns are in most cases homophonous with the class suffixes. A number of phonological rules apply at the boundary between noun root and class suffix (Ourso 1989, forthcoming).

2. Labial Sonorant/Obstruent Alternations

The labial stop *p* and the labial-velar glide *w* contrast in word initial position (2) and in intervocalic position (3):

(2) wetụ   'to sell'
     pelụ   'to cut'

(3) awọr   'place, position'
     apeer   (proper name)

Elsewhere, the opposition between /p/ and /w/ is neutralized.

Only sonorant consonants can occur in syllable codas in Lama. /p/ becomes /w/ before a consonant, as in the causative form in (4), and word-finally, as in the imperative form in (5):

(4) kpạp-ə   'to be similar'
     kpạw-s-ụ   'to reconcile'

(5) yạp-ə   'to buy'
     yạw   'buy!'

This alternation can be expressed with a rule weakening an unsyllabified /p/ (indicated in the rule by circling the unsyllabified segment):

(6) P-Weakening (Stratum 1 only)[1]
     p → [+sonorant]

As will be shown below, P-Weakening must be restricted to the first stratum of the lexical phonology.

The demonstrative pronouns illustrate a converse alternation. After the homorganic nasal of the demonstrative, /w/ becomes /p/ and /r/ becomes the retroflex stop /d/:

(7) wạ 'they (class 2)'   mpạ   'those (class 2)'
     rə 'it (class 7)'   ndə   'that (class 7)'

Note, however, that /y/ does not become /c/ in the same environment:

(8)   ya̧   'they (class 8)'   ɲya̧   'those (class 8)'

While it is difficult to identify a natural class including /w/ and /r/ but excluding /y/, there is an obvious historical explanation for the failure of /y/ to strengthen. Lama /w/ and /r/ correspond to /b/ and /d/ (i.e. a voiced alveolar stop) in related languages, and are derived from Proto-Gurunsi *b/ and *d/ (Manessy 1969). Lama /y/, on the other hand, corresponds to /y/ in related languages. Thus, it is only those sonorants derived diachronically from stops that alternate with stops synchronically.[2]

Two homophonous {-w/a} suffixes illustrate the behavior of morpheme-initial /w/ in different environments. These are the past tense suffix and one allomorph of the class 2 noun suffix.[3] Both are inflectional suffixes of the second lexical stratum. The /w/ surfaces unchanged after vowel-final roots:

(9)   na̧-   'to see'   na̧wa̧   'saw'
       co-   'to listen'   cowa̧   'listened'

(10)   apu-   apuwa   'headlice'
       alu̧-   alu̧wa   'devils'

After a verb root ending in /m/, the /w/ of either suffix is strengthened to /p/:

(11)   hom-   'to pull'   hompa̧   'pulled'
       rem-   'to bite'   rempa̧   'bit'

(12)   rentam- rentampa̧   'deaf people'
       yadem-   yadempa̧   'co-wives'

This strengthening could be analyzed in either of two ways: as assimilation of the feature [-continuant], or as dissimilation of the feature [+sonorant]. It will be shown below that a similar process of R-Strengthening is unambiguously dissimilatory. Therefore, we analyze W-Strengthening also as a dissimilatory process, changing a sonorant consonant to an obstruent after another sonorant:

(13) W-Strengthening
     w → [-sonorant] / m ___

When the past tense suffix or the class 2 suffix follows any consonant other than /m/, the /w/ is deleted:

(14)   teter-   'to crush'   tetera   'crushed'
       wil-   'to hunt'   wila   'hunted'
       kpew-   'to fasten a belt' kpewa   'fastened a belt'
       sen-   'to help'   sena   'helped'
       sep-   'to die'   sepa   'died'
       wet-   'to sell'   weta   'sold'
       wos-   'to wake'   wosa   'woke'

(15) yir-   yira   'people'
      waal-   waala   'husbands'

Because /w, y/, and /r/ are never found after consonants in Lama, we can formulate the following rule:

(16) Glide Deletion[4]
$$\begin{bmatrix} \text{+sonorant} \\ \text{+consonantal} \\ \text{-nasal} \\ \text{-lateral} \end{bmatrix} \rightarrow \varnothing \ / \ [\text{+consonantal}] \ \_\_\_\_$$

We follow Hayes (1989) in analyzing glides as [+consonantal], in order to distinguish them from vowels without positing a skeleton.

Glide Deletion also deletes /y/ from the noun class 8 suffix {-ya}

(17) se-   seya   'fieldmice'
     waas-   waasa   'vipers'

It never deletes r, as it is always bled by R-Strengthening or Schwa Epenthesis (to be discussed below). It is bled by W-Strengthening after m.

Derivations of words exhibiting /p/ ~ /w/ alternations are given in (18):

(18) hom+wa (11)   səp+wa (14)   kpap+s+u (4)
      —   —   kpawsu   P-Weakening (str. 1)
      hompa   —   —   W-Strengthening
      —   səpa   —   Glide Deletion
      [hompa]   [səpa]   [kpawsu]

P-Weakening does not apply to [səp+wa] because it is a first stratum rule, and [-wa] is suffixed on the second stratum.

3. Retroflex sonorant/obstruent alternations

Two homophonous suffixes exhibit alternations between /r/ and the retroflex stop /d/. These are the agentive suffix and the noun class 7 suffix. The agentive suffix derives nouns from verbs on the first lexical stratum. The class 7 suffix is an inflectional suffix of the second lexical stratum. After a vowel-final root, either of these suffixes is realized as lengthening of the vowel plus /r/:

(19) ha- 'to give'   haar   'benefactor'
      se- 'to run'   seer   'runner'

(20) mi- miir   'nose'
      se- seer   'field mouse'

After a root ending in an obstruent other than /p/, these suffixes are realized as [ər].

(21) ños-   'to fix'   ñosər   'fixer'
      rik-   'to herd'   rikər   'herdsman'
      wet-   'to sell'   wetər   'seller'

(22) akpet-   akpetər   'baboon'
      kank-   kankər   'snake species'
      waas-   waasər   'viper'

After a root ending in /l/ or a nasal, these suffixes are realized as /də/:

(23) kal-   'to count'   kaldə   'accountant'
      sən-   'to help'   səndə   'helper'
      yim-   'to bury'   yimdə   'burier'

(24) məl-   mədə   'millet'
      sen-   sendə   'bean'
      yem-   yendə   'hippo'

No further rules (other than Vowel Harmony) affect the agentive forms in (23). In the class 7 forms in (24), a root-final nasal assimilates in place to the following stop, becoming retroflex, and a root-final /l/ is deleted. These processes are limited to the second stratum.

Roots ending in /r, w/, and /p/ present further complications. The agentive forms of roots ending in /r/ contain a geminate /rr/ that resists strengthening:

(25) mər-   'to tell a story'   mərrə   'storyteller'

On the other hand, the class 7 suffix does undergo strengthening after a root ending in /r/.

(26) sar-   sadə   'frog'

After triggering R-Strengthening, the root-final /r/ is deleted by the same rule that deletes /l/ in (24):

(27) Oral Sonorant Deletion (Stratum 2 only)

$$\begin{bmatrix} +\text{consonantal} \\ +\text{sonorant} \\ -\text{nasal} \\ +\text{voiced} \\ -\text{lateral} \end{bmatrix} \rightarrow \emptyset \ / \ \_\_\_\_ \ d$$

Since heteromorphemic geminate /rr/ is inalterable in one case, but not the other, we can posit a rule turning fake geminates into true geminates. That is, a sequence of two identical melodic units, the first in the rime of one syllable (linked to a mora, m), the second the onset of the following syllable (linked to a syllable, s), is converted into a single melodic unit occupying both prosodic positions:

(28) Geminate Consolidation (Stratum 1 only)

Geminate Consolidation applies on the first stratum, where the agentive suffix is added, but not on the second stratum, where the class 7 suffix is added. After Geminate Consolidation, a form will no longer meet the structural description of Glide Deletion (16) or R-Strengthening (33, below), since the /r/ will follow a vowel.

Root-final /w/ is deleted after triggering strengthening of the /r/ in the agentive suffix:

(29) kpew-   'to fasten a belt'   kpedu   'belt'[5]

(30) W-Deletion
     w → Ø / ___ d

Notice that W-Deletion (30) deletes /w/ before /d/ in the agentive suffix on the first stratum. Oral Sonorant Deletion (27) deletes any oral sonorant in the same environment, but only on the second stratum.

Before the agentive suffix, root-final /p/ undergoes P-Weakening (6), and then behaves like underlying /w/ in triggering strengthening of the /r/ and then being deleted:

(31) lap-   'to do'   ladə   'worker'
     səp-   'to die'   sədə   'corpse'

On the other hand, noun roots ending in /p/ behave like roots ending in other obstruents before the class 7 suffix:

(32) asap-   asapər   'red ant'

Thus, P-Weakening must be restricted to the first lexical stratum.

Unlike W-Strengthening, there is no uncertainty about the nature of R-Strengthening. /r/ is strengthened after nasals, liquids, and the labial-velar glide. Because R-Strengthening is triggered by /w/, it cannot be interpreted as spreading the feature [-continuant]: w has the opposite value. Moreover, notice that R-Strengthening, when not bled by Geminate Consolidation, is triggered by a root-final /r/. Clearly, a feature-changing operation triggered by an identical segment must be dissimilatory, not assimilatory. Thus, we can formulate R-Strengthening as follows:

(33) R-Strengthening

$$r \rightarrow [\text{-sonorant}] \;/\; \begin{bmatrix} \text{+consonantal} \\ \text{+sonorant} \end{bmatrix} \underline{}$$

Although the two strengthening rules cannot be collapsed into a single schema, the dissimilatory nature of R-Strengthening suggests that W-Strengthening too is a dissimilation of the feature [sonorant]. Both rules change a sonorant consonant into a stop after a sonorant consonant, reversing a diachronic change in the development of Lama. They differ in the class of sonorants triggering each rule: any sonorant triggers R-Strengthening, while only /m/ triggers W-Strengthening.

4. Schwa deletion and epenthesis

Having accounted for the strengthening of /r/, we must account for the placement of schwa in the agentive suffix and the class 7 suffix. Given that schwa sometimes appears before and sometimes after the retroflex consonant, four possible analyses suggest themselves: the underlying representation might be [-ər], [-ərə], [-r], or [-rə].

If the suffixes were underlyingly [-ər], they would surface unchanged after an obstruent-final root (21, 22). Vowel-final roots (19, 20) could be handled simply enough by having the root-final vowel spread into the mora of the suffix's schwa. But a metathesis rule would be necessary after a root ending in a sonorant:

(34) yim+ər (23)
        yimər   Vowel Harmony
        yimrə   Metathesis
        yimdə   R-Strengthening
        [yimdə]

Given that the input to such a metathesis rule is syllabifiable, and that metathesis would apply after sonorants but not obstruents, the rule seems rather ad hoc.

No metathesis rule would be needed if the underlying form [-ərə] were posited. Instead, various rules would be required to delete one or the other of the two schwas (without compensatory lengthening). However, most noun class suffixes in Lama are homophonous with the corresponding independent pronouns, and the class 7 pronoun is [rə], not *[ərə]. Moreover, most class suffixes in Lama and in other Gur languages have the shape CV (Bendor-Samuel 1971). Manessy (1979) reconstructs this particular noun class suffix as *[-de] in Proto-Gurunsi. Thus, there is neither synchronic nor diachronic support for positing [-ərə].

If the underlying representation of the suffixes was [-r], epenthesis rules would be necessary to insert schwa before or after the /r/ whenever the root ended with a consonant. Such rules would be motivated by considerations of syllable structure: word-final /r/ cannot be syllabified after a consonant. But the lengthening of a root-final vowel would be totally unmotivated under this analysis.

In fact, the one constant across the allomorphs of these suffixes, aside from the presence of some retroflex consonant, is that the suffixed form is always one mora longer than the root. (Coda consonants do not constitute moras in Lama.) Thus, the underlying representation of these suffixes should be one mora long. Since [-ər] has already been rejected, the most likely choice is [-rə]. This is the form proposed by Kenstowicz (1989). And it is identical to the surface form of the independent pronoun.

Given the underlying form [-rə], a rule of Schwa Deletion must apply after a vowel-final root, with compensatory lengthening. Such a rule will derive *haar,* for example, from underlying *ha+rə.* This type of compensatory lengthening, where the trigger and target are vowels separated by a consonant, is not predicted by Steriade (1982), but will follow from a moraic account of compensatory lengthening (Hock 1986, Hayes 1989, Kenstowicz 1989).

The rule of Schwa Deletion can be stated as follows:

(35) Schwa Deletion

$$ \mathrm{\textschwa} \rightarrow \emptyset \ / \ \begin{bmatrix} +\text{consonantal} \\ +\text{sonorant} \end{bmatrix} \ \underline{} \ \# $$

The derivation of *haar* (19) is as follows:

(36)

Schwa Deletion also deletes the schwa of the {-rə} suffixes after an obstruent-final root. In this case, there is no compensatory lengthening. Instead, a schwa is inserted to break up the final consonant cluster and bear the mora left by Schwa Deletion:

(37) Schwa Epenthesis
$\emptyset \rightarrow$ ə / [+consonantal] _____ [+consonantal] #

The derivation of *ñosər* (21) is as follows:

(38)

The inserted schwa also allows syllabification of the root-final obstruent.

After a root ending in a sonorant consonant, however, Schwa Deletion will be bled by R-Strengthening.[6] The derivation of *kaldə* (23) is as follows:

(39) kạl+rə
     kạldə   R-Strengthening
     —   Schwa Deletion
     —   Schwa Epenthesis
     [kạldə]

After R-Strengthening, the schwa is not preceded by a sonorant, so it is not deleted.

Schwa Deletion applies not only to the two {-rə} suffixes, but also to the noun class 4 suffix {-ñə}:

(40)	ñə		'they (class 4)'
(41)	ti-	tiin	'elephants'
(42)	kạas-	kạasən	'crocodiles'
(43)	ñạr-	ñạrən	'buffalo'

Because the palatal nasal never becomes an obstruent, the class 4 suffix undergoes Schwa Deletion not only after vowel-final roots (41) and obstruent-final roots (42), but also after sonorant-final roots (43):

(44)	ti+ñə	kạas+ñə	ñạr+ñə	
	tiiñ	kạasñ	ñạrñ	Schwa Deletion
	—	kạasəñ	ñạrəñ	Schwa Epenthesis
	tiin	kạasən	ñạrən	Depalatalization
	[tiin]	[kạasən]	[ñạrən]	

In each case, the palatal nasal becomes alveolar in coda position.

5. Conclusion

We have shown that Lama has two rules that strengthen sonorants to stops after another sonorant. W-Strengthening changes /w/ to /p/ after /m/, and R-Strengthening changes /r/ to the retroflex stop /d/ after any sonorant consonant. These two rules can be seen as part of a more general phenomenon: the disfavoring of weak consonants in post-consonantal position. Glide Deletion, which deletes a glide after any consonant, has a similar function.

Murray and Vennemann (1983:520) propose the following principle:

(45) The Syllable Contact Law
The preference for a syllabic structure $A\$B$, where A and B are marginal segments and a and b are the Consonantal Strength of A and B respectively, increases with the value of b minus a.

That is, in a heterosyllabic consonant cluster, the first consonant should ideally be of high sonority, and the second should be of low sonority.

The following scale of consonantal strength—consistent with the one proposed by Murray and Vennemann for Icelandic and Faroese, but making fewer distinctions—will work for Lama:

(46) glides, r < l, nasals < obstruents

Glides, the weakest consonants, are not permitted after any consonant (except for the homorganic sequence ñy). This is not a prohibition on glides in onset position; they are allowed after a vowel or in word-initial position. /mw/ sequences, with the second consonant weaker than the first, undergo W-Strengthening, which results in the second consonant being stronger than the first. All other consonant + glide sequences are resolved by Glide Deletion. It should be noted that while W-Strengthening and R-Strengthening are examples of what Vennemann (1988:50) terms "calibration", Glide Deletion illustrates a rule type missing from his catalog of syllable contact changes, namely onset deletion: A.B > .AØ.[7]

Similarly, /r/, also a weak segment, is not permitted after any consonant in Lama. R-Strengthening makes an /r/ stronger than a preceding sonorant. R-Strengthening would not make an /r/ stronger than a preceding obstruent; in these cases, Schwa Epenthesis applies, breaking up the cluster.

Nasals and /l/, of medium sonority, are allowed as either the first or the second consonant in a cluster. The only deletion rule affecting /l/, Oral Sonorant Deletion, is unrelated to the Syllable Contact Law, and applies only on the second stratum, comparable clusters derived on the first stratum being tolerated. No other rules affect the sonority of nasals or /l/.

Obstruents, the strongest consonants, can follow sonorants, but cannot precede any consonant. The prohibition of obstruents in codas holds for word-final as well as preconsonantal position, and so cannot be attributed to the Syllable Contact Law. Still, this prohibition, the related rule of P-Weakening, and Schwa Epenthesis help to remove disfavored clusters.

The type of compensatory lengthening that accompanies the Lama process of Schwa Deletion, where a vowel is lengthened to compensate for the deletion of a vowel in the next syllable, is relatively uncommon, at least as a synchronic rule. (Most of the examples cited by Hayes (1989) are diachronic changes.) Hayes has argued that compensatory lengthening can best be handled within a theory with moras but no segmental skeleton. The abandonment of the skeleton requires that glides be analyzed as [+consonantal]; otherwise glides not in onsets could not be distinguished from vowels. In Lama, glides pattern with other consonants in triggering Glide Deletion and R-Hardening. These rules have been written to refer to the feature [+consonantal].

Unfortunately, treating glides as [+consonantal] makes it difficult to identify them as a natural class to the exclusion of liquids. The feature [+high] is surely a prime candidate for underspecification in a language where /w/ alternates with /p/, but not with /u/. Fortunately, there is no evidence that Glide Deletion does not apply to /r/ as well as /w/ and /y/, so we need only exclude /l/. But it is not difficult to imagine a language where such a solution is not possible, where /w/ and /y/ behave as a natural class to the exclusion of /r/. Such cases will have to be solved as they arise.

NOTES

[1] We will write rules in linear form wherever doing so will not result in unclarity. All deletion rules in this paper apply to segments (i.e., root nodes), not, to individual features or to moras, and adjacency is determined on the root tier for all rules.

We assume that the [continuant], [dorsal], [high], [back], and [round] features of /w/ are filled in by redundancy rules. Within the theory of radical underspecification, the underlying features of Lama labials would be as follows:

/p/, [labial]; /f/, [labial, +continuant]; /m/, [labial, +nasal]; /w/, [labial, +sonorant]; /kp/, [labial, dorsal].

   [2] The third voiced stop of Proto-Gurunsi, *g, has merged with /k/ in Lama.

   [3] The other lexically-conditioned allomorph of the noun class 2 suffix is {-na̰}, which retains its consonant in all environments. The pronoun wa̰ is used to refer back to any class 2 noun.

   [4] The only apparent exception to Glide Deletion is /ñy/, a homorganic sequence resulting from place assimilation, as in (8). The only homorganic sequence known to undergo the rule is the fake geminate /ww/, in kpḛwa̰ (14). If the failure of homorganic sequences to undergo Glide Deletion cannot be predicted by universal principles, it must be stipulated as part of the rule of Glide Deletion.

   The given name of the first author of this paper might also appear to be an exception to this rule. However, it is a three-word sentence, with a word boundary before the /w/. Glide Deletion does not apply post-lexically.

   [5] The word for 'belt' contains the noun class 3 suffix {-ṵ} after the agentive suffix. The loss of schwa before a vowel-initial inflectional suffix is completely regular.

   [6] Where Geminate Consolidation (28) has bled R-Strengthening, Schwa Deletion will be blocked by the Linking Constraint (Hayes 1986).

   [7] Alternatively, this could be seen as a sequence of two processes: tautosyllabification and glide deletion. Tautosyllabification, deriving a complex onset by moving the syllable boundary, is motivated by the Syllable Contact Law. Subsequent glide deletion would be motivated by the Head Law (Vennemann 1988:13), which disfavors complex onsets.

REFERENCES

BENDOR-SAMUEL, John T. 1971. Niger-Congo, Gur. Linguistics in Sub-Saharan Africa, ed. by Thomas A. Sebeok, Current Trends in Linguistics 7.141–178. The Hague: Mouton.

HAYES, Bruce. 1986. Inalterability in CV phonology. Language 62:2.321–352.

_____. 1989. Compensatory lengthening in moraic phonology. Linguistic Inquiry 20:2.253–306.

HOCK, Hans H. 1986. Compensatory lengthening: In defense of the concept 'mora'. Folia Linguistica 20.431–460.

KENSTOWICZ, Michael. 1989. Compensatory lengthening: From West Africa to East Slavic. Paper presented at the University of Connecticut.

KENSTOWICZ, Michael, Emmanuel Nikiema, & Meterwa Ourso. 1988. Tonal polarity in two Gur languages. SLS 18:1.77–103.

MANESSY, Gabriel. 1969. Les langues gurunsi. Paris: SELAF.

_____. 1979. Contribution à la classification généalogique des langues voltaïques. Paris: CNRS.

MURRAY, Robert W., & Theo Vennemann. 1983. Sound change and syllable structure in Germanic phonology. Language 59:3.514–528.

OURSO, Meterwa A. 1988. Root control, underspecification, and ATR harmony. SLS 18:2.111–127.

_____. 1989. Lama phonology and morphology. University of Illinois Ph.D. dissertation in Linguistics.

_____. Forthcoming. Phonological processes in the noun class system of Lama. Studies in African Linguistics 20:2.

PROST, Andre. 1963. Lamba. Documents Linguistiques. Université de Dakar.

STERIADE, Donca. 1982. Greek prosodies and the nature of syllabification. MIT Ph.D. dissertation in Linguistics.

VENNEMANN, Theo. 1988. Preference laws for syllable structure and the explanation of sound change. Berlin: Mouton de Gruyter.

III

Tonology

THE TONOLOGY OF THE OBJECT PREFIX IN SETSWANA

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In this paper we will explore the tonal behavior of object prefixes in Setswana. Object prefixes are underlyingly associated with a H tone. When the object prefix appears in conjunction with a toneless verbstem, this H will spread onto a following vowel (or vowels) by virtue of the independently motivated rules of High Tone Spread and Phrasefinal Spread. The resulting multiply-linked H structures are then subject to independently-motivated rules of delinking.

After analyzing the interaction between object prefixes and toneless verbstems, we examine the case where a H object prefix precedes a H verbstem. We argue that these two H tones are subject to the OCP and are reduced to a single, mutiply-linked H tone. We base this argument on the fact that these structures are subject to rules that affect multiply-linked H tones (and not singly-linked H tones). Finally, we establish that when Setswana has two object prefixes in front of the verbstem, the OCP does not affect the first object prefix H. Rather, the first object prefix maintains its own H tone, while the second object prefix and the verbstem have their H's reduced to a single H by the OCP.

This paper explores the tonal behavior of object prefixes in Setswana. In order to properly understand and analyse the behavior of the object prefixes, we must venture into several of the most essential tonal phenomena in Setswana. Considerations of space force us to provide merely a sketch of the motivation for some of the tonal principles that we identify. It is our hope, however, that we have provided a basic introduction not only to the object prefix tonology of Setswana, but also to some more general features of the tonal structure of the language as a whole.

We will adopt an analysis of Setswana tonology wherein the underlying representations of morphemes are only High tones and no Low tones. We will assume that Low tones are inserted by default on syllables that are not associated with High tones. Given this basic assumption, it is fairly easy to motivate the following claims about the nature of Setswana tonology:

Hypothesis A
Verb stems fall into two lexical tonal types: High verb stems and Toneless verb stems. The high tone of the High verb stems can be presumed to be unassociated underlyingly.

The first person, present indicative affirmative verbal forms in (1) illustrate this basic division of the verb stems.

(1) a. ke-a-wa   'I am falling'
      ke-a-lwa   'I am fighting'
      ke-a-lema   'I am cultivating
      ke-a-baka   'I am praising'
      ke-a-lebala   'I am forgetting'
      ke-a-hunɛla   'I am tying'

   b. ke-a-já   'I am eating'   ke-já
      ke-a-réka/réká[1]   'I am buying'   ke-réká
      ke-a-rékísa/rékísá   'I am selling'   ke-rékísa
      ke-a-bérékɛla   'I am working for'   ke-bérékɛla

In (1a) we have examples of Toneless verb stems, whereas (1b) illustrates High verb stems. In (1b) we have shown H verb stems both phrase-finally and phrase-medially for reasons that will be developed below.

Hypothesis B
Subject prefixes in certain verbal forms (e.g. the present indicative affirmative) fall into two tonal types: High subject prefixes and Toneless subject prefixes. There is no particularly compelling basis for deciding whether the H-toned subject prefixes have an unassociated H or an associated H. In either case, we must guarantee that this H ultimately associates to the subject prefix.

The Toneless subject prefix /ke/ was illustrated in (1). A High toned subject prefix /o/ is illustrated in (2).

(2) a. ó-á-wa/wá   '(s)he is falling'
      ó-á-lema   '(s)he is cultivating'
      ó-á-lebala   '(s)he forgets'

   b. ó-a-já   '(s)he is eating'
      ó-a-rɛka/réká   '(s)he is buying'
      ó-a-rékísa/rékísá   '(s)he is selling'
      ó-a-bérékɛla   '(s)he is working for'

Hypothesis C
The lexical H of a verb stem associates to the first stem Tone-Bearing-Unit (TBU) of the verb stem — presumably the result of a universal principle of tone association that anchors a free tone to the leftmost free TBU in the relevant domain (in this case, the verbstem).

The validity of this claim is demonstrated by the fact that all H verbs have a H tone associated with their first stem TBU in the data in (1) and (2).

Hypothesis D
There is a rule of High Tone Spread, which is formulated as in (3)

(3) High Tone Spread (HTS)

H
/|
X   X

The motivation for (3) can be seen in the fact that a H verb stem will regularly not only have a H tone on the first stem TBU, but on the second as well. This fact is illustrated by the data in (1) and (2) above. A second piece of evidence in favor of (3) is provided by the data in (2a) — e.g. *ó-á-lebala* — where we see that the H tone contributed by the subject prefix has been extended over onto the tense/aspect marker /a/. That /a/ is essentially toneless as is demonstrated by the data in (1).

Hypothesis E
There is a rule of Optional Phrase-Final Spread, which is formulated in (4), which has the effect of spreading a H associated to the penult TBU of the intonational phrase onto the final TBU of that phrase. Optional Phrase-Final Spread must be applied to the output of High Tone Spread, as shown in (5).

(4) Optional Phrase-Final Spread (PFS)

H
/|
X   X   %   (where %= intonational phrase boundary)
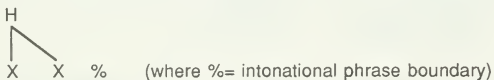
(5)   H

ke-a-rékisa   (underlying)

H
|
ke-a-rékisa   (initial tone association)

H
/|
ke-a-rékísa   (High Tone Spread)

H
/|\
ke-a-rékísá   (Optional Phrase Final Spread)

The evidence that rule (4) operates only phrase-finally is provided by the phrase-medial data cited in (1b) — e.g. ke-rékísa.— where we see that the only

High-toned syllables are the stem-initial syllable and the immediately following syllable (which gets its H through the rule of High Tone Spread).

> *Hypothesis F*
> There is a rule of Left-Branch Delinking, which is formulated in (6)

(6) Left Branch Delinking
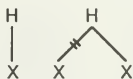
Left-Branch Delinking (LBD) says that if there is a multiply-linked H tone, and if that H tone is preceded by another H tone, the leftmost branch of the multiply-linked H is deleted.

The evidence for (6) is quite strong. Consider, for example, the potential construction. This construction is characterized by a prefix /ká/ that is High-toned. In (7) we illustrate what happens when that prefix is adjoined to a High verb stem.

(7)	n-kâ-já	'I can eat'
	n-ká-rɛká	'I can buy'
	n-ká-rɛkísa/rɛkísá	'I can sell'
	n-ká-bɛrékɛla	'I can work for'

We will not discuss the case of a monosyllabic verb such as /já/, but rather concentrate on the remaining examples. Notice that in every case the first syllable of the High verbstem is realized with a low tone. Rule (6) explains this as follows: These verbstems, of course, have a H tone associated with their first stem vowel (after initial tone association takes place). Then High Tone Spread extends this H tone onto the second stem vowel. But this application of High Tone Spread creates the environment for Left-Branch Delinking to apply. The result is that the initial vowel of the verbstem is delinked from the H and subsequently receives a low tone by default.

> *Hypothesis G*
> Either, High Tone Spread is constrained so as not to produce an output that violates the Obligatory Contour Principle (OCP) (i.e. High Tone Spread is constrained so that it will not spread a H onto a TBU that is followed by a H-toned TBU), or alternatively, High Tone Spread applies wherever possible and there is a rule of Right-Branch Delinking (RBD) formulated in (8).

(8) Right-Branch Delinking (RBD)

For the sake of ease of discussion, we will assume the Right-Branch Delinking analysis. (8) of course is simply the mirror image of (6). Evidence for Right-Branch Delinking comes from the data in (2b) — e.g. *ó-a-réka*, where we see that the H tone of the subject prefix is not also associated with the following tense/aspect prefix /a/ even though the rule of High Tone Spread predicts that it should be. We suggest that it is the rule of Right-Branch Delinking in (8), operating on the output of High Tone Spread, that predicts that /a/ will be delinked from the H of the subject prefix.

Given the preceding discussion, we are now in a position to examine the tonology of the object prefixes in Setswana. Because of space limitations we will not illustrate all of the object prefixes in Setswana. The few object prefixes that we use in the examples are intended to be taken as generally representative of all of the object prefixes.

First of all, it is easy to determine immediately that the object prefixes in Setswana are fundamentally High-toned and that they behave much like other High syllables. The data in (10), showing object prefixes in front of Toneless verb stems in the present indicative affirmative, are designed to establish these points.

(10) ke-a-mó-tswá   'I am staying away from him'
      ke-a-é-lémá/léma   'I am cultivating it'
      ke-a-bá-lémɛla   'I am cultivating for them'

The data in (10) demonstrates that the object prefix is associated to a H tone and that this H tone spreads onto the immediately following TBU by virtue of HTS (see the example *ke-a-bá-lémɛla*). The example *ke-a-é-lémá* shows that when the H of the object prefix has spread onto the penult TBU of the phrase, the final TBU of the phrase can receive the H tone by virtue of Optional Phrase-Final Spread.

At this point we should note two important points. First, it is possible for the object prefix to optionally delink from its H tone after that H has spread onto the first TBU of the verbstem. The only case where this is not possible in our data is when the first stem TBU is in fact a monosyllabic stem. We have not studied in any detail the question of whether there is any functional difference between forms where the object prefixes delinked from its H and forms where the object prefix remains linked. The second point is that in some varieties of Setswana object prefixes may be treated as toneless underlyingly. If they are so treated then of course there is no H to spread onto a following TBU. Throughout this paper we ignore both the cases where the object prefix OPTIONALLY delinks and cases where the object prefix is treated as toneless.

Given that the object prefixes, when they appear in conjunction with a Toneless verb stem, are associated with a H tone (which spreads according to the same pattern as the lexical H of a verb stem), it is imperative that we immediately consider the case where an object prefix is used in conjunction with a High verbstem. Example (11) illustrates this situation:

(11)   ke-a-dí- já/ja   'I am eating them'
       ke-a-dí-réka/réká   'I am buying them'
       ke-a-dí-rékísa/rékísá   'I am selling them'

Notice that the stem tone pattern here is exactly the same as when no object prefix is present. Furthermore, the object prefix is realized on a high pitch. Assuming that there is a H tone contributed by the object prefix and also a H tone contributed by the verb stem proper, and assuming that we could predict that the first of these H tones would anchor to the object prefix and the second to the verb stem proper, then the surface forms shown in (11) do not require that we postulate any rules in addition to HTS and Optional PFS.

However, it might be suggested that a H object prefix followed by a H verb stem represents a violation of the Obligatory Contour Principle (which disallows successive identical autosegments on the same tier). Let us now raise the issue of whether there is any way to invoke the OCP and yet derive the forms in (11).

Suppose that the OCP would collapse these two H tones to a single H tone before the tonal association principle works. That is, suppose we were to first apply the OCP and then associate the resulting single H.

We will consider two possibilities. The first possibility is that the OCP fuses the H of the object prefix and the H of the verb stem BEFORE either of these Highs has undergone the initial association process. The result would be that in the verbal complex consisting of the object prefix and the verb stem, there would just be a single H tone at the point where initial tone association takes place. Presumably the result of tone association would be to link that H tone to the first element in the morphological domain in question — namely, the object prefix. While this will correctly yield a H tone on the object prefix, it will fail to derive the correct pronunciation in a case like *ke-a-é-rékísá*. The partial derivation in (12) illustrates this point:

(12)   H

        ke-a-e-rɛkisa   OCP result

            H
            |
        ke-a-e-rɛkisa   Initial Tone Association

            H
            |\
        ke-a-e-rɛ́kísa   HTS

        inapplicable   Optional PFS

The form *ke-a-é-rékisa is incorrect in that the H tone does not extend to the second syllable as well as all the way to the final syllable through Optional Phrase-final Spread to derive ke-a-é-rékísá/ke-a-é-rékísí which is the correct pronunciation.

It cannot be the case then, that the OCP operates on two unassociated H's and reduces them to one, with subsequent association. What sort of alternative story can we tell? Suppose that we adopt a cyclic application of the universal tone association principle so that on the first cycle, the H contributed by the verb stem proper associates to the first TBU of that stem, while on the second cycle the H contributed by the object prefix anchors to the object prefix. If we then allow the application of the OCP to reduce these two H tones to one, while retaining all of the linkages that these H tones have, we will end up with the appropriate input to HTS and Optional PFS. This is demonstrated in (13).

(13)   H H

        [ke a [e [rékisa]]]

              H H
              |
        [ke a [e [rékisa]]]   first cycle tone association

              H H
              | |
        [ke a [e rékisa]]]   second cycle tone association

              H
             /|
        [ke a [e [ré kísa]]]   OCP

              H
             /|\
        [ke a [e [ré kísa]]]   HTS

              H
             /|\⋱
        [ke a [e [ré kísa]]]   Optional PFS
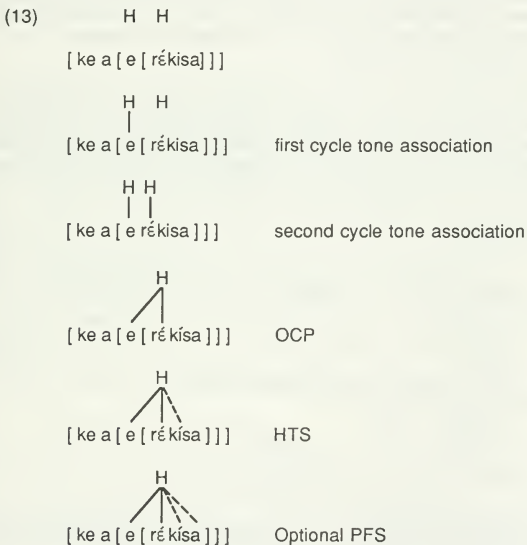
We shall next argue that (a) we cannot simply do nothing and allow the H of the object prefix and the H of the verb stem to stand as two successive separate H tones, and (b) the correct solution is to reduce the two H tones to a single, multiply-linked H tone as in the derivation above. In order to motivate the claim that the H of the object prefix and the H of the verbstem must be fused into a single, multiply-linked H tone, we need to consider certain cases where the

object prefix obligatorily is realized on a low tone rather than on the expected High tone. Consider the data in (14).

(14)	n-ká-e-já	'I can eat it'
	n-ká-di-rέka	'I can buy them'
	n-ká-e-rékísa/rékísá	'I can sell it'
	n-ká-mo-tswá	'I can stay away from him'
	n-ká-e-léma/lémá	'I can cultivate it'
	n-ká-mo-lémέla	'I can cultivate for him'

Notice that when the H-toned potential marker precedes the object prefix, the object prefix is in every case pronounced on a low tone. The data from the Toneless verb stems establishes clearly that the object prefix in this construction is fundamentally High-toned, since the H of the object prefix has spread onto the Toneless verbstem producing forms such as *n-ká-mo-tswá* and *n-ká-mo-lémεla*. But even though the object prefixes are basically High, they are pronounced here on a low tone.

There is of course a very easy solution to this problem. Recall the rule of Left-Branch Delinking discussed earlier. This rule delinks the element on the leftmost branch of a multiply-linked H tone just in the event a H tone is anchored to the preceding TBU. In the case of the toneless verb stems in (14) above, it is obviously Left-Branch Delinking that is at work. Example (15) illustrates.

(15)

    H   H
    | |
n-ka-mo-lémεla   (underlyingly after tone association)

    H   H
    | ⟋\
n-ka-mo-lémεla   High Tone Spread

    H   H
    | ⟋\
n-ka-mo-lémεla   Left Branch Delinking

We see that since the H of the object prefix spreads onto the Toneless verbstem, there is a branching H tone preceded by a H and therefore Left-Branch Delinking will come into play to delink the object prefix.

But now we must consider the case of the H verb stems in (14). In order for Left-Branch Delinking to apply and account for the low-tone realization of the object prefix, the object prefix must be on the leftmost branch of a multiply linked H structure. If we assume that the object prefix H and the verbstem H are NOT affected by the OCP — i.e. that they remain two separate High tones on the tonal tier, then the object prefix will not be on the left-branch of a multiply-linked

H structure. As a result, Left-Branch Delinking should not apply to it. Thus such an approach would fail to account for the data in (14). On the other hand, if the OCP fuses the object prefix H and the verb stem H into a single H tone, we correctly predict that the object prefix will be on the left-branch of a multiply-linked H tone and thus will be subject to the rule of Left-Branch Delinking. And thus we will make the correct predictions about the data in (14) like *n-ká-e-rékísa/rékísá*.

The above argument for the fusion of the object prefix H and the verb stem H into a single multiply-linked H tone depends on the claim that Left-Branch Delinking affects only branching H tones. There is a fair amount of evidence to support this claim since there are several situations where a sequence of singly-linked H tones do not undergo any sort of delinking. We will confine ourselves to one example involving object prefixes.

(16) ga-ké-é-lemé   'I am not cultivating it'
      ga-ké-bá-leméle/lemélé   'I am not cultivating for them'

The data in (16) involve a negative tense where (a) the subject prefix /ké/ is associated with a H tone and (b) where there is a morphological H tone that is assigned to the second syllable of the Toneless verbstem. Because the lexically Toneless verbstem has a morphologically-induced H tone on its second TBU, the H of the object prefix is unable to be linked to the following TBU (due to the effect of Right-Branch Delinking). The result is that the object prefix remains (singly-) linked to a High tone. Notice that this singly-linked object prefix is able to remain High-toned after the H subject prefix. We conclude that it is only multiply-linked H tones that are subject to Left-Branch Delinking and therefore that the object prefix must undergo the OCP-induced fusion.

There is one very interesting case that we will take up at this point. Consider the present indicative affirmative third person subject form:

(17) ó-á-di-já (preferred, but also: ó-a-dí-ja possible)
                                '(s)he is eating them (food)'
      ó-á-e-réká, or ó-a-é-réká   '(s)he is buying it'
      ó-á-mo-rékélá or ó-a-mó-rékéla '(s)he is buying for...'

      ó-á-mo-tswá (preferred, but also: ó-a-mó-tswá)
                                '(s)he is getting rid of him/her'
      ó-á-e-lémá or ó-a-é-lémá   '(s)he is cultivating it'
      ó-á-mo-léméla or ó-a-mó-lémɛla '(s)he is cultivating for ...'

These data involve an issue that we do not have space to explore here — namely, the issue of the interaction of Left-Branch Delinking and Right-Branch Delinking. But what seems apparent from (17) is that in the preferred pronunciation, application of Left-Branch Delinking to the object prefix allows the /a/ prefix to avoid being delinked by Right-Branch Delinking. In the alternative pronunciation, it seems that the delinking of /a/ by Right-Branch

Delinking removes the object prefix from the environment for Left-Branch Delinking.

We now turn to our concluding observation about object prefixes in Setswana. Setswana differs from the other Sotho languages in allowing two object prefixes in the same verbal word. For example,

(18)	a.	ke-a-mó-e-fá	'I am giving him/her it' (preferred)
		ke-a-é-mo-fá	(ibid)
		ke-a-mó-e-bóntshá	'I am showing him/her it'
		ke-a-é-mo-bóntsha	(ibid)
		ke-a-mó-e-rɛ́kɛ́lá	'I am buying it for him/her'
		ke-a-é-mo-rɛ́kɛ́lá	(ibid)
		ke-a-mó-e-rɛ́kísɛtsa	'I am selling it for/to him/her'
		ke-a-é-mo-rɛ́kísɛtsa	(ibid)
	b.	ke-a-mó-e-tlɛ́lá	'I am bringing it for/to him/her'
		ke-a-é-mo-tlɛ́lá	(ibid)
		ke-a-mó-e-lémɛla	'I am cultivating it for him/her'
		ke-a-é-mo-lémɛla	(ibid)
		ke-a-mó-e-kgóromɛlɛtsa	'I am pushing it to/for him/her'
		ke-a-é-mo-kgóromɛlɛtsa	(ibid)

In (18a) we illustrate High verb stems with two object prefixes and in (18b) we illustrate Toneless verbstems with two object prefixes. Notice that the H tone associated to the first OP triggers LBD of the second OP. This requires that (a) the H of the first OP does not collapse via the OCP with the H of the second OP, and (b) the H of the second OP must be involved in a multiply-linked structure (originating either from HTS or from the OCP-induced fusion of an object prefix H and the verb stem H). Notice that the retention of the High tone on the first object prefix provides further evidence that delinking rules do not affect singly-linked High tones.

What can we conclude from the data in (18)? It appears quite clear: the OCP-induced fusion affects the object prefix immediately adjacent to the verb stem. It does not fuse the two Highs of the two object prefixes. And we think that further study will demonstrate that it does operate anywhere outside the complex consisting of the object immediately in front of the verb stem and the verb.

In conclusion, we have demonstrated that object prefixes in Setswana are High-toned and that their H tone spreads and delinks according to the same pattern as other High tones in the language. Furthermore, we have argued that the H of the object prefix and the H of an immediately following verb stem must be fused by the OCP into a single, multiply-linked H. Finally we have argued that in a sequence of object prefixes, only the last of the sequence is subject to

this OCP-induced fusion with a H verb stem. Furthermore, the two object prefixes H's are not themselves fused together into a single H.

NOTES

[1] The dialect of Setswana under discussion has the option of surfacing with a high tone or low tone in phrasefinal position. This matter is not addressed in this paper. For further information concerning this phenomenon the reader is referred to the unpublished University of Illinois Ph.D dissertation by Sheila Mmusi (1992).

REFERENCES

COLE, D. T. 1955. An introduction to Setswana grammar. Cape Town, South Africa: Longmans, Green and Co.

MMUSI, Sheila O. 1992. An autosegmental analysis of some aspects of Setswana tone. University of Illinois at Urbana-Champaign Ph.D. dissertation in Linguistics.

THE TONE BEARING UNIT IN KINANDE*

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The Tone Bearing Unit in Kinande must be one which is comprised
of vowel features only in the melodic structure. Evidence for this is
presented from the consideration of the gliding of the causitive and
passive morphemes, providing that this process is postlexical.

This paper addresses the status of the Tone Bearing Unit (TBU) in
Kinande, a Bantu language spoken in Eastern Zaire, with respect to the vowels
of the causative morpheme {i} and the passive morpheme {u} that devocalise
lexically. The example in (1) illustrates better the problem.

(1) a. tu-á-gúl-irir-á-y-á-a [twágúliriráyâ]   'we sold anyway'
    b. tu-á-gúl-irir-á-y-a Valinánde   'we sold Valinande anyway'

The glide [y] is the causative morpheme {i} as in *eri-gul-í-a* 'to sell'. In the
recent and remote past tense, it behaves like a consonant and triggers the
insertion of the vowel [a] at its left. The question is: can this causative {i} be a
TBU and behave like a consonant at the same time? In order to answer this
question, I will first show that a TBU in Kinande is invariably a vowel, then I will
discuss some rules specific to the causative morpheme, and finally I will show
that a vowel that devocalises lexically maintains its status of TBU as long as it
does not contain any consonantal feature in its melodic structure.

Let us first explore what a TBU in Kinande is by considering the phrasal H
tone (discussed in Hyman in press; Hyman & Valinande 1985) that docks on the
penultimate vowel at the end of a phrase. This H will be underlined throughout
the examples.

(2) a. eri-hum-ír-a   'to hit for'
        Rt EXT FV
        tu-kándi-húm-a   'we'll hit'
        erí-túm-a   'to send'
        erí-tó-ér-a [erítwéra]   'to dig for'
        erí-tu-ír-a [erítwíra]   'to cut for'
        tu-kándí-túm-a   'we'll send'
    b. eri-hum-ir-a Valinánde   'to hit for Valinande'
        tu-kándi-hum-a Valinánde   'we will hit Valinande'
        erí-tum-a Valinánde   'to send Valinande'

In these forms, the root -hum- is underlyingly toneless and the roots -to-, -tu-, -tum- are underlyingly H. The morphemes {ir} and {er} are extensions. The phrasal H docks on the penultimate vowel in (2a) but this H is not assigned on the verb in (2b), because the verb is not at the end of a phrase. Consider, for instance, the utterances in (3).

(3) a. eri-só-a [eriswâ]   'to grind'
        erí-tú-a [erítwâ]   'to cut'
        erí-tó-a [erítwâ]   'to dig'

    b. tu-ká-hum-á-a [tukáhumâ]   'we are hitting'
        tu-ká-tum-á-a [tukátumâ]   'we are sending'

In these forms, the phrasal H appears on the penultimate vowel as the first member of the falling tone on the FV. At this point, I would like to point out that gliding in Kinande is postlexical[1]. The phrasal H is assigned to the strings in (3a) before gliding takes place. Consider, in contrast, the data in (4).

(4) erí-wáy-a   'to wander'
     /way-a/ */uai-a/
     erí-háy-a   'to storm at someone'
     /hay-a/ */hai-a/
     eri-góy-a [erigóya]   'to woo a girl'
     eri-téy-a [eritéya]   'to take'

I assume that the glide in these forms is underlying. An underlying glide does not act as a TBU. It behaves like a consonant with respect to the phrasal H. Support for the fact that it behaves like a consonant also comes from the processes of height harmony in Kinande whereby /i/ becomes [e] in the extension if the root vowel is [-hi, -lo]. This is illustrated in (5).

(5) eri-goy-ér-a /e-ri-goy-ir-a/   'to woo a girl for someone'
     eri-tey-ér-a /e-ri-tey-ir-a/   'to get tired for'

The forms below show that a glide acts as a TBU if it is a vowel underlyingly.

(6) a. eri-wâ   'to fall'
        /eri-u-a/   ~ V -CV -CV -V
                       | || | |
                       e r i   u   a   */eri-wa/

        erí-owâ   'to hear'
        /ou-a/   ~ V -CV -VCV -V
                      | || | | |
                      e r i   o u a   */ow-a/
        eri-mú-oú-a [erímwowâ]   'to hear him'

    b. erí-otV-a [eryôtâ]   'to light'
        erí-mu-ót-a [erímwóta]   'to light him'
        erí-ot-ér-a [eryôtéra]   'to light for'

In the word *erуôtâ*, I have introduced an extra V that is inserted before the FV to meet a constraint in Kinande that a stem must have at least two vowels. The analysis I assume is that Kinande has two lexical strata.[1] At the first stratum, the stem formatives and the object marker are affixed. At stratum 2, the other formatives are affixed. The form *erímwóta* meets that constraint because, at stratum 2, the object marker will have been affixed to the stem and its consonant is therefore able to serve as the onset to the initial vowel of the stem. Since the phrasal H surfaces on the FV in *erí-mu-ow-â*, we must conclude that its penultimate segment is a vowel. If it were a consonant, the phrasal H would have appeared on the penultimate vowel as in *erí-mu-ót-a*. It should also be pointed out that no data were found where the glide is underlyingly a vowel in disyllabic words or in words of more than two syllables. It may be possible that the strings where I have posited a vowel underlyingly may also have a consonant as indicated in (6a) on the right of the tilda symbol. The vowel would be branching on both the vowel and the consonant underlyingly. In sum, we have established that the TBU in Kinande is a vowel and that it cannot be a glide.

Before showing whether a vowel that devocalises remains a TBU, we also need to establish some rules that are morphologically conditioned by the recent or remote past tense in a form with the causative vowel. Consider the following examples:

(7) Recent past tense with *mó-*
    a. mó-tu-a-mú-húm-ir-a   'we hit for him'
       mó-tu-á-húm-ir-a   'we hit for'
       mó-tu-á-gúl-ir-a   'we bought for'
       mó-tu-a-mú-gúl-ir-a   'we bought for him'
       mó-tu-á-gúl-ir-a Valinánde 'we bought for Valinande'

    b. mó-tu-a-mú-gúl-irír-í-a [mótwamúgúliríryâ]
       'we sold him anyway'
       mó-tu-á-gúl-irír-í-a [motwágúliríryâ]
       'we sold anyway'
       mó-tu-ágúl-irír-í-a [mótwágúlirírya] Valinánde
       'we sold Valinande anyway'

Assuming Mutaka (1991), at stratum 2, the recent past tense assigns a suffixal HL. The H docks onto the first root vowel and the L is inserted onto the final vowel by rule in a toneless verb as illustrated in (7a). The H in the falling tone on the final vowel must be the result of a phrasal H as it disappears if the word is not at the end of a phrase. The H on the right of the root vowel must be caused by the causative morpheme in the recent past tense as it does not surface in a form without the causative morpheme. Since the phrasal H appears in this form with the causative morpheme, two conclusions appear to be unavoidable here: a morphologically conditioned rule deletes the L assigned by the recent past tense and a H is also assigned to the causative vowel [i]. Notice that this H of the causative morpheme cannot be underlying as illustrated in (8).

(8) tu-kándi-gúl-a   'we will buy'
    tu-kándi-gul-í-a [tukándigulyâ]   'we will sell'
    tu-kándi-gul-irir-í-a   'we will sell anyway'

The vowel preceding the causative {i} does not surface with a H. A first approximation of the formulation of these rules is given in (9).

(9) a. Causative H: V   Condition: V is the causative {i}
                      | Tense: Recent Past
                      |
                      H

    b. Causative L deletion:
               V V]   Condition: the preceding V is the causative {i}
               |
               L → Ø   Tense: Recent past

These rules are illustrated in (10)

(10)   mó-tu-á-gúl-ir-a   mó-tu-á-gúl-irír-í-a
    Stratum 1:
                gul-ir-a   gul-irir-i-a
    Stratum 2:
            mó-tu-a-[mu-gul-ir-a   mó-tu-a-[mu[gul-irir-i-a
                          | | | |
                          H   L   H   L
            (Assignment of suffixal HL)

            mó-tu-a-[mu-[gul-ir-a   mó-tu-a-[mu-[gul-irir-i- a
                          | | | | |
                          H   L   H   H L
            (Causative L deletion + causative H)   ↓
                                                               Ø
    Stratum 3:
            mó-tu-a-mu-gul-ir-a   mó-tu-a-mu-gul-irir-i-a
                          | | | |
                          H L   H   H
            (H spreading)
            mó-tu-a-mu-gul-ir-a   mó-tu-a-mu-gul-irir-i-a
                          | | | |
                          H L   H   H
            (PHA)
            (Other rules: e.g. gliding, default L)
    Output: mótwamúgúlira   mótwamúgúliríryâ

In these derivations, it is not clear that the H on the final vowel is the result of the PHA rule. The following forms in another recent past tense shows it more clearly.

(11) Recent past tense.

    a. tu-a-mú-húm-ir-a-a [twamúhúmira]
      'we hit for him'   from eri-húm-a 'to hit'
      tu-á-húm-ir-a-a [twáhúmira]
      'we hit for'
      tu-á-gúl-ir-a-a [twágúlira]
      'we bought for'   from eri-gúl-a 'to buy'
      tu-a-mú-gúl-ir-a-a   'we bought for him'

    b. tu-á-gúl-ir-á-í-á-a [twágúliráyâ]
      'we sold for'   from eri-gul-í-a 'to sell'
      tu-a-mú-gúl-ir-á-í-á-a [twamúgúliráyâ]   'we sold for him'

    c. tu-a-tum-irír-á-a   'we sent anyway'
      tu-á-mú-tum-irír-á-a   'we sent him anyway'

The tones in the stem of the facts in (11) resembles the ones seen in the recent past tense with *mó-*. The only difference here is that there is an extra FV as best illustrated with a H tone verb in (11c). The glide [y] in the stem in (11b) is the causative morpheme. It is preceded by the vowel [a] which is epenthetic. The H on this vowel must also be the result of the H Spreading at Stratum 3 and it originates from the causative vowel. The H on the penultimate vowel in (11b) is the phrasal H which disappears when the word is not at the end of a phrase. Two questions necessitate answers with respect to these data in (11b). First, why is there an epenthetic vowel? Secondly, where does the H on the epenthetic vowel [a] originate?

The answer to the first question is simple. In Kinande, there is a prohibition of a sequence of consonants (unless it is a homorganic nasal with a consonant as in *e-ndâ* 'belly', *é-mbene* 'goat' or a consonant with a semivowel as in *erí-tó-a* [erítwâ] 'to dig' or a combination of Nasal + homorganic consonant + semivowel as in *émbwâ* 'dog'. The semivowel in a cluster consonant + semivowel will always result from an underlying vowel. In order to explain the presence of the epenthetic vowel [a], we must assume that the causative {i} becomes the onset of a syllable and thus behaves like a consonant by the causative syllabification rule formulated in (12).

(12) Causative syllabification

      @
      |
      C   V
       \
        \
         i   Condition: certain tenses e.g. Recent past.

That this causative syllabification rule is restricted to certain tenses is illustrated in (13).

(13) a. tu-ká-gul-a-y-á-a /tu-ka-gul-i-a/
        [tukágulayâ]   'we are selling' (Present tense)
        tu-a-gul-á-y-a /tu-a-gul-i-a/
        [twaguláya]   'we bought' (Remote past)
        tu-ana-gul-á-y-a /tu-ana-gul-i-a/
        [twanaguláya]   'we did sell'

     b. tú-ka-gul-í-a /tu-ka-gul-i-a/
        [túkagulyâ]   'while we were selling'
        tu-á-gul-í-a /tu-a-gul-i-a/
        [twágulyâ]   'in that case, we will sell'
        tu-ana-gul-í-a /tu-ana-gul-i-a/
        [twanagulyâ]   'as we were selling'

As can be seen in these forms, the cCausative syllabification cannot be phonological because it does not occur in other tenses (as in 13b) that have similar segments underlyingly (shown here in the forms between back slashes) as the tense in which it applies. Notice also that the causative H posited above does not necessarily appear in the forms where the causative syllabification rule applies as the vowel that precedes this causative does not always surface with a H as illustrated in *tu-ká-gul-a-y-â* 'we are selling'. It should also be pointed out that the vowel [a] is the default vowel in Kinande as argued in Mutaka (1987; Schlindwein 1988; and Archangeli 1988). If any vowel would be inserted to break up a cluster, we would rightly expect it to be the default vowel [a].

To answer the second question, we can construe that the H on the epenthetic vowel [a] originates from the causative vowel [i] by means of the rule of H spreading that was discussed earlier. This means that the causative H also applied in this form. The question now is: since H spreading applies at stratum 3, and the causative syllabification rule applies at stratum 2, could this H spread from the causative {i} that is already the onset of a syllable? In other words, could this H originate from the causative {i} that has presumably the feature [-syll] which is a consonantal feature?

Assuming that the causative syllabification rule applies at stratum 2, notice that we cannot construe that, after the causative {i} devocalized at stratum 2 to become the onset of the syllable, the H that was assigned to it by the causative H, linked to this default vowel. If it were so, we would have expected this H to spread one more time at stratum 3 and surface on the vowel that precedes the epenthetic vowel as in *twamúgúlíráyâ (cf. *twamúgúliráyâ*). A second possibility would be that, after the causative syllabification rule, the H assigned to the causative vowel by the causative H would dock on the head of the syllable, that is, on the vowel [a] at the right of {y}. This would mean that the H in the falling tone in a form like *twamúgúliriráyâ* is the result of this causative H. That this is not so is illustrated by the forms in (14).

(14) a. tw-a-mú-gúl-irir-á-y-a-a Valinánde
          [twamúgúliriráya] 'we sold him Valinande anyway'
          tw-a-mú-gúl-irir-á-y-á-a
          [twamúgúliriráyâ] 'we sold him anyway'

      b. tw-á-mú-tum-irír-á-a
          [twámútmirírâ]   'we sent him any way'
          tw-á-mú-tum-irír-á-a Valinánde
          [twámútumirírá]   'we sent him Valinande anyway'

In the H tone form in (14b), the H in the falling tone on the FV is the result
of the suffixal H at stratum 2. When the word is not at the end of a phrase, this H
does not disappear. However, the one in (14a) disappears. This contrast shows
that this H must be the result of the phrasal H unlike the one in (14b), indicating
that the H of the causative {i} must have originated from this causative {i}
although it underwent causative syllabification to become the onset of a
syllable.[2] This observation, however, appears to be a counterintuitive
conclusion in that it amounts to saying that a TBU can bear a consonantal
feature in Kinande. In what follows, I would like to argue that this can happen
only if the consonantal feature is not a melodic feature but a prosodic feature (à
la Archangeli & Pulleyblank 1988). By melodic features, I mean the features that
are below the skeletal tier as opposed to prosodic features like [-syll] or syllable,
foot and minimal word.

Consider the following hierarchical representation that is adapted[3] from
Clements (1985) and Sagey (1986) in (15).
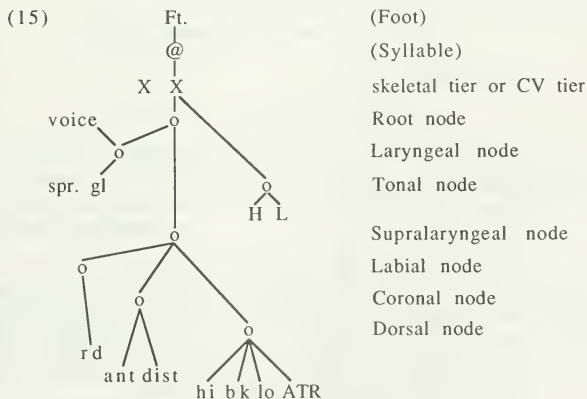
Notice that the array of features used in this hierarchical representation
are about the melodic structure of a segment. A segment will be identified as a

consonant or a vowel as long as it has consonantal or vowel features in its structure. A feature like [-syll] cannot be viewed as a melodic feature in that it encodes a position on the skeleton about what can constitute the onset of a syllable but it tells us nothing about the melodic content of the segment. If the condition to be a TBU is for a segment to have only vowel features and if a vowel that has the feature [-syll] only gets a consonantal feature when it undergoes the rule of gliding, then we can construe that, as long as gliding has not applied, the causative morpheme in (14a) will safely behave as a TBU although it is assigned the feature [-syll] lexically. Presumably, the consonantal feature to appear in the melodic content of a [+hi] vowel as caused by gliding will be [cons]. A sample derivation of this form can now be presented in (16).

(16)   tu-a-mú-gúl-ir-á-í-á-a   tu-a-mú-gúl-irir-a-a

Stratum 1:

Stem: gul-ir-i-a   gul-irir-a
OM: mu-gul-ir-i-a   mu-gul-irir-a

Stratum 2: affixation of the TM + SM

tu-a-[mu-[gul-ir-i-a-a   tu-a-[mu-[gul-irir-a-a
       | | | |
       H   L   H   L
      (Suffixal H + Suffixal L)

                    @   (Syllable)
            -syll |
                    X X X   (skeleton)
                    |
tu-a-[mu-[gul-ir-a-i-a-a
       | |
       H   H

(Causative Syllabif. + Epenthetic -a- + Causative H + L Del.)

Stratum 3 (or postlexically)

tu-a-mu-gul-ir-a-i-a   tu-a-mu-gul-irir-a-a
       | | | |
       H   H   H   L
          (H Spreading)

tu-a-mu-gul-ir-a-i-a-a   tu-a-mu-gul-irir-a-a
       | | | |
       H   H H   H   L

(PHA + Gliding + Default L + Vowel shortening)
Output: twamúgúliráyâ   twamúgúlirira

I would like to point out that it is not only the causative morpheme that triggers these rules of causative syllabification, causative H, seletion of L and the insertion of the epenthetic {a}: The passive morpheme triggers all of these rules also under the same conditions as illustrated in (17) where the forms are in the recent past tense as well.

(17) tu-á-húm-á-ú-**á**-a [twáhúmáwâ]   'we were hit'
           from eri-hum-**ú**-a 'to be hit'
      mó-tu-á-húm-**ú**-a [mótwáhúmwâ]   'we were hit'
      mó-tu-á-húm-irír-**ú**-a [mótwáhúmirírwâ] 'we were hit anyway'

The question now is whether there is any relation between the causative and the passive morpheme to trigger such similar rules. One relationship that can be pointed out is that they are the only extensions to consist of a single vowel [V] unlike the other extensions which have the structure {VC}. Another relationship is that they both do not undergo height harmony as in *eri-log-es-í-a* 'to make someone be bewitched' or *eri-log-ol-ú-a* 'to be unbewitched'. Extensions like {is} or {ir} in these forms undergo height harmony, but the causative and the passive do not. What this suggests is that our earlier rules of causative syllabification, causative H discussed in (9), should be rather called vowel extension syllabification and vowel extension H.

Finally, I would like to point out that these rules also apply in the remote past tense as illustrated in (18).

(18) Remote past tense
      a. tu-a-gul-á-í-a [twaguláya ~ twaguláyâ]   'we sold'
          tu-a-mu-gul-á-í-a [twamuguláya ~twamuguláyâ] 'we sold him'
          tu-a-gul-ir-á-**ú**-a [twaguliráwa ~twaguliráwâ]
      'we were bought for'

      b. tu-a-gul-irir-a   'we bought anyway'
          tu-a-mu-gul-irir-a   'we bought him anyway'

As shown in (18b), no H surfaces in the remote past tense of a toneless verb. Since the H does surface in the forms in (18a) at the left of the causative or the passive morpheme, it must be concluded that this H is the result of the vowel extension H posited above.

To sum up, it has been proposed in this paper that what qualifies a Kinande segment to be a Tone Bearing Unit is to contain only vowel features in its melodic structure. The feature [-syll] which is not a melodic feature, although it may be assigned to a [+hi] vowel, will not prevent it from acting as a TBU as long as gliding, which is postlexical, has not applied by assigning a consonantal feature like [+cons] into the melodic content of the vowel.

NOTES

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[1] See Mutaka (1991)

[2] Another alternative that was briefly considered but rejected was to posit a phantom consonant -C- on the left of the causative {i} in forms with an epenthetic vowel [a]. The reason this solution was rejected was due to the existence of other forms like *eri-gul-i-bu-a* 'to be sold' where it could be argued for that the passive morpheme in this form is {u} and not {bu} and that {b} is an epenthetic consonant that gets part of its features from {u}. Given this fact, it would then be difficult to explain why, in a form like *tu-á-gúl-á-wâ* which would have *tu-a-gul-a-C-u-a* as an intermediate stage in the derivation, the consonant -C- does not surface as {b} as in *eri-gul-i-bwâ*.

[3] Notice that the tonal node in this tree hangs directly onto the skeletal tier. This is not assumed in Clements (1985) and Sagey (1986).

REFERENCES

ARCHANGELI, D., & D. Pulleyblank. 1988. Maximal and minimal rules: Effects of tier scansion. Proceedings of NELS 17. Cambridge, MA: MIT
ARCHANGELI, D. 1988. Maximal and minimal target. Paper presented at a Phonology workshop at UCLA, Los Angeles. MS.
CLEMENTS, N. 1985. The geometry of distinctive features. Phonology Yearbook 2:225-252.
HYMAN, L. M. Forthcoming. Boundary tonology and the prosodic hierarchy. Proceedings of Stanford Conference on the syntax-Phonology Connection. CSLI.
HYMAN, L., & N. Valinande. 1985. Globality in the Kinande tone system. African Linguistics SSLS 6.239-260, ed. by D. Goyvaerts.
MUTAKA, M. N. 1987. The status of liquids in Kinande. Current Approaches to African Linguistics, 6. Foris: Dordrecht.
_____. 1991. The lexical tonology of Kinande. University of Southern California-Los Angeles Ph.D. dissertation in Linguistics.
SAGEY, E. 1986. The representation of feature and relations in non-linear phonology. MIT Ph.D. dissertation in Linguistics.
SCHLINDWEIN, D. 1987. P-bearing units: A study in Kinande Vowel Harmony. Proceedings of NELS 17.

IV

Sociolinguistics & History of Linguistics

ANDRE MWAMBA KAPANGA
Language variation and language attitudes: A case study from Shaba Swahili

MARGARET WADE-LEWIS
The contribution of Lorenzo Dow Turner to African Linguistics

LANGUAGE VARIATION AND LANGUAGE ATTITUDES:
A CASE STUDY OF SHABA SWAHILI[*]

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This paper examines the differences between the native variety
of Swahili spoken in East Africa and its historical non-native variety
spoken in the southeastern region of Zaire known as, Shaba, from
the point of view of language variation. It shows that there are indeed
variations between ShS and its native variety counterpart, EAS. It will
be demonstrated that these variations are, by and large, due the
enculturation of ShS in the non-native context of use and usage.
These differences between these varieties will be shown to be the
result of linguistic and cultural contacts between ShS and the many
local languages and cultures of Shaba. Thus, the linguistic variations
exhibited by ShS are due not only to the acculturation of Swahili to fit
both the linguistic and communicative strategies proper to the
multilingual but also to sociocultural context of use in Shaba. This
claim is supported by these important findings. (1) the impact of the
substratum Bantu languages and the superstratum language which
have closely been in contact with ShS since its introduction in the
Shabian context; (2) the contextual rendering of texts in daily
interactions; and (3) an attitudinal survey of ShS speakers' attitudes
towards EAS and their own variety.

1. Introduction

The concept of variability in languages has been recognized by linguists
for many years. However, for a very long time, most studies have limited
themselves to the description of languages with the assumption that they were
homogeneous, i.e., speakers of a given language would all share internally
consistent structures in the use of that language. At the beginning of this
century, however, a new trend started to develop in the study of language
variation. Variation came to be considered as a phenomenon that occurs over
time and space. This view resulted in the study of variation in relation to
extralinguistic factors at the time of any speech event (Smith 1974). In his
pioneering work on the study of language variation in New York City, Labov
(1972) showed that linguistic output is generally correlated with extralinguistic
factors. Thus, in the process of collecting linguistic data, researchers need to
collect information not only about the characteristics of the speaker, but also
about the situation as well as the speakers perception of the situation in which
speech takes place. Therefore, such aspects as age, sex, social background,
education, ethnic and geographical background together with the context of the
speech act were to become very relevant not only in the collection of data, but

also in their analysis. This new perspective for analyzing variation has not been limited to the study of monolingual communities; it has been extended to multilingual communities as well, and to second language studies in both native and non-native environments (Kachru 1982 and later; Lowenberg 1985, 1986; Magura 1984).

2. Processes of linguistic variation

The study of language varieties has generally involved discussions of the concept 'model'. This concept has proved to be important in that in any study of language variation, one variety which is considered to be the model, is usually taken as the reference point for the study of differences displayed by other varieties. The concept model itself implies the existence of a certain linguistic ideal which language learners have to attain in the learning process (Kachru 1986). However, it needs to be pointed out that the selection of a model is not dependent on linguistic factors; rather extralinguistic factors such as language attitude, language identity, prestige factors, to name a few, are generally what determine the selection of one variety over another.

Swahili, as a language, displays a whole range of varieties among which are found *Kiungudja, Kimatumbi, Kimtangata, Kihamu, Kisangani KiSwahili, Kivu KiSwahili, Shaba KiSwahili*, etc. As is well known, one variety has been selected for extralinguistic reasons to be the model for all other varieties. This variety is known as *Kisanifu KiSwahili*, also known as EAS. This model is regulated by a set of norms to which the language speakers are expected to conform. Norms are defined by Bédard and Maurais (1983:7) as "l'usage valorisé dans un groupe donné; le groupe socialement dominant produisant alors le bon usage, qui éclipse les normes des autres groupes et réussit alors à faire croire à leur non-existence" (For futher discussions of the models and norms see Bédard, et al. 1983; Kachru 1986). In comparing the EAS model and the Zairian variety spoken in Shaba, one notices that the latter displays many instances that violates the norms that regulate the language at all linguistic levels. The assumptions by many scholars who have dealt with ShS has been that such violations are mainly due to linguistic corruption, substandardization or acquisitional deficiencies by ShS speakers when they are learning EAS. These views are found in works by Lecoste (1954), Harris (1956), Polomé (1968, 1969), Heine (1970), Fabian (1982, 1986), among others.

This section focuses on some of the linguistic patterns of ShS that deviate from the norms of the model variety, EAS. These deviations are analyzed to see whether they are the result of corruption, substandardness or acquisitional deficiencies.

When introduced in Shaba, Swahili had a very limited functional range. It was mainly used in the trading context (Polomé 1967, 1968; Heine 1970; Fabian 1982, 1986) and could in this capacity be referred to as a performance variety. However, its later adoption as a lingua franca allowed it to increase its functional uses. In Shaba today, Swahili is used for many functions that include, in B. Kachru's (1982) terminology: instrumental, regulatory, interactional,

personal, heuristic, imaginative, and informative. That is, today ShS is a "deregionalized variety which has become a vehicle for supra-regional communication" (Hock 1986:485). This regionalization is mostly due to the convergence of Swahili with Shabian local languages and its mechanism seems to have been the result of Interlanguage early in the introduction of Swahili in Shaba. French, the official language of the country, is generally used to convey information about new technological development and to learn about new concepts in the world. Thus, though Swahili is used in the heuristic and informative functions, its function in this capacity is very limited and closely linked to the non-western aspects of life in the community. The expansion of functions as well as the new linguistic and sociocultural context of development have resulted in nativization of the language. Such nativization is essentially what distinguishes ShS from the native variety in East Africa. It has mostly occurred as a set of processes that involve not only transfer of linguistic patterns, but also transfer of cultural patterns of the new sociolinguistic context. This has been the case at all linguistic levels, namely, phonological, morphological, lexical, syntactic, semantic and pragmatic.

Of all these processes, the most interesting and noticeable are lexical transfers. They involve many of the innovative processes discussed in Sey (1973), Bamgbose (1982), Bokamba (1982), and Zuengler (1982) with regard to African varieties of English. The first process refers to direct transfers. Here, lexical items from language A are transferred to language B when B has no pre-existing words. This has led to the introduction of words such as *twika* 'help carry on head', *papa* 'carry the baby on the back with a piece of cloth', *tula* 'put down what is carried on the head', *shesheti* (French:*chaussettes*) 'socks', *pantalo* (French:*pantalon*), *jipe* (French:*jupe*) 'skirt', *shemize* (French:*chemise*) 'shirt' and words that refer to animals, vegetables, and insects. Examples include: *nsombe* (EAS:*kisanvu*) 'cassava leaves', *lengalenga* (EAS:*mchicha*) 'spinach', *kabunji* (EAS:*mbweha*) 'fox', *mbandakwe* (EAS:*kobe*) 'tortoise' *mpanjo* (EAS:*nzige*) 'crickets'. Moreover, there are cases of direct transfer that take place despite the fact that the borrowing language has a direct translation for the borrowed item. In cases like these, ethnolinguistic vitality of an ethnic group, as defined by Giles (1979, 1982) can be the determining factor in influencing tranfer (Giles 1979).

The second type of transfer involves semantic deviations which can be regarded as semantic shifts, semantic extensions, and semantic transfers. Semantic shifts "involve a redefinition of the characteristic patterns of a word within the semantic field to such an extent that its central context becomes marginal" (Bokamba 1982:87). Examples of this kind of deviation can be seen by comparing the meaning of words such as *jamaa, bibi, bwana, masomo* and *kichele* in both EAS and ShS. In EAS these words mean, 'relatives', 'lady', 'mister', 'studies', and 'petty cash', respectively. In ShS, however, the EAS meanings have become marginal, instead other meanings have become prominent. *jamaa* is almost always associated with a religious group of the Catholic church whose members consider themselves as belonging to one big family , the *jamaa*. *Bibi* and *bwana* are, in contrast, generally used to mean

'wife' and 'husband', respectively. *Masomo* is always used for 'school' while *kichele* is used for 'coins'.

The third type of transfer involves semantic extensions. These deviations are generally talked about when loan words or L2 words acquire additional meanings in the borrowing variety. The early non-native speakers of Swahili in Shaba used the language as a second language. In the process, they extended the meanings of many EAS words by adding new meanings to them, while conserving the EAS meanings. Examples of these are words such as *kuweza* 'to be able', *kupumzika* 'to rest', *mchele* 'uncooked rice', and *mpepo* 'wind'. In ShS these words have acquired additional meanings, namely, 'to succeed', 'to breath', 'cooked rice', and 'air', respectively. These latter meanings are expressed in EAS by such words as *kufaulu*, *kupumua, wali* and *hewa*, respectively. The fourth type of transfer involve semantic transfers. This process consists of a complete reassignment of the meanings of L2 words. Words that underwent changes like these are numerous in ShS. Among them are: *kuuza* 'to sell', *kushinda* 'to defeat', *magharibi* 'west', *kuvuma* 'to blow', and *kudhuru* 'to harm'. In ShS these words mean 'to buy', 'to fail' 'afternoon', 'to be reputed' and 'to insult'.

The fifth and last kind of transfer is known as coinage. This process refers to outright invention of words, and extension of roots by affixation; it also involves the formation of new words by the use of morpheme combinations such as reduplication, compounding, and the use of onomatopoeic sounds (Bokamba 1982). The reduplication process involves the formation of new words by combining two identical morphemes, which need not necessarily bear any meaning when they occur by themselves, into one word. For examples, *kutangatanga* 'to wander', *kuwayawaya* 'hang around', and *kusemasema* 'to complain' The morphemes *tanga* and *waya* do not bear any meanings by themselves; whereas *sema* means 'say'.

Compounding, in contrast, is the process whereby existing lexical items are combined or used in genitive construction type of structures to form new words in the language. This process is the most productive in the formation of new linguistic terms in ShS. Examples of these include: formation of numbers beyond nineteen (*makumi mbili*: 20, *makumi tatu*: 30, *makumi tisa*: 90 etc.), *kifungula mimba* 'first born child' from *kufungula* 'to open' and *mimba* 'pregnancy', *vunjambanga* 'very hard biscuits' from *vunja* 'to break' and *mbanga* 'jaws'; this word literaly means 'jawbreaker'. Examples that involve the use of the genitive construction includes: *muntu wa kazi* 'worker', *mutoto wa mayimayi* 'baby', *mutshi ya ndizi* 'banana tree'; in EAS these words are expressed with *mfanyakazi, mtotomchanga,* and *mgomba*. Onomatopoeics, on their part, are also used to create new lexical items in ShS. In this process, the sound produced by a given person or thing is used to refer to that person or thing. For example, *kokoriko* 'rooster', *tukutuku* 'motorcycle', and *matamata* 'fat person'.

3. Functional meaning of linguistic variation

Many of the transfers that have been observed in ShS have generally been brandished as instances of inadequacies of this variety vis-à-vis EAS. This section examines these transfers to see whether they carry any social or cultural significance for their users in the Shabian context. The emphasis is placed on the appropriateness of transferred items in the new contextual situation where Swahili is used.

Both ShS and EAS develop in multilingual contexts. The languages that comprise what can be termed "the language repertoire"[1] of each of the areas where these two varieties are spoken differ considerably. The implication for the linguistic co-existence in each of these two geographical areas is the mutual influence at all linguistic levels of the languages in contact. However, this coloring is not limited to linguistic patterns: It extends to cultural patterns, for the differences between these languages are not only linguistic, but also cultural. That is, language being part of the culture of the people who speak it, it is obvious that linguistic transfers that occur will involve transfer of the cultural aspects that are associated with those transfers. Since EAS and ShS co-exist, each with languages spoken by people from linguistically and culturally different backgrounds, some transfers of these languages' linguistic and cultural patterns can be expected. In addition, given the limited contact between EAS and ShS, each variety would take its own path of development and is likely to converge with the languages of its own linguistic area of use. The danger for language prescriptivists is to think of transfers from other languages in the non-native variety as examples of substandardness, corruption or acquisitional deficiency whereas in the native variety, such transfers are viewed simply as instances of language enrichment.

A great deal of the differences between the Shabian variety of Swahili and its native counterpart can better be understood if one views the contextual significance of in the introduction of most of the deviations exhibited by ShS. The countries of East Africa and Zaire are two areas of Africa that took two separate paths at the advent of colonization. East Africa was colonized by Great Britain, while Zaire was colonized by Belgium. While these two countries basically brought the same new western concepts to their colonies, the former did so by using English whereas the latter relied on French. This explains the high occurrence of English borrowings in the variety of Swahili spoken in East Africa while in Zaire, most borrowings from the colonizers are in French. Thus, EAS exhibits words such as *refa, shati, sketi, dereva* and *soksi* from English *referee, shirt, skirt, driver,* and *socks,* respectively; their ShS counterparts are *arbitre, shemize, jipe, shofer,* and *shesheti* which are derived from French words *arbitre, chemise, jupe, chauffeur,* and *chaussettes,* respectively. For most ShS speakers, words of French origin are not used to impede communication with native variety speakers: They are used as models of acculturation as well as markers of membership by speakers who share the same superstratum language. In their community, French is the prestige language as well as the language of socioeconomic advancement. Thus, the contextual significance rather than the lack of EAS knowledge is what determines the use of words

which are viewed by prescriptivists as instances of acquisitional deficiencies on the part of ShS speakers. ShS has also been labelled a corrupt variety because its extensive use of words of Bantu origin in lieu of those derived from Arabic. As is well known, Swahili is a language that was originally spoken only on the coast of East Africa where, because of commerce, it was in contact with the countries of the Arabic peninsula (Haddad 1983). These contacts led to the settlement of Arab merchants and the introduction of Islam in the area. In addition, the Arab settlers were among the first to have provided the first descriptive books of Swahili; these books are characterized by a heavy use of words of Arabic origin in the language. The result has been a large body of words of Arabic origin in Swahili.

In Shaba, Arabic and Islam have had very little impact on Swahili; their influence had been curtailed by the Belgian colonizers and the missionaries who have played a big role in shaping ShS (see Polomé 1967, 1968; Haddad 1983). The occurrence of a very limited number of words of Arabic origin and the low following of Islam attest to this fact. When these words are used in the discourse, they are generally not associated with Arabic, for they are considered Bantu in nature. The integration in ShS of words that are clearly associated with Arabic is resisted by ShS speakers. The abandonment of Arabic loans can be found in (a) the counting system, (b) the days of the week.

The counting system of EAS is based on that of Arabic starting from 20 on. For example, 20=*ishirini*, 30=*thelathini*, 40=*arobaini*, etc. In ShS, Bantu based numbers are used; they are realized as *makumi mbili, makumi tatu, makumi ine*, respectively. The days of the week in EAS are also based on the Muslim calendar; thus, the first day of the week is Saturday and the last day of the week is Friday; in addition, words of Arabic origin are used for the different days. These words are: *Jumamosi* 'Saturday', *Jumapili* 'Sunday', *Jumatatu* 'Monday', *Jumanne* 'Tuesday', *Jumatano* 'Wednesday', *Alhamisi* 'Thursday' and *Ijumaa* 'Friday'. In ShS, however as in many other Zaierean Bantu languages, the naming of the different days of the week is based on the working calendar. Monday is considered the first day of the week because it is the first day when workers start working. Thus, words used to express the days of the week are: *Kazi moya* 'Monday', *Kazi mbili* 'Tuesday', *Kazi tatu* 'Wednesday', *Kazi ine* 'Thursday', *Kazi tano* 'Friday', *Siku ya mposho* 'Saturday' and *Juma/Yenga/Siku ya Mungu* 'Sunday'. The literary translations of these: first day of work, second day of work, third day of work etc.; the expression *siku ya posho* refers to the day when the colonizers used to give the weekly food supply to their workers. *Siku ya Mungu* refers to the day of God.

In essence, there is, in ShS, a strong emphasis to use words of Bantu origin instead of Arabic ones. The use of words of Bantu origin is a way of conveying a certain allegiance to the Bantu background to which Swahili belongs. Bantu vocabulary is used to make a statement regarding the language group membership. It is not uncommon to hear people talk of EAS as Arabic Swahili; members of the Shabian community who excessively use words of Arabic origin are ridiculed and thought of as snobbish and pretentious. This perception has led to a slow but steady disappearance of words of Arabic origin

which have corresponding Bantu synonyms in the speech of many ShS speakers. This 'deliberate fore-grounding' of words of Bantu origin is one way of separating Swahili from Arabic influence in the Shabian community, while allowing it then to converge more with local cultures in the new context of use. Thus variation in this case can be attributed to linguistic regionalism/ nationalism in the Shabian context.

4. Language attitudes and the study of linguistic variation

The impact of language attitudes on linguistic behavior is a phenomenon that has been recognized by sociolinguists who have focused on the study of language attitude as a research topic for the last decades (Shuy & Fasold 1973; Cooper 1974, 1975; Cooper & Fishman 1974). These studies and others have acknowledged that language attitudes can contribute to linguistic change and speech community identification, as well as reflect intergroup communication patterns within the same community (Tucker & Lambert 1969; Bradac 1982; Caranza 1982). During the summer of 1987 I conducted an attitudinal survey among three hundred randomly selected subjects representing most of the different ethnic groups and social strata found in Shaba to ascertain the role of attitudes on the linguistic behavior in the Shabian environment. The social factors in this selection process included sex, age, education, profession, social class, religion, and geographical background. First, the subjects were asked to identify all varieties of Swahili they were aware of and classify them according to their prestige in the Swahili community at large. Four varieties were identified by most subjects: EAS, Kivu Swahili (KS), Kisangani Swahili (KiS), and Shaba Swahili. Table 1 shows the percentage of recognition among the subjects for each variety identified.

Table 1: *Varieties recognized by the subjects*

ShS	100%
EAS	68%
KS	29%
KiS	7%

That is, in addition to their own variety, all the subjects were aware of the existence of several other varieties; 68% knew of the existence of EAS, while only 29% and 7% were aware of KS and KiS, respectively. Second, the subjects were asked to rank those varieties according to the prestige associated with each of them in the Swahili community in general. The results were as given in table 2.

Table 2: *Ranking of the recognized Varieties*

Rank	Variety	%
1	EAS	54
2	KS	23
3	ShS	17
4	KiS	6

Third, the subjects were asked to rank the four varieties according to their own preference and to give reasons for their first choice. The results are as given in table 3.

Table 3: *Ranking by subject's preference*

Rank	Variety	%
1	ShS	73
2	EAS	12
3	KS	9
4	KiS	6

The reasons for preferring one variety over the others led to the identification of four clusters of socio-psychological motivations. First, the speakers who preferred ShS over other varieties did so for 4 main reasons:

1. It is the language they grew up speaking.
2. It is the language of their peers.
3. For integrative purposes.
4. It does not have too many Arabic words.

Second, EAS was preferred over the other varieties because:

1. It has more prestige than our Swahili.
2. It is the Standard variety.
3. It allows me to understand the news in Swahili.
4. It is the language of the church.

Third, KS was preferred over the other varieties because:

1. It is closer to EAS in form.
2. They spent some time in Kivu
3. Of the influence of friends/relatives.

Finally, they preferred KiS over the other varieties because:

1. Of the influence of friends/relatives.
2. They spent some time in Kisangani.

These attitudes are of course natural and should be expected in any language environment where instrumental and sentimental motivations are in constant contact. They suggest that most of the speakers in Shaba want to feel they are a part of the Shabian community. They are aware of the fact that social group membership is closely associated with particular styles of speech; they are also aware of the fact that listeners always make stereotypical inferences about their interlocutors based on the speech markers that they perceive in the interlocutors' actualization of speech (Bradac 1982). The disregard for the native and more prestigious variety is not due to its linguistic complexity, but

results rather from its inappropriateness in the Shabian context. This inappropriateness is not only linguistic, but also political, social, and cultural. This attitude has led to both a deliberate and non-deliberate effort by Shabians to promote the use of their own model which is for them a sociolinguistic prerequisite for complete integration in the community. The features of ShS that deviate from EAS are what constitute its "Shabaness". Therefore, transfers from local languages and French as well as the "foregrounding" of words of Bantu origin at the expense of words of Arabic origin, whether intentional or not, are the strategies used to represent identity maintenance among ShS speakers. These features are not used to compensate for the speakers' putative deficiencies in the acquisition of the native variety; rather, they are fundamental to the authentication of the Shabian variety. This view is supported by Fishman (1971:1) when he says: "language is itself a content, a referent for loyalties, an indicator of social statuses and personal relationships, a marker of situations and topics as well as of societal goals and large scale value-laden arenas of interaction that typify every speech community".

5. Socio-psychological aspects of linguistic variation

Another aspect of language that has often been neglected by variation studies of African languages is the socio-psychological aspects of speech markers in speech communities. A speech community here is perceived as a group of people who consider themselves as speaking the same language or speech variety for which they share not only the norms for its appropriate use, but also a set of social attitudes (Gumperz 1971; Corder 1973; Labov 1972; Romaine 1982). Speech markers, in contrast, are the linguistic and extralinguistic cues that differentiate between the different biological, social, and psychological categories or characteristics of the speakers which in one way or the other are actually or potentially of importance for social interaction or social organization (Giles, et al. 1979). Generally, each speech community displays certain markers that identify it; they include markers of speech identity which have been classified into three categories (Abercrombie 1967; Laver & Trudgill 1979): (a) social markers; (b) physical markers; and (c) psychological markers.

Belonging to a speech community implies adhering to the norms expected of the members in the community. Such norms involve the use of certain speech markers: linguistic, social, physical and/or psychological, by the members of that community. Thus, speech markers, whether used for communicative or informative functions are generally used to convey the community's beliefs, attitudes, and values (cf. Lyons 1972; Giles, et al. 1979). In communicating with others, receivers generally infer from the speakers' language their attitudes, mood, and affiliations (Bradac, et al. 1983). These inferences are generally made from either one's style or the use of the aforementioned markers. Speakers are generally aware of this fact and they use their speech to convey their attitudes, mood, and affiliations. This task is mostly performed through the use of two strategies of speech communication: convergence and divergence (Giles, et al. 1977, 1979). The former involves the use of certain speech markers by the speaker to gain social approval and/or to be socially integrated. The latter involves the use of speech markers which allow speakers to dissociate

themselves from a given group or outgroup and associate themselves with a group they positively identify with.

In the Shabian speech community, the existing norm for all speakers of Swahili is the use of speech markers that characterize the community. Such markers involve the use of linguistic items and expressions that typify the community. For the sake of achieving total integration or being socially accepted in the community, members find themselves using attenuation and accentuation markers to reach a full social integration in the community. The community does not encourage the acquisition of any variety other than ShS; it completely discourages the use of features not found in the Shabian variety of Swahili by stimulating the use of local features. A clear example of this can be seen in the conversation of two ShS speakers who were talking about visiting a common friend who makes excessive use of EAS.

> A: unipeleke kwa X
> 　　'please accompany me to X's house'
> B: sipende kwenda kwake.
> 　　'I don't want to go his house'
> A: juu ya nini? 'why?'
> B: kama unaenda kwake ataanza kukusemea Kiswaili kya mu
> 　　Tanzanie; ye anawaza asema tuko mu Tazanie?
> 　　'if you go to his house he'll start talking to you inTazanian Swahili;
> 　　does he think that we are in Tazania?'

The attitude of speaker B is very common among ShS speakers; it is found among both intellectuals and non-intellectuals alike. As a matter of fact, speaker B happens to be a university graduate who has studied Standard Swahili in School and has a very good job in the highest paying company in Shaba: GECAMINE. For many people who speak varieties other than ShS there is a tremendous pressure to speak ShS as the data in table 4 show. The subjects in this case includes only those whose preferred dialects are different from ShS.

Table 4: *Which dialect do you usually use in your daily life?*

ShS	73%
EAS	17%
KS	7%
KiS	3%

Table 4 shows that there is a strong loyalty to ShS even among people who prefer other varieties of Swahili. The subjects acknowledged that their preference for ShS in their daily life is mostly the result of social pressures to use the local variety. ShS is, by and large, a socially imposed dialect rather than a personal preference for most of these speakers. The impact of social pressures on the maintenance of low varieties has been recognized by previous research (cf. Ryan, et al. 1977:9):

"Ingroup solidarity or language loyalty reflect the social pressures that operate to maintain language varieties even in the absence of social prestige. The language or dialect of one's family life, intimate friendships and informal interactions acquire vital social meanings and comes to represent the social groups which one identifies with."

Given this situation, it would be inappropriate to claim that the speakers of the Shabian variety of Swahili speak a corrupt, substandard and approximative system; for societal pressure is what determines the dialect to be used in the community. From the point of view of theories of linguistic variation (and second language acquisition), preference of one dialect over another is determined by sociolinguistic pressures. In Shaba, society is what imposes the ShS variety on people despite the fact that many people are aware of and taught Standard Swahili or EAS. Society denies them the use of the variety that is more acceptable to the prescriptivists. Therefore, evaluation of the acquisition of Swahili in the Shabian non-native context should be one that takes the local variety as the sole goal to be reached by the learners. The reason for this is basically because it is the only input available to the learners.

6. Conclusion

This paper has shown that ShS has significantly deviated from EAS as reflected in part by the lexicon and lexical semantics. It has shown that there are many processes that account for these deviations. These processes include transfers from local languages and French, semantic deviations, and foregrounding of words of Bantu origin at the expense of words of Arabic origin. The paper also showed that these processes have actually become part of the strategies used to represent identity maintenance among ShS speakers. These features are not used to compensate for the speakers' acquisitional deficiencies in the native variety, but rather, they are integral or fundamental to the authentication of the Shabian variety. It has also been argued that the linguistic characteristics of EAS and ShS cannot be delineated without discussing the speakers' linguistic attitudes. Therefore, analysis of language variation should not center on the study of form to the exclusion of its sociolinguistic context of use. Language variation analysis should also include a discussion of the attitudes of the speakers, as they are the reflections of the realities of the socio-cultural context of language use. Such a step makes it feasible to not only focus on the differences in the social powers likely to influence speech within a community, but to also have a perspective on the dynamics of speech and social structures as well as [the directionality of] linguistic change.

In principle, a good analysis of linguistic variation, especially in multilingual communities, requires a good understanding of the social groups that exhibit those variations. The researcher needs to understand the community's attitudes vis-à-vis the linguistic, social, and cultural variations peculiar to each constituent of that community. To attain this objective, the researcher has to undertake two necessary steps. The first is to define the community whose speech is to be analyzed; a speech community, in this particular case, must be perceived as a group of people who consider

themselves as speaking the same language or speech variety for which they share not only the norms for its appropriate use, but also a set of social and cultural attitudes (Gumperz 1971; Labov 1972; Corder 1973; and Romaine 1982). In other words, any group which shares both linguistic resources and rules for interaction in interpretation is what ought to be defined as a speech community. The second step is to define the linguistic, social and cultural parameters of the community whose language is being observed. These parameters can be established by using attitudinal surveys of the type utilized in this study as well as those used by social psychologists and neo-labovians. Taking these two steps into consideration will ensure that two of the most crucial aspects of linguistic variation will not be overlooked. In overlooking them, there is a strong possibility of making generalizations which are not supported by the facts, has happened in most studies of ShS.

NOTES

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[1] Language repertoire in this instance can be defined as a set of languages found in a given speech community.

REFERENCES

ABERCROMBIE, D. 1967. Elements of general phonetics. Edimburg.

BAMGBOSE, Ayo. 1982. Standard Nigerian English: Issues of identification. The other tongue: English across cultures, ed. by Kachru, 99-111.

BÉDARD, Edith, & Maurais, Jacques. 1983. La Norme Linguistique. Gouvernement du Québec. Canada.

BOKAMBA, Eyamba G. 1982. The Africanization of English. The other tongue: English across cultures, ed. by Kachru, 77-98.

BRADAC, James J. 1982. A rose by another name: Attitudinal consequences of lexical variation. Attitudes towards language variation: Social and applied contexts, ed. by Ryan & Giles, 99-115.

_____, Bowers, J. W., & Courtright J. A. 1980. Lexical variations in intensity, immediacy, and diversity: An axiomatic theory and causal Model. The social and psychological contexts of language, ed. by St. Clair & Giles, 193-224.

CARRANZA, Miguel A. 1982. Attitudinal research on Hispanic language varieties. Attitudes towards language variation: Social and applied contexts, ed. by Ryan & Giles, 63-83.

COOPER, R. L. 1974. Language Attitudes I. International Journal of the Sociology of Language 6:5-9.

_____. 1975. Language Attitudes II. International Journal of the Sociology of Language 6.

_____, & Fishman, J. A. 1974. The study of language variation. International Journal of the Sociology of Language 3.5-19.

CORDER, S. P. 1974. Idiosyncratic approach and Error Analysis. Error analysis: Perspectives on second language acquisition, ed. by Richards, 19-27.

FABIAN. 1982. Scratching the surface: Observations in the oetics of lexical borrowing in Shaba Swahili. Anthropological Linguistics 24.14-50.

_____. 1986. Language and colonial power: The appropriation of Swahili in the Belgian Congo 1880-1938. Cambridge University Press. Cambridge, England.

FISHMAN, J. 1971. The Sociology of Language. Advances in the Sociology of Language, vol.I, ed. by J. Fishman, 217-404. The Hague: Mouton.

GILES, Howard. 1977. Social psychology and Applied Linguistics: Towards an integrative approach. ITL: Review of Applied Linguistics 33.27-42.

_____. Bourhis, R. Y., & Taylor D. M. 1977. Towards a theory of language in ethnic group relations. Language, Ethnicity and Intergroup Relations, ed. by Giles, 307-348. London: Academic Press.

_____. 1979. Ethnicity markers in speech. Social markers in speech, ed. by K. R. Scherer & Giles, H, 251-290.

GUMPERZ, J. 1972. The speech community. Language and social context, ed. by Giglioli, 219-231.

HADDAD, Adnan. 1983. L'Arabe et Le Swahili dans La République du Zaire: Etudes Islamiques (Histoire et Linguistiques). C.D.U et SEDES. Paris, France.

HARRIS, Lyndon. 1956. Congo Swahili. Tanganyika Notes and Records 38-45:44. Published for the Editorial Board, Dar es Salaam.

HOCK, H. 1986. Principles of Historical Linguistics. Mouton De Gruyter. Berlin.

KACHRU, B. B. 1982. The other tongue: English across cultures. Press. Oxford, London.

_____. 1982. Models for non-native Englishes. The other tongue: English across cultures, ed. by Kachru, 31-57.

_____. 1982. Meaning in deviations: Towards understanding non-native English texts. The other tongue: English across cultures, ed. by Kachru, 325-350.

_____. 1983. The Indianization of English. Oxford University Press. Oxford, England.

_____. 1986. The alchemy of English: The spread, functions, and models on non-native Englishes. Oxford, England: Pergamon Institute of English.

KACHRU, Yamuna. 1986. Applied Linguistics and foreign language teaching: A non-Western perspective. Studies in Linguistic Sciences 16:1.35-51.

LABOV, W. 1972. Sociolinguistic patterns. Philadelphia: University of Philadelphia Press.

LAVER, John, & Trudgill Peter. 1979. Phonetic and linguistic markers in speech. Social markers in speech, ed. by K. R. Scherer & Giles, H, 1-32.

LECOSTE, B. 1954. Variété Congolaise du Swahili. Congo Overzee 20.4-5. De Sikkel Antwerp.

LOWENBERG, Peter H. 1986. Sociolinguistic context and Second Language Acquisition: Acculturation and creativity in Malaysian English. World Englishes 5.71-83.
_____. 1985. Nativization and function in ESL: A case study. TESL Studies 6.88-107.
MAGURA, Benjamin. 1984. Style and meaning in African English. University of Illinois at Urbana-Champaign Ph.D. dissertation in Linguistics.
POLOMÉ, Edgard. 1967. Swahili language handbook. Washington D.C.: Center for Applied Linguistics.
_____. 1968. Lubumbashi Swahili. Journal of African Languages 7:1.15-25. Hretford, England: Nimram Books.
_____. 1971. Multilingualism in an African urban center: The Lubumbashi case. Language use and social change, ed. by Whiteley, 364-375. London: Oxford University Press.
RICHARDS, Jack. 1978. Models of language use and language learning. Understanding second and foreign language learning: Issues and approaches, ed. by Richards, 94-116. Rowley, MA: Newbury House Publishers, Inc.
ROMAINE, Suzanne (ed.) 1982. Sociolinguistic variation in speech communities. London: Edward Arnold.
RYAN, Ellen B., & Giles, Howard, 1982. Attitudes towards language variation: Social and applied contexts. London: Edward Arnold.
SANKOFF, Gillian. The social life of language. 1980. Pennsylvania: University of Pennsylvania Press.
SCHERER, R. K., & Giles, H. (eds.) 1979. Social markers in speech. Cambridge: Cambridge University Press.
SELINKER, L. 1974. Interlanguage. Error analysis: Perspectives on second language acquisition, ed. by Richards, 31-54.
SEY, K. A. 1973. Ghanaen English: An explanatory survey. London: Macmillan.
SHUY, R.W., & Fasold, R. W. 1973. Language attitudes, current trends and prospects. Washington D.C.: Georgetown University Press.
SMITH, P. M., Giles H., & Hewstone M. 1980. Sociolinguistics: A social psychological perspective. The social and psychological contexts of language, ed. by St Clair & Giles, 283-298.
SMITH, Richards Rhodes. 1974. Awadi/Kannauji transition phenomena and their correlates: A study in dialect geography. Cornell University Ph.D. dissertation in Linguistics.
SRIDHAR, Kamal K. 1979. English in sociocultural context of India. Studies in Language Learning 2:1.63-79. Unit for Foreign Language Study and Research, University of Illinois at Urbana-Champaign.
_____, & Sridhar, S. N. 1986. Bridging the gap: Second language acquisition theory and indigenized varieties of English. World Englishes 5:1.3-14.
ST CLAIR, Robert N. 1980. The context of language. The social and psychological contexts of language, ed. by St. Clair & Giles, 11-38.
TUCKER, J. C., & Lambert, W. E. 1969. White and Negro listeners' reactions to various American-English dialects. Social Forces 47.463-468.
ZUENGLER, Jane E. 1982. Kenyan English. The other tongue: English across cultures, ed. by Kachru, 112-124.

THE CONTRIBUTION OF LORENZO DOW TURNER TO AFRICAN LINGUISTICS[*]

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Until fairly recently, the linguistic study of African languages has focused on the African languages still spoken on the African continent; very little serious attention has been given to the study of remnants of African languages in the United States. This African continent-based focus has underplayed the contribution of Africanist linguists who uncovered interesting African linguistic research in the U.S.A. Dr. Lorenzo Dow Turner who, in 1932, began the formal study of Gullah, the South Carolina and Georgia coastal creole which soon led him to the study of West African languages and to Sierra Leone Krio, is one such researcher. In this study the importance of his contribution is assessed in light of contemporary scholarship.

1. Introduction

The first African American linguist to gain national and international recognition was Dr. Lorenzo Dow Turner. Turner's reputation is largely the result of his having been the first linguist to clearly and unequivocally establish that African languages were not totally eradicated from the United States as a result of African captivity. His book, *Africanisms* in the *Gullah Dialect* (1949), documents the presence of African semantic retentions in the United States and marks the beginning of Gullah Studies as a legitimate dimension of linguistics. *Africanisms* outlines the phonology and some aspects of the morphology of major West African languages from which Gullah developed. Furthermore, it glosses at least 4,000 lexical items in Gullah from thirty African languages, many of them personal names.[1]

Although *Africanisms* is well-known in linguistic circles, Turner's other work end his life-long interest in African languages and culture are less familiar. The purpose of this paper is to document the role he played in illuminating the impact of African languages and culture on the United States, and his role in collecting materials on African languages and culture in Africa and Brazil. An examination of Turner's research is timely because of the renewed emphasis on research on African languages in the United States, and the continuing interest in Gullah Studies. Furthermore, focus on his work demonstrates the

value of cultural diversity in the professional ranks of American higher education, and the enriching influence of multicultural data in the curricula. Finally, Turner's role as a pioneer conscientiously dedicated to the pursuit of data on New World African linguistic retentions, makes his life a model for present day scholars to emulate.

2. Lorenzo Turner's education and early scholarship

Lorenzo Dow Turner was born on August 21, 1895, the last of four sons to Rooks and Elizabeth (Freeman) Turner. He spent his first ten years in Elizabeth City, North Carolina, after which his family moved to Rockville, Maryland. Turner's family is an old and distinguished North Carolina clan, tracing its American beginnings to the birth of Polly Rooks in Gates County in 1799 (Jones, 1952:12). Because the family members were born free, they were able to experience greater opportunities than many of their peers, often becoming professional persons such as seamstresses and cabinetmakers, doctors and professors. Turner's father, Rooks, for example, a member of the third generation, was one of the first men to gain a Master's degree from Howard University. He later founded the Elizabeth City Normal School (Turner Williams, 1986; Bell, 1989). Both parents stressed educational attainment. Therefore, in 1910, Turner completed high school at the Howard University Academy, and four years later he completed his A.B. degree from Howard University (1914) at age nineteen. As a result of working on steamboats during the summer, Turner was able to finance his study for the Master's degree at Harvard University, completing the Master's of Arts in English in 1917.

During several summers and one leave year, Turner pursued the Ph.D. in English from the University of Chicago, completing it in 1926 with the dissertation *Anti-Slavery Sentiment in American Literature Prior to 1865*. His early research concentrated on literature — first, the publication of *Anti-Slavery Sentiment* (1929), followed by the publication of *Readings from Negro Authors for Schools and Colleges: With a Bibliography of Negro Literature* (1931), an anthology edited with Otelia Cromwell and Eva B. Dykes.

2.1 Turner's development as a linguist

According to his widow, Mrs. Lois Turner Williams, Turner's interest in linguistics developed during the latter 1920's while he served on the faculty of Howard University (1919-1928), and later at Fisk (1928-1946). Often Turner taught summer school at other African American universities in the South. Among them were Alcorn A. and M. College in Mississippi (1935), Atlanta University in Georgia (1945) and Tuskegee Institute in Tennessee. During at least one summer (1929), his assignment took him to South Carolina State College at Orangeburg, which is sixty miles upcountry from Gullah territory (Turner Williams, 1986). Gullah had often been the subject of folktales, novels and comments by folklorists and linguists, among them Harris (1887), Mencken (1929) and Johnson (1930), but there had been no scientific studies of it. The usual explanation of its origins was that Gullah was the result of 'archaic

English dialects' being maintained among a group of Africans isolated from the mainstream American culture (Gonzales, 1922; Krapp, 1924; Johnson, 1930).

When Turner was in Orangeburg, he was able to observe Gullah first-hand. He noticed that his students and local residents spoke a dialect phonologically, syntactically, and semantically different from any other he had known. Over time he also learned some of their unusual personal names called "basket names." As he listened and contemplated, the 'archaic English dialect' hypothesis of the origins of Gullah seemed more and more implausible to him. At that point, Turner began to suspect that the speech of his students had been influenced by the languages of West Africa (Turner Williams, 1986a; See also Wade-Lewis, 1988:8). Stoney and Shelby's *Black Genesis*, published a year after Turner's observations, suggested a much more limited African language influence than Turner was to find during his research. They concluded that perhaps twenty Umbundu terms had been preserved in Gullah, six of seven of which were in common usage (Stoney & Shelby, 1930:xv).

Turner took advantage of the first opportunity available to him to study linguistics by attending the Linguistic Institute in New York during the Summer of 1930. While history is now silent on this detail, it is possible that Turner was encouraged to persue his interest by anthropologist Mark Hanna Watkins, one of his colleagues at Fisk.[2]

At the Institute, Turner met Hans Kurath and other luminaries in the world of American linguistics. In December of that same year, Kurath, Director of the Linguistic Atlas of the United States and Canada Project, wrote Turner and a number of other persons, inviting them to participate in the data collection for the *Atlas* (Kurath, 1930). Turner replied immediately, indicating his interest in attending the 1931 Institute in New York. Expressing a desire to gain further skills in collecting and analyzing dialect data, he stated to Kurath, 'I like it better than any work I have ever done' (Turner, 1930). The linguist in Turner apparently took shape during the summers of 1930 and 1931.

Armed with the *Atlas* approach to interviewing informants, and an 800-item questionnaire prepared for the Atlas work, spanning a range of lexical, phonological and grammatical items, Turner collected data in the field in the South for the Atlas project during several summers. Furthermore, he attended the Linguistic Institute again in 1934 at Brown University and gained additional background by taking other linguistics courses at Brown University (Turner, 1940:1).

2.2 Turner's Gullah research

By the Fall of 1932, Turner had applied for and received a grant from The American Council of Learned Societies, the chief funding source for the *Atlas* project to conduct the Gullah research which led to his famous study. He was the first American linguist to carry out systematic interviews of speakers of Gullah. Turner remained on the Sea Islands until latter December, 1932, returned again in Summer, 1933 and during several subsequent Summers.

Based on one of his letters to Melville Herskovits, Turner collected data again in 1940, at which time he concluded his research and finished his manuscript for publication (Turner, 1940b). In addition to conducting interviews, he also collected over 600 wire and rubber tape recordings, some of which he played when he made presentations on Gullah for the Linguistic Society of America and the American Dialect Society and other organizations, beginning in December, 1932 (Wade-Lewis, 1988:15), seventeen years before his book was published.

3. Turner's study of African languages

Turner's second opportunity to continue his formal study of linguistics came when he concluded that in order to properly analyze his Gullah data, he needed a background in African languages. Therefore, in 1935, after his trip to collect data on Louisiana Creole,[3] Turner applied for a fellowship from the American Council of Learned Societies and a grant-in-aid from the Humanities Institute of Fisk University. These enabled him to spend 1936-37 at the School of Oriental and African Studies of the University of London.

On April 6, 1936, when Turner wrote Daniel Jones, Secretary of the International Phonetic Association, to pay his membership dues, he informed Jones that:.

> Next year at the University of London, in addition to pursuing certain courses in phonetics, I should like to study the phonetic structure of certain West African languages with a view to determine, if possible, the nature and extent of African survivals in Gullah (Turner, 1936).

Subsequently, Turner travelled to London where he studied under the direction of Ida C. Ward, Head of the Department of African Languages. His concentration was on *Kimbundu*, *KiKongo*, *Yoruba*, *Efik*, *Ewe*, *Twi*, *Fante*, *Hausa*, *Mende*, *Gã* and *Wolof*. He also worked each day with informants from West Africa and took advanced courses in phonetics with Daniel Jones and L. E. Armstrong (Turner, 1940:1). During the summer of 1937, while Turner was still in London, he travelled to Paris to interview more than twenty Africans from the area once called French West Africa. These interviews increased his appreciation and understanding of Francophone African culture (Turner, 1940).

According to another letter from Turner to Herskovits, Turner had hoped to continue his study and research on African languages by spending the months following his London trip in West Africa (Turner, 1936b). However, finances apparently did not permit him to do so. His opportunity to conduct research in Africa did not come until fifteen years later in 1951-52.

In the meantime, Turner returned to the United States, spending 1938-39 as a Research Fellow in Linguistics at Yale University. During that period, he studied with Edward Sapir, took a course in Arabic, and learned Umbundu from materials made available to him by Rev. Henry C. McDowell, a former missionary to Angola (Turner, 1940:2; and *Negro History Bulletin*, 1957:26).

As was the case with many of the African Americans educated in the latter l9th and early 20th centuries, among them W. E. B. DuBois, Carter G. Woodson, and Zora Neale Hurston, Turner felt a sense of social responsibility resulting in a mission to produce as much scholarly data about African people as possible. Turner's particular contribution was to be grammars, dictionaries, and books on retained semantic items from African languages, as well as collections of folklore and music. John Work, the arranger of spirituals, a member of the Department of Music at Fisk, was to transcribe the musical scores. Turner looked forward to conducting field work in Africa, Brazil, Jamaica, Haiti, British and Dutch Guiana and Louisiana (Turner, 1946). Hence, on a regular basis he applied for grants to make his research possible.

3.1 Turner's analysis of Africanisms in Brazil

In 1940 Turner applied for and received a grant from the Rosenwald Fund to study African language and culture in Brazil. In preparation he studied Portuguese and read the available books on the African influence in Brazil. According to his 'Proposals':

> From my study of the importation of Negroes from Africa to Brazil, and from the knowledge I have at present of Negro speech in Brazil, I find that with few exceptions the West African languages which have influenced the sea-island speech of South Carolina and Georgia appear likewise to have influenced the speech of Negroes in Bahia and Pernambuco (Turner, 1940~1).

Mentioning that he had already located 4,000 Africanisms in Gullah, Turner noted that his proposed research on African linguistic retentions in Brazil would be "a valuable extension in another part of the world of the work in linguistic geography which has been in progress in New England for the past few years (Turner, 1940:2).

Turner was more than gratified to find that in Bahia many African people had not only retained a form of Yoruba as their native language, but various cultural practices as well. In the first article on his research in Brazil, Turner noted that many of his Brazilian informants:

> ...were born in Africa, still speak fluently their native language, frequently have in their possession valuable papers and pictures relating to West Africa, and correspond regularly with their relatives living there (Turner, 1942a:58).

Turner's data focused on Yoruba-Brazilians, since they comprised the largest and strongest African influence in Northeastern Brazil. He noted that their influence was followed by that of the Dahomeans and Angolans (1942a:55-67). He also observed that at that time some Brazilian Africans continued their contact with the African mainland. Some of them (1) made trips to Africa for visits and to stay for periods of years; (2) corresponded by letter with

relatives and friends in Nigeria; and (3) conducted trade in tobacco, sugar, and dried beef between Brazil and Nigeria. Within the text of the article, Turner reproduced copies of letters, passports, birth, baptism, marriage and burial certificates of Brazilian Africans who had maintained ties with relatives in Nigeria. The focus of Turner's published articles on Brazil is linguistic — anthropological. Unfortunately, his linguistic data on African retentions from the Brazilian trip are still unpublished. Among them are a Yoruba dictionary, folklore, particularly folk tales and stories, some history and music. The music and some folklore are recorded on many 12-inch discs. These discs contain material in five West African languages, but particularly Yoruba, Fon and Kimbundu (Turner, 1958:107).

3.2 Turner's fieldwork in Africa

During the second stage of Turner's career, he was able to travel to Nigeria in 1951-52, with the assistance of a Fulbright Fellowship. His purpose was to study African languages first hand and to collect language and folklore data. His major assignment was as Visiting Lecturer in the Department of English at University College, Ibadan, Nigeria (*Negro History Bulletin*, 1957: 26). In addition, during the year Turner was able to purchase an automobile and travel 20,000 miles to various other areas of West Africa, visiting universities and mission schools, lecturing, attending cultural events and collecting data. He spent two months in Freetown, Sierra Leone (*Kansas City Times*, June 22, 1951:7; and *Say: Alumni Magazine of Roosevelt University*, Spring, 1951:5.13).

One of the misfortunes of Turner's career was that while he published regularly and a good deal, he was not able to publish the bulk of his linguistic research data. Wherever he traveled, he utilized the Linguistic Atlas approach, talking with informants and recording their speech, songs and folklore. His plan to write studies of New World African-language-influenced creoles in Jamaica, Haiti, British and Dutch Guiana, Brazil, and Louisiana, as well as studies of African languages in Africa, was only partially fulfilled by the time of his death in 1972. Turner did not have the opportunity to travel and conduct research in the Caribbean. Among the major constraints Turner faced were the lack of funds for assistance in typing and manuscript preparation, limited leave time to make possible his meticulous phonetic transcriptions of data, and limited publication opportunities. These, coupled with the demands on his schedule as English Department Head and coordinator of African Studies for the most of his career (*Negro History Bulletin*, 1957:26), and the academic, social and political engagements resulting from his status as the best known African American linguist, served to limit the time available to him to prepare his findings for publication.

During 1951-52, for example, he collected a prodigious amount of linguistic and cultural data in Africa. Among his unpublished manuscripts are: (1) grammatical notes on the Temne and Mende languages of Sierra Leone; (2) notes on Freetown Creole of Sierra Leone; (3) a Yoruba language course; (4) Yoruba tales in translation; (5) Yoruba songs and stories; (6) assorted African folktales; (7) Cameroon Creole proverbs, riddles, and stories; (8) a manuscript

entitled *Folktales from Africa*; (9) and a manuscript entitled *Chronicles of Africa: Ancient, Medieval and Modern*. Many of the unpublished African folk tales have now been collected and copyrighted by other researchers.

4. Turner's research on Krio for the Peace Corps

During the third stage of Turner's career, he left Fisk University in 1946 to become one of the first faculty members of Roosevelt College in Chicago. Except for some teaching at the University of Illinois, Chicago Circle, in the mid-1960's, Turner spent the rest of his academic career at Roosevelt until his retirement in 1970 and subsequent death on February 10, 1972.

During the Roosevelt College years, Turner continued to make contributions to African linguistics. In the late 1940's he became a founding member of the African Studies Program, one of the first in a non-African American university in the United States. He had previously been coordinator of African Studies at Fisk University from 1944-1946. Beginning in 1960, Turner served as the Faculty Coordinator of the Peace Corps Project at Roosevelt, having been awarded $54,579 from the Department of Health, Education and Welfare. He was responsible for preparing volunteers for service in Sierra Leone and for preparing language texts on Sierra Leone Krio. At that time Turner noted that Krio was spoken by 16 ethnic groups in Sierra Leone (*Hyde; Park Herald*, March 29, 1961: 16). As a result of the grant, Turner compiled two Krio texts. The first is *An Anthology of Krio Folklore and Literature: With Notes and Inter-linear Translations in English* (1963), designed as a text for Peace Corps volunteers to Sierra Leone.

Two years later, Turner wrote *Krio Texts: With Grammatical Notes and Translation in English* (1965), also to be utilized to teach Krio to Peace Corps volunteers. *Krio Texts* is divided into four chapters entitled: (1) A History of the Krio People of Sierra Leone; (2) The Sounds of Krio; (3) Grammatical Notes (including use of the major parts of speech); and (4) Krio Texts (including greeting, numerals, familiar conversations and proverbs). The final portion of the text contains the English translations. Turner also prepared tape recordings for Chapters II, III and IV, with additional classroom drills. The tapes feature native speakers (See Preface of Krio Texts, 1965). Both of Turner's Krio publications are important documents for non-Krio speakers, but since they are currently out of print, their use is limited to persons who are able to locate library copies.

5.   The relationship between Turner and Herskovits

Turner's growth as an Africanist linguist was complemented by the mutually beneficial relationship he shared with anthropologist Melville Herskovits. Between 1940 and 1960, they were the two most prominent advocates of the African retentions hypothesis in the United States.

Turner and Herskovits were counterparts in many ways: (1) both were born in 1895 of education conscious parents; (2) both developed interest in

Africa during the 1920's; (3) both served on the faculty of Howard University (Herskovits as a Assistant Professor in Anthropology 1925-26; Turner as Chair of English from 1917-1928); (4) both gained higher degrees from The University of Chicago end later relocated to the Chicago area, Turner to Roosevelt (1946) and Herskovits to Northwestern (1927); (5) both were instrumental in the founding of African Studies in the United States (Turner chaired African Studies at Fisk from 1944-1946 and become a founder of African Studies at Roosevelt; Herskovits founded the first program at a non-African American University in 1948); (6) both travelled and studied in the South (Herskovits studying the physical anthropology of Africans; Turner studying Louisiana Creole (1935) and Gullah Creole (1932-1940)); (7) both travelled and collected data in Pernambuco, Brazil (Turner in 1940-41; Herskovits in 1942-43); (8) both travelled and studied in Africa (Turner spending 1951-52 in Nigeria and Sierra Leone; Herskovits making his first trip to Dahomey in 1931 and several subsequent trips to other areas); (9) they were two of the three founders of the Negro Studies Committee of the American Council of Learned Societies, on which both served from 1940-1950, and they appeared on numerous panels together; (10) both conducted research on African retentions in the Americas and were the leading scholars in their specialties during their lifetimes.

The interaction between the two was enriching and enlightening. They met, if not before 1925, during academic year 1925-26 while Turner was English Department Head at Howard University and Herskovits was a visiting Assistant Professor in the Anthropology Department. Between 1925 and 1956, their encounters were numerous. Because they were the strongest and best known proponents of the African retentions hypothesis in linguistics and anthropology, they were drawn together by common interests, as well as the need to share data and ideas. They interacted with many of the same scholars, participated in lectures at each other's universities, and defended their positions against opposition from those who rejected the African retentions hypothesis.

One set of materials which documents their relationship is the letters they wrote each other. The first correspondence of record is a letter dated September 9, 1936 from Turner to Herskovits, informing Herskovits of his approaching research trip to London. Herskovits responded on September 23, 1936 in a cordial and supportive letter. Thereafter, the two corresponded until May 15, 1956. The final letter of record is written by Herskovits. It offers to recommend Turner for grants other than the Ford Foundation grant for which Turner had been turned down because of age.[4] Herskovits died in 1963.

Analysis of their written correspondences and other unpublished documents reveals that the influence Turner and Herskovits exerted on each other, and the support which they gave each other has been underestimated. For example, it is often noted that Herskovits utilized pages from Turner's unpublished version of *Africanisms* (1949) to strengthen his arguments for African cultural retentions in *The Myth of the Negro Past* (1941). Herskovits acknowledges this material which he quotes on pp. 276-279. He also cites Turner on pp. 37, 191, and 316.

Herskovits requested a copy of Turner's manuscript in a letter to Turner, as a result of having heard Turner's presentation on Gullah at the Conference of the Modern Languages Association in New York in December, 1938 (Herskovits, 1939). In a return letter, Turner agreed to have his quotes from his manuscript printed, noting that *Africanisms* was almost ready for publication (Turner, 1939).

Herskovits had mentioned African linguistic retentions in Caribbean creoles his book *Suriname Folklore* (1936) with Frances Herskovits, but he recognized that in *Myth* (1941) a strong case for linguistic retentions in the United States needed to be made. In his letter to Turner, Herskovits stated:

> Your papers will give me some telling ammunition in establishing the invalidity of the position of those who insist that everything in southern speech is derived from European sources, and since the results of this study will, undoubtedly, be important in giving direction to support for future projects, I think you will agree with me that it is of the utmost importance that the most forceful presentation possible be made (Herskovits, 1939).

Often the two read each other's manuscripts and commented on them, sometimes later writing reviews for journals. For example, Turner reviewed Herskovits' *Myth* (1941) in *The Journal of Negro History* (April, 1942b: 185-187). Later, when *Africanisms* (1549) appeared, Turner recommended to the University of Chicago Press that Herskovits be selected as the reviewer for either *The Journal of American Folklore* or *American Anthropologist* (Turner, 1949a). Together Turner and Herskovits insured the continued advancement of the African retentions hypothetis in American scholarship. One of its strongest contemporary proponents is Alleyne (1980), whose solid scholarship reflects the influence of both.

6. Conclusion

Lorenzo Dow Turner was a well-known personage in the world of linguistics during his life time. He took quite seriously the quest to expose Americans to African languages and culture in both Africa and the New World. Toward this end, he collected research data in the United States in the Sea Islands and Louisiana, and in Brazil and Africa, to demonstrate the cultural continuities between Africa and the New World. As a linguist he viewed folklore and music as important cultural manifestations from which linguistic grammatical and semantic content could be drawn. Therefore, wherever he went, he participated in African religious and cultural ceremonies, devising surveys for informants, tape recording data and selecting speech samples for phonetic transcription. In publishing *Africanisms* he was able to influence American linguistics and creole studies considerably, in the process becoming the pioneer in the Gullah Studies specialty. Simultaneously, he dispelled the notion that although African linguistic retentions were evident in Haiti (Comhaire-Sylvain, 1936), Brazil (Mendonça, 1935), Suriname (Herskovits and Herskovits, 1937), and other areas of the New World, they had been lost in the

United States. To date no scholar has written more extensively than Turner on retained linguistic Africanisms.

Though there is continuing debate about the significance of some of the data in *Africanisms* (Hair, 1965; Mufwene, 1985), it is clear that Turner opened the way for the scientific study of Gullah. This thrust is continued in the work of a cadre of dedicated scholars, including Cunningham (1970), who wrote the first transformational analysis of Gullah; Jones-Jackson (1978), who analyzed convergent processes; Nichols (1976), who analyzed male/female speech differences; Cassidy (1980, 1983), who placed Gullah in context with Caribbean creoles; and Holm (1983b), who compared Gullah and Barbadian. The work of Mufwene (University of Georgia - Athens) under a National Science Foundation and National Endowment for Humanities grants to conduct the first longitudinal study of Gullah represents one of the most recent effor in the study of this language.

Work on Sierra Leone Krio has also continued. Among the researchers are E. D. Jones (1962, 1971), who studied l9th century Krio; Fyle and Jones (1980), who compiled a Krio-English dictionary; F. C. Jones (1983), who studied English semantics in Krio; and Harris (1984), who has recently analyzed the spread of Krio.

In 1956 Turner applied for a Ford Foundation Grant in order to take a leave to complete the Yoruba dictionary and other projects resulting from his data collection in Africa (Turner 1955:1-3). The application was not considered because Turner had passed his sixtieth birthday (Turner, 1956). No doubt one day some of the emerging linguists will edit his unpublished manuscripts, creating the opportunity for all to gain a more complete sense of Turner as one of two early African American contributors to scholarship in African linguistics.

NOTES

[1] Gullah is an African-English creole spoken in the coastal South Carolina and Georgia Sea Islands. Turner traced the name Gullah to two sources: 'a Liberian tribe and its language' (/gɔ la/, /gɔ ra/, /gu la/, /gu ra/; and /ŋ gɔ la/, ɔa tribe in the Hamba basin of Angola' (1949:194).

Some researchers, several of them contemporary, maintain that Turner's claims for an African substrate in the United States are not as strong as it would appear on the surface since the majority of the terms collected are personal

names. Often Gullah speakers no longer know the particular African language semantics. See Hair (1965), Cassidy (1980), and Mufwene (1985). On the other hand, Rickford (1979) maintains that naming practices are one valid means of assessing African retentions.

[2] Turner's work was preceded by that of Dr. Mark Hanna Watkins, Professor in the Anthropology Department at Fisk University and then Howard University. Watkins was a student of Edward Sapir. He received the Ph. D. from the University of Chicago in 1933, with the dissertation, *A Descriptive Grammar of Chichewa* (1933). This research made him both the first American and the first African American to publish a grammar of an African language. His dissertation was published by the Linguistic Society of America in 1937.

Watkins and Turner made a strong impression on Dr. Raleigh Morgan, a former student of both end a graduate of Fisk University, who is now a recently retired faculty member from the University of Michigan. According to Morgan, his love for languages began with his first Latin course in high school. This love, nurtured at Fisk by both Watkins and Turner, resulted in his decision to gain a Ph. D. in linguistics. In 1946-47 Morgan conducted fieldwork in St. Martin's Parish of Southwest Louisiana on Louisiana Creole in an attempt to write a study locating Africanisms as Turner had in Gullah (Morgan, May 29, 1986; from Morgan, June 28, 1985). Morgan completed his Ph.D. at the University of Michigan and has had a long and distinguished career as a Romance linguist and a specialist in African-French creoles. He is best known for *The Regional French of County Beauce Quebec* (1975). The Hague: Mouton.

[3] Turner studied Louisiana Creole as part of his long-term plan to analyze New World creoles for African linguistic content.

[4] The Turner/Herskovits letters are the subject of another Wade-Lewis article entitled: 'The African Substrate Hypothesis and the Turner/Herskovits Connection' (Forthcoming).

REFERENCES

ALLEYNE, Mervyn. 1980. Comparative Afro-American: An historical comparative study of English-based Afro-American dialects in the new world. Ann Arbor: Karoma Publishers, Inc.

BELL, Charlotte. 1989. Interview with M. Wade-Lewis on une 2. Philadelphia.

BLOK, H.P. 1959. Annotations to Mr. Turner's africanisms in the gullah dialect. Lingua 8.306-321.

BOKAMBA, Eyamba G. 1982. The Africanization of English. The other tongue: English across cultures, ed by Braj B. Kachru, 77-98. Champaign: University of Illinois Press.

CASSIDY, Frederic G. 1980. The place of Gullah. American Speech 55.3-16.

_____. 1983. Sources of the African element in Gullah. Studies in Caribbean language, ed. by Lawrence Carrington, D. R. Craig, & R. Todd Dandare. 75-81. St. Augustine: University of the West Indies. 75-81.

COMHAIRE-SYLVAIN, Suzanne. 1936. Le Créole haïtien. Port-au-Prince: L'Auteur.

CUNNINGHAM, Irma E. 1970. A syntactic analysis of Sea Island Creole (Gullah). University of Pennsylvania Ph.D. dissertation in Linguistics.

DECAMP, David. 1974. Foreword to Lorenzo Turner's Africanisms in the Gullah dialect. Ann Arbor: University of Michigan Press. v-xi.

FRAZIER, E. Franklin. 1942. The Negro Family and Bahia, Brazil. American Sociological Review 7.445-480.

FYLE, C. N., & E. D. Jones. 1980. A Krio-English Dictionary. New York: Oxford University Press.

GILBERT, Glenn, ed. 1987. Pidgin and creole languages: Essays in memory of John E. Reinecke. Honolulu: University Press of Hawaii.

GONZALES, Ambrose E. 1922. The Black border: Gullah stories of the Carolina coast. Columbia, South Carolina: The State Company.

GREENBERG, Joseph. 1966. The Languages of Africa. Bloomington: University of Indiana Press.

HANCOCK, Ian. 1970. Dictionary of Sierra Leone Krio. Unpublished manuscript.

_____. 1971. A study of the sources and development of the lexicon of Sierra Leone Creole. Unpublished University of London School of Oriental and African Studies Ph.D. dissertation in Linguistics.

_____. 1983. Aspects of standardization in West African Creole English. Proceedings of the Mid-American Linguistics Conference, ed. by Frances Ingemann, 295-307. Lawrence: University of Kansas Press.

HAIR, P. E. 1965. Sierra Leone items in the Gullah dialect of American English. Sierra Leone Review 4.79-84.

HALL, Robert A., Jr. 1950. The African substratum of Negro English (Review of Turner, 1949). American Speech 25 (April):51-54.

HARRIS, Joel Chandler. 1887. Free Joe and other Georgia sketches. New York: Holt.

HARRIS, J. W. 1984. Language contact, pidgins and the emergence of Kriol in the Northern Territory: Theoretical and historical perspectives. University of Queensland Ph.D. dissertation in Linguistics.

HERSKOVITS, Melville. 1939. Letter to Lorenzo Turner, October 17. Evanston: Northwestern University Library, Herskovits Collection.

_____. 1941. The myth of the Negro past. New York: Harper and Brothers.

_____, & Frances S. Herskovits. 1937. Suriname folklore. New York: Harper and Brothers.

HOLM, John. 1983b. On the relationship of Gullah and Bahamian. American Speech. 58:4.303-318.

HURSTON, Zora Neale. 1931. Hoodoo in America. Journal of America Folklore, 317-417.

IVY, James. 1950. Africanisms in the Gullah Dialect by Lorenzo Turner. Crisis 57. (April):263-264.

JOHNSON, Guy. 1930. Folk culture on St. Helena Island, South Carolina. Chapel Hill: The University of North Carolina.

JONES, Connie. 1953. The Rooks: Famous North Carolina family observes 153rd anniversary. Color (March):12-17.

JONES, E. D. 1962. Mid-nineteenth-century evidences of a Sierra Leone patois. Sierra Leone Language Review 1.19-26.

_____. 1971. Krio: An English-based language of Sierra Leone. The English language in West Africa, ed. by J. Spencer. London: Longman.

JONES, F. C. 1983. English-derived words in Sierra Leone Krio. University of Leeds Ph.D. dissertation in Linguistics.

JONES-JACKSON, Patricia. 1978. The status of Gullah: An investigation of convergent processes. University of Michigan Ph.D. dissertation in Linguistics.

KRAPP, George P. 1924. The English of the Negro. American Mercury. 2:5.190-195.

KURATH, Hans. 1930. Letter to Lorenzo Turner and Others. December 11. Evanston: Northwestern University Library, Turner Collection.

McDAVID, Raven I., Jr. 1950. Review of Africanisms in the Gullah dialect by Turner. Language 26.323-333.

MENCKEN, H. L. 1929. The American language. New York: Alfred A. Knopf.

MENDONÇA, Renato. 1935. A influência africana no Português do Brasil. Rio de Janeiro: Editora Civilizaçao Brasileira.

MORGAN, Raleigh. 1985. Letter to M. Wade-Lewis. June 28.

_____. 1986. Interview with M. Wade-Lewis, May 29. Ann Arbor.

MUFWENE, Salikoko. 1985. The linguistic significance of African proper names in Gullah. New West Indian Guide 146-166.

_____. 1986. The universalist and substrate hypotheses complement one another. Substrata versus universals in creole genesis, ed. by Pieter Muysken & Norval Smith, 129-162. Amsterdam: John Benjamin Publishing Company.

NEGRO HISTORY BULLETIN. 1957. Profile of a scholar: Lorenzo Turner 21:2 (November) 26.42.

NEW YORK TIMES. 1933. Records in Gullah heard by linguists. Sunday, January 1:16 Column 3.

NICHOLS, Patricia. 1976. Linguistic change in Gullah: Sex, age and mobility. Stanford University Ph.D. dissertation in Linguistics.

OBITUARY NOTICE FOR LORENZO TURNER. 1972. Jet 41 (March 2):14.

O'REILLY, Merry. 1952. Dr. Turner returns — 20,000 miles through West Africa. Say: Alumni Magazine of Roosevelt University, 5:13.

ORTIZ, Fernando. 1938. La música sagrada de los Negros yoruba en cuba. Estudios afro-cubanos. 2.89-104.

RAIMUNDO, Jacque. 1933. O Elemento afro-negro no lingua portuguesa. Rio de Janeiro.

RICKFORD, John. 1988. Dimensions of a creole continiuum. Stanford: Stanford University Press.

ROOSEVELT gets Peace Corps grant. 1961. Hyde Park Herald. March 29:16.

STONEY, Samuel G., & Gertrude M. Shelby. 1930. Black genesis. New York: McMillan.

TURNER, Lorenzo. 1930. Letter to Hans Kurath, December 24. Evanston: Northwestern University Library, Turner Collection.

_____. 1936. Letter to Daniel Jones, April 6. Evanston: Northwestern University Library, Turner Collection.

_____. 1936b. Letter to Melville Herskovits, September 30. Evanston: Northwestern University Library, Turner Collection.

_____. 1939. Letter to Melville Herskovits, October 24. Evanston: Northwestern University Library, Turner Collection.

_____. 1940. Proposals by Lorenzo Turner for a study of Negro speech in Brazil. January. Evanston: Northwestern University Library, Turner Collection.

_____. 1940b. Letter to Melville Herskovits. March 24. Evanston: Northwestern University Library, Turner Collection.

_____. 1941a. Letter to Melville Herskovits. February 21.

_____. 1946. Application to the American Philosophical Society for a grant from the research funds, January 8. Evanston: Northwestern University Library, Turner Collection.

_____. 1949a. Letter to Paul Corbett of the University of Chicago Press. June 15. Evanston: Northwestern University Library, Turner Collection.

TURNER travels to Sierra Leone. 1951. Say: Alumni magazine of Roosevelt University (Spring), 5:13.

TURNER visits Sierra Leone. 1951. Kansas City Times, June 22, 7.

TURNER, Lorenzo. 1955. Ford Foundation proposal for a plan of work on West African folklore and languages, November. Evanston: Northwestern University Library, Turner Collection.

TURNER Williams, Lois. 1986. Telephone Interview with M. Wade-Lewis on March 26.

_____. 1986. Interview with M. Wade-Lewis on May 26. Chicago.

WADE-LEWIS, Margaret. 1988. Lorenzo Dow Turner: First African American linguist. Occasional Paper #2. Philadelphia: Temple University Institute of African and African American Affairs.

_____. Forthcoming. The substrate hypothesis and the Turner/Herskovits connection.

APPENDIX

Publications by Lorenzo Turner:

Books:

CROMWELL, Otelia, Lorenzo Turner, & Eva Dykes (eds.) 1931. Readings from Negro authors for schools and colleges: With a bibliography of Negro literature. New York: Harcourt, Brace.

TURNER, Lorenzo. 1929. Anti-Slavery sentiment in American literature prior to 1865. Washington, D. C.: Association for the Study of Negro Life and History.

_____. 1949. Africanisms in the Gullah dialect. Chicago: University of Chicago Press. (Reprinted 1973. Ann Arbor: University of Michigan Press).

_____. 1963. An anthology of Krio folklore and literature: With notes and interlinear translations in English. Chicago: Roosevelt University.
_____. 1965. Krio texts: With grammatical notes and translations in English. Chicago: Roosevelt University.

Articles:

Turner, Lorenzo. 1941. Linguistic research and African survivals.American Council of Learned Societies Bulletin. Washington, D. C. 32:68-89.
_____. 1942a. Some contacts of Brazilian ex-slaves with Nigeria, West Africa. Journal of Negro History 27.55-67.
_____. 1945a. Comments on word lists from the South. Publications the American Dialect Society 3.
_____. 1945b. Notes on the sounds and vocabulary of Gullah. Publications of the American Dialect Society 3.13-28.
_____. 1947a. Problems confronting the investigator of Gullah. Gullah. Publications of the American Dialect Society 9.74-84.
_____. 1947b. Roosevelt College: Democratic haven. Opportunity 25.223-225.
_____. 1953. New directions in jazz research — symposium. The Record Changer, 14-17:48-49.
_____. 1955a. The impact of western education on the African's way of life. Africa today, ed. by Charles Grove, 147-171. Baltimore: Johns Hopkins Press.
_____. 1955b. The odyssey of a Zulu warrior. Journal of Negro History 40.305-317.
_____. 1956. Welt Whitman and the Negro. Chicago Jewish Forum 15:1.5-11.
_____. 1957a. The Negro in Brazil. Chicago Jewish Forum 15:232-236.
_____. 1957b. Our African heritage. Say: Alumni Magazine of Roosevelt University, 15-19.

Book Reviews:

Turner, Lorenzo. 1942b. The myth of the negro past, by Melville Herskovits. Journal of Negro Education 11.185-187.
_____. 1942c. The Negro caravan: Writings by American Negroes, ed. by Sterling A. Brown et al. Journal of Negro History 27.219-222.
_____. 1950a. The Negro in northern Brazil, by O. da Costa Eduardo. Journal of American Folklore 63.490-492.
_____. 1950b. Some sources of southernisms, by Mitford M. Mathews. Language 26.167-170.
_____. 1952. The sin of the prophet, by Truman Nelson. Journal of Negro History 37.466-468.
_____. 1954. The outsider, by Richard Wright. Journal of Negro History 39.77-80.
_____. 1955a. Dr. Dan: Poneer in American surgery, by Helen Buckler. Journal of Negro History 40.191-193.
_____. 1955b. Libretto for the republic of Liberia, by Melvin B. Tolson. Poetry 86.174-176.

_____. 1955c. The Palm-Wine drinkard, by Amos Tutuola. Midwest Folklore 5.189-191.

_____. 1957b. The Negro in American culture, by Margaret Just Butcher. Chicago Jewish Forum 16.56-57.

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Vol. 11:1	Spring 1981	Papers in General Linguistics	$2.50	$5.00
Vol. 11:2	Fall 1981	Dimensions of South Asian Linguistics (Editor: Yamuna Kachru)	$2.50	$5.00
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Vol. 12:2	Fall 1982	Papers on Diachronic Syntax: Six Case Studies (Editor: Hans Henrich Hock)	$2.50	$5.00
Vol. 13:1	Spring 1983	Papers in General Linguistics	$2.50	$5.00
Vol. 13:2	Fall 1983	Studies in Language Variation: Nonwestern Case Studies (Editor: Braj B. Kachru)	$2.50	$5.00
Vol. 14:1	Spring 1984	Papers in General Linguistics	$2.50	$5.00
Vol. 14:2	Fall 1984	Language in African Culture and Society (Editor: Eyamba G. Bokamba)	$2.50	$5.00
Vol. 15:1	Spring 1985	Papers in General Linguistics	$2.50	$5.00
Vol. 15:2	Fall 1985	Linguistic Studies in Memory of Theodore M. Lightner (Editor: Michael J. Kenstowicz)	$2.50	$5.00
Vol. 16:1	Spring 1986	Papers in General Linguistics	$3.00	$6.00
Vol. 16:2	Fall 1986	Illinois Studies in Korean Linguistics (Editor: Chin-W. Kim)	$3.00	$6.00

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Department of Linguistics
University of Illinois

STUDIES IN THE LINGUISTIC SCIENCES

LINGUISTICS FOR THE NINETIES:
PAPERS FROM A LECTURE SERIES IN CELEBRATION OF
THE DEPARTMENT'S TWENTY-FIFTH ANNIVERSARY

PLUS A CUMULATIVE INDEX OF
STUDIES IN THE LINGUISTIC SCIENCES
VOLUMES 1 TO 19

EDITOR

Hans Henrich Hock

EDITORIAL ASSISTANT

Lynne Murphy

VOLUME 20, NUMBER 2
FALL 1990

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Preface

This volume marks — and celebrates — the completion of twenty years of *Studies in the Linguistic Sciences*. The journal was started in 1971 at the instigation of Braj B. Kachru, head of Linguistics. The idea was to publish two issues a year, one on general themes in linguistics, the other a special issue dedicated to a specific topic.

During its early years, the journal was edited by Charles W. Kisseberth, assisted by an Editorial Board consisting of Chin-chuang Cheng, Braj. B. Kachru, Michael Kenstowicz, Chin-W. Kim, Jerry Morgan, and Ladislav Zgusta. Over the years, the editorial organization has undergone a number of changes. In 1975, Braj B. Kachru, Jerry Morgan, and Ladislav Zgusta joined Charles W. Kisseberth as editors, and all other faculty members with linguistics appointments became members of the Editorial Board, reflecting the fact that as the occasion required, they all were called upon to referee submitted contributions. 1978 marked the appointment of Robert N. Kantor and Ladislav Zgusta as Review Editors. In 1980, Chin-W. Kim replaced Robert N. Kantor as one of the Review Editors. A major change took place in 1986, when Michael J. Kenstowicz took over as sole Editor. Since 1988, the editorship has been the responsibility of Hans Henrich Hock. With Volume 21, Number 1, he will be joined by Charles W. Kisseberth as Review Editor.

While the major responsibility of the Editor(s) is concerned with general issues, special issues are the responsibility of guest editors. Since the inception of the journal, the following special issues have been produced:

Papers on Hindi syntax, edited by Yamuna Kachru. (1:2, Fall 1971)

Papers on syntax and semantics, edited by Georgia M. Green. (2:1, Spring 1972)

Studies in Baltic linguistics, edited by Hans Henrich Hock and Michael J. Kenstowicz. (2:2, Fall 1972)

Papers on South Asian linguistics, edited by Braj B. Kachru. (3:2, Fall 1973)

Papers on phonetics and phonology, edited by Charles W. Kisseberth and Chin-W. Kim. (4:2, Fall 1974)

Papers on historical linguistics: Theory and method, edited by Ladislav Zgusta and Hans Henrich Hock. (5:2, Fall 1975)

Topics in Relational Grammar, edited by Jerry Morgan, Georgia Green, and Peter Cole. (Special section of 6:1, Spring 1976)

Papers on African linguistics, edited by Eyamba G. Bokamba and Charles W. Kisseberth. (6:2, Fall 1976)

Studies in East Asian linguistics, edited by Chin-chuan Cheng and Chin-W. Kim. (7:2, Fall 1977)

The companion volume of the last-mentioned item (to appear as SLS 20:1) is now being completed. Together with volume 19, number 2, it celebrates twenty years of the tradition of Annual Conferences on African Linguistics that was established by the Department of Linguistics.

In addition, all of Volume 20 celebrates the twenty-fifth anniversary of the Department of Linguistics. (More on this can be found in Elmer H. Antonsen's Introduction and in Henry Kahane's contribution to this volume.) And, in order to more fully celebrate that anniversary, Volume 20 consists of three issues: The just-mentioned second part of the proceedings of the 20th Annual Conference on African Linguistics (20:1), the present issue (20:2), and the Meeting Handbook of the Thirteenth South Asian Languages Analysis Roundtable (25-27 May), edited by Hans Henrich Hock with editorial assistance by Lynne Murphy, and published as a special issue (20:3).

The present issue contains papers presented in a special lecture series celebrating the silver jubilee of the Department of Linguistics. The series was planned in 1989/90, when Charles W. Kisseberth was Executive Officer of the Department, and took place in the fall of 1990, when Elmer H. Antonsen was Acting Head. Its success owes much to the support of these two colleagues. The Department also owes gratitude to Lynne Murphy who took care of much of

the correspondence regarding the lecture series and the acquisition, conversion, and preliminary editing of the manuscripts.

Some of the papers were presented under a title different from the one under which they appear in this volume. Moreover, at his request, Henry Kahane's contribution appears here in much reduced form. The original program is given below.

Henry Kahane (University of Illinois)
> Linguistics as personal experience: The formation of a department. 12 September 1990.

Ronald Langacker (University of California, San Diego)
> Cognitive Grammar: The symbolic alternative. 24 September 1990.

Jerrold M. Sadock (University of Chicago)
> Yiddish solved ! 1 October 1990.

Frederick Newmeyer (University of Washington)
> Some problems of language origins and evolution. 8 October 1990.

David Odden (Ohio State University)
> The relation between phonology and other parts of a grammar. 15 October 1990.

Lise Menn (University of Colorado, Boulder)
> Aphasic language under discourse pressure: Functional syntax vs. psycholinguistic function. 29 October 1990.

Peter Lowenberg (Georgetown University)
> Standards and norms for World Englishes: Issues and attitudes. 5 November 1990.

Gabriella Hermon (University of Delaware)
> Syntactic theory and language acquisition: Current issues and prospects. 12 November 1990.

S. N. Sridhar (State University of New York, Stony Brook)
> What are Applied Linguistics? 26 November 1990.

Except for the opening lecture, presented by Henry Kahane, who joined the University of Illinois faculty in 1941 and was the person most responsible for the successful establishment of the Department in 1965, the papers were by former students of the Department who have established a name for themselves in the field. Brief biographical notes are given below:

Gabriella Hermon received her Ph.D. in Linguistics in 1981. Her dissertation topic was 'Non-nominative subject constructions in the Government & Binding framework' (advisor: Georgia Green). She currently is Assistant Professor in the Department of Education Studies, University of Delaware, with joint appointment in Linguistics.

Ronald Langacker joined the University of Illinois graduate program in Linguistics in the fall of 1963, prior to the establishment of the Department, and

received his Ph.D. in 1966, just after the Department's establishment. His dissertation, 'A transformational sketch of French syntax', was directed by Robert B. Lees. He now is Professor and Chair of Linguistics, University of California at San Diego.

Peter Lowenberg completed his Ph.D. dissertation, 'English in the Malay archipelago: Nativization and its functions in a sociolinguistic area', in 1984 under the supervision of Braj B. Kachru. He is Associate Professor of Linguistics at Georgetown University.

Lise Menn's dissertation, 'Pattern, control, and contrast in beginning speech: A case study in the development of word form and word function', was completed in 1976 under the direction of Howard Maclay. She is now Associate Professor of Linguistics at the University of Colorado at Boulder.

Frederick Newmeyer joined the Department in 1967 and received his Ph.D. in 1969, two years later! His dissertation, 'English aspectual verbs', was written under the direction of Robert B. Lees. He is Professor of Linguistics at the University of Washington.

David Odden's 1981 dissertation, 'Problems in tone assignment in Shona', was directed by Charles W. Kisseberth. Odden now is Associate Professor of Linguistics at Ohio State University.

Jerrold Sadock entered the graduate program just prior to the establishment of the Department and received his Ph.D. in 1968. His dissertation bears the title 'On the notion "Sentence type" ' (director: Henry Kahane). He is Professor and Chair of Linguistics at the University of Chicago.

S. N. Sridhar's dissertation, 'Cognitive determinants of linguistic structures: A cross-linguistic experimental study of sentence production', was completed in 1980 under the direction of Charles Osgood. He is Associate Professor of Linguistics at the State University of New York, Stony Brook.

May 1991   Hans Henrich Hock (Editor)

Introduction

When Hans Henrich Hock, Editor of *Studies in the Linguistic Sciences*, invited me to contribute an Introduction to the present volume devoted to celebrations of the twenty-fifth anniversary of the Department of Linguistics, I was at first uncertain whether I should accept the honor (and thus the task) or leave it to someone else, since I am only temporarily more closely associated with the Department (as Acting Head from May 1990 to January 1992). Nevertheless, I have been intensely interested in the activities of the Department over a long period of time, having held the title of Associate Professor and then of Professor of Linguistics 'without budgetary implications' ever since I came to the University of Illinois in 1967 to accept a position in Germanic linguistics in the Department of Germanic Languages and Literatures, just two years after the formal founding of the Department of Linguistics.

In actual fact, however, my association with the Department is somewhat older than the Department itself, strange as that may seem. During my graduate student days at Illinois in the Department of German (as it was then called) between 1956 and 1959, I was introduced by Frank Banta, then Associate Professor and Chairman of German (and a linguist), to a small group of linguists from various departments who met on a regular basis to present and hear talks on linguistic topics. During the academic year 1958-1959, I even had the honor to serve as a research assistant in linguistics to Professor Henry Kahane. From him and Renée Kahane I learned a great deal about scholarly research through osmosis, simply by observing how they collaborated on major projects; and my wife and I were the recipients of many personal kindnesses. After I had left Champaign-Urbana to accept a full-time position at Northwestern University and had defended my dissertation, I was invited by Henry Kahane to return to the Campus in 1961 to present a talk before the Linguistics Club, then under the presidency of Mary Temperley, who is now a member of the faculty of the Division of English as an International Language. I thus had the distinction of becoming the first former student-member of the Linguistics Club to be invited back as an outside speaker. These then are my meager qualifications for writing the Introduction to this volume of *Studies in the Linguistic Sciences* devoted to the celebration of the twenty-fifth anniversary of the Department of Linguistics and to the twentieth anniversary of the journal itself (for which see the Preface to this issue).

As a student, of course, I was not fully aware of all the behind-the-scenes efforts to establish the Department of Linguistics, although there was no missing the fact that Henry Kahane was diligently at work preparing the ground. A search through the archives reveals that the actual proposal was worked out in 1963 by a committee chaired by Robert B. Lees (English, Communications Research), then Director of the Program in Linguistics, and consisting further of

Joseph H. D. Allen (Spanish, Italian, and Portuguese), Katherine Aston (English), Frank G. Banta (German), Joseph B. Casagrande (Anthropology), Kenneth L. Hale (Anthropology), Lee S. Hultzén (Speech), Henry R. Kahane (Spanish, Italian, and Portuguese), Frederic K. Lehman (Anthropology), Rado Lenček (Russian), Howard S. Maclay (Communications Research), Charles E. Osgood (Communications Research), Angelina R. Pietrangeli (Spanish, Italian, and Portuguese), Victor Terras (Russian), and Willard R. Zemlin (Speech).

When I returned to Illinois as a faculty member after an absence of eight years, the Department was already firmly established and flourishing under its first Head, Robert B. Lees. (See Henry Kahane's contribution to the present volume and more fully elsewhere; cf. below).

The Department immediately assumed a leading role in the development of linguistics in the United States, as can be seen from the COPE (Committee on Program Evaluation) Report of August 1976, which had high praise for both the administrative and the academic performance of the Department and placed it clearly in the top 10 linguistics departments in the country, with a number of its programs ranking considerably higher. Only three years after its founding, the Department hosted two summer Linguistics Institutes of the Linguistic Society of America, with a repeat performance in 1978. After a quarter-century, the Department continues to play a leading role in the discipline, as witnessed by the commemorative events of this past year. In the fall of 1990, for the Twenty-Fifth Anniversary Lecture Series, eight linguists of national and international standing who had received their training in the Department were invited back to the campus, and their papers are presented in this volume. In addition, two state-of-the-art conferences and one national meeting were organized as part of the celebration:

THE ORGANIZATION OF PHONOLOGY: FEATURES AND DOMAINS, 2 - 4 May 1991, sponsored by the Department of Linguistics, the College of Liberal Arts and Sciences, the Cognitive Science/Artificial Intelligence Steering Committee, and the Beckman Institute, with the co-operation of nine other campus units (ORGANIZING COMMITTEE: Charles W. Kisseberth (Chair), Jennifer Cole, and Chin-W. Kim; INVITED SPEAKERS: Diana Archangeli, G. N. Clements, John Goldsmith, Morris Halle, Bruce Hayes, Larry Hyman, Junko Itô, Patricia Keating, Michael Kenstowicz, John McCarthy, Armin Mester, Alan Prince, Doug Pulleyblank, Donca Steriade, and Moira Yip).

THE THIRTEENTH SOUTH ASIAN LANGUAGES ANALYSIS (SALA) ROUNDTABLE, 25 - 27 May 1991, sponsored by the Department of Linguistics with the co-operation of International Programs and Studies, the Division of English as an International Language, and the Programs in Comparative Literature, in Religious Studies, and in South and West Asian Studies (LOCAL ORGANIZING COMMITTEE: Jennifer Cole, Hans Henrich Hock (Chair), Braj B. Kachru, Yamuna Kachru, Rajeshwari Pandharipande, and Girdhari Tikku). At this year's meeting, two internationally renowned scholars, Professors Bh.

Krishnamurti and Ladislav Zgusta, were honored, as was (as an unannounced surprise) the 'father' of all SALAs, Professor Braj B. Kachru.

LINGUISTICS AND COMPUTATION: COMPUTATIONAL LINGUISTICS AND THE FOUNDATIONS OF LINGUISTIC THEORY, 13 - 15 June 1991, sponsored by the Department of Linguistics, the College of Liberal Arts and Sciences, the Cognitive Science/Artificial Intelligence Steering Committee, and the Beckman Institute, with the co-operation of the Department of Computer Science, the Department of Germanic Languages and Literatures, and the Language Learning Laboratory (ORGANIZING COMMITTEE: Jerry Morgan (Chair), Jennifer Cole, and Georgia Green; INVITED PARTICIPANTS: Steven Abney, Robert Berwick, Jennifer Cole, John Coleman, Sandiway Fong, Alan Frisch, Erhard Hinrichs, David Johnson, Ronald Kaplan, Mark Lieberman, Ivan Sag, and Richard Sproat.

A volume of approximately 300 pages, entitled *Twenty-Five Years of Linguistic Research: Post-Graduate Research by Students at the University of Illinois,* has been prepared as one of the major activities to celebrate the 25th anniversary of the Department. Compiled and edited by Braj Kachru and Frances Vavrus, a special feature of the volume is the inclusion of essays on the history of the Department and its founding by Henry Kahane, Charles Osgood, Robert B. Lees, Braj B. Kachru, and Charles W. Kisseberth. These essays were originally written for a volume planned by Thomas Sebeok in 1974, but for certain reasons, the volume never materialized. The papers, therefore, have a 'flavor' of the early 1970's. In the introductory note to these papers, Henry Kahane writes: 'In certain ways, the birth and growth of a new academic department at a large modern university reflects changes in the intellectual and social climate of the Nation; it thus merits a modicum of general attention. A new discipline usually exists long before its official recognition; it is hidden under labels until the time when its inherent dynamics pushes it to the fore, when, as the saying goes, its time is ripe.' Thus the perspectives of five individual personalities, and their impact on the Department, essentially up to the 1970's, is presented in these papers. The second part of the volume consists of (1) abstracts (ca. 300-500 words each) of approximately 170 doctoral dissertations; (2) abstracts of approximately 50 masters theses; and (3) a list of over 20 Ph.D. dissertations in progress. The third part contains the following indices: (1) author index, (2) language index, (3) geographical region, (4) area of concentration, and (5) advisors. This volume will be available from the Department of Linguistics in the fall of 1991.

A particular strength of the Department has always been the diversity and high quality of its programs, not only in theoretical, socio-, and historical-comparative linguistics, but also in non-Western languages and in applied linguistics. The research productivity of the Department's faculty was displayed in striking fashion through an exhibition of faculty publications in the University Library during the month of March 1991, as part of the celebration of the Department's twenty-fifth anniversary. The exhibit was expertly arranged and annotated by Assistant Librarians Tom D. Kilton and Gail P. Hueting of the Modern

Languages and Linguistics Library. Even though all six of the large display cases in the main corridor of the University Library were utilized, only books could be included, and even then each faculty member had to be restricted to no more than four books apiece, forcing difficult choices upon many.

Under the imaginative leadership of Braj Kachru, who was Acting Department Head from 1968 to 1969 and Head from 1969 to 1979, great strides were taken to enhance the position of the Department not only on the national and international scenes, but also within the campus community, even though the Department had seemed to be in a critical state after the departure of Robert Lees, Arnold Zwicky, and Theodore Lightner, and from the collapse of the shortlived post-sputnik era of national educational enlightenment. He initiated not only the journal *Studies in the Linguistic Sciences,* which has since attained such stature as to be included among the journals surveyed by the *Bibliographie linguistique/Linguistic Bibliography,* but also the annual departmental *Newsletter,* now in its twenty-second year. He encouraged members of the faculty to launch a conference on African linguistics and himself co-organized a conference on South Asian linguistics. These conferences were the stimuli for the development of permanent national and international traditions of regular conferences attended by the leading authorities in these fields. We have just witnessed the Twentieth Annual Conference on African Linguistics, the proceedings of which are presented in *SLS* 19:2 and 20:1 (Fall 1989 and Spring 1990, edited by Eyamba Bokamba), and the Thirteenth South Asian Languages Analysis Roundtable, for which the Meeting Handbook is presented in *SLS* 20:3 (Spring 1991, edited by Hans Henrich Hock).

The Division of Applied Linguistics, established in 1976, is a research unit within the Department of Linguistics with a cross-cultural and cross-linguistic focus. It coordinates and initiates research activities in the areas of bilingualism/multilingualism, language and development, literacy, and English in a global context. The Division has organized and partially supported numerous international conferences, colloquia, and seminars, and collaborates with activities related to English in the international context initiated by Larry E. Smith of the East-West Center in Honolulu. The Division has international academic contacts with scholars and institutions in such countries as India, Nigeria, Pakistan, and Singapore, which facilitates the exchange of research in various areas of applied linguistics, particularly in the study and analysis of English in non-native contexts. Among other projects, the Division of Applied Linguistics is at present taking a leading role in the establishment of a databank for various types of non-native Englishes. Research projects initiated by the Division have been supported in the past by the Ford Foundation, the American Institute of Indian Studies, the Research Board of the University of Illinois at Urbana-Champaign, among other agencies. Coordinator of the Division is Professor Braj B. Kachru.

Under the leadership of Chin-W. Kim (Chair, 1979-1986) and Charles W. Kisseberth (Chair, 1986-1989; Acting Head, 1989-1990), the Department maintained its position of eminence in the fields of phonology, syntax, and historical

linguistics, and in the areas of applied linguistics and non-Western language teaching (particularly African and South Asian). It sought and eventually received a faculty position in semantics with formal ties to the Program in Cognitive Science/Artificial Intelligence and the Beckman Institute for Advanced Science and Technology.

The Department is intimately bound together with numerous other campus units through formally organized joint programs, e.g. in Romance linguistics with the Department of Spanish, Italian, and Portuguese, and the Department of French; in teacher education with the College of Education; in psycholinguistics with the Department of Psychology; and in applied linguistics with the Division of English as an International Language. It has both formal and less formal arrangements with units such as the Beckman Institute, the Center for African Studies, the Center for East Asian and Pacific Studies, the Center for Latin American and Carribean Studies, the Center for Russian and East European Studies, and the programs in Cognitive Science/Artificial Intelligence, in Religious Studies, and in South and West Asian Studies. In addition, the Department shares faculty members through joint and/or adjunct appointments with the following departments or programs: African Studies; Anthropology; the Center for Advanced Study; Classics; Communications Research; Comparative Literature; East Asian Languages; English; English as an International Language; French; Germanic Languages and Literatures; Language Learning Laboratory; Psychology; Slavic Languages and Literatures; Spanish, Italian, and Portuguese; and Speech and Hearing Sciences.

The centrality of the Department of Linguistics within the University of Illinois at Urbana-Champaign is clearly evident and accounts for the fact that an extraordinarily large number of its faculty members currently hold administrative appointments in campus units outside the Department: C. C. Cheng, Director of the Language Learning Laboratory; Braj B. Kachru, Director of the Division of English as an International Language; Chin-W. Kim, Director of the Program in East Asian Studies; and Ladislav Zgusta, Director of the Center for Advanced Study.

The student-body of the Department has a distinctly international make-up and orientation, which is at least partly the result of close cooperation with the Center for African Studies, the Program in East Asian Languages, and the Program for South and West Asian Studies, as well as with the Division of English as an International Language. Those graduate students who have not yet chosen an advisor are counseled by a newly established Graduate Program Coordinator, Professor Eyamba Bokamba, who also chairs the Examination and Student Evaluation Committee, while the gradually increasing enrollment at the undergraduate level has led to the formation this year of an Undergraduate Program Committee and the appointment of an Undergraduate Program Coordinator, Professor Braj Kachru, who acts simultaneously as the coordinator for teaching assistants in the undergraduate linguistics courses. Coordinator for Non-Western Languages is Professor Yamuna Kachru, assisted by Associate Professor Rajeshwari Pandharipande. In addition to the resources of the Lan-

guage Learning Laboratory, the Phonetics Laboratory, and the collections in the Modern Languages and Linguistics Library, the Africana Library, the Asian Library, and the University Library as a whole, linguistics students can avail themselves of research materials in the Henry and Renée Kahane Linguistics Research Room, which has a particularly outstanding collection of linguistics offprints.

Over the first quarter-century, the Department has trained more than 170 Ph.D.s and 50 M.A.s. The quality of the graduate program in linguistics has never been in doubt. While the number of undergraduates majoring in linguistics has traditionally been quite small, i.e. a total of 21 for the academic year 1990/91 (partly a result of the first head's belief that students should have a major in a particular foreign language), it is worth pointing out that this small body of students has shown an unusually high level of academic achievement: out of a total of EIGHT graduating linguistics majors in 1991, TWO are Bronze Tablet Scholars (i.e. they rank among the TOP 3% OF THE ENTIRE UNIVERSITY GRADUATING CLASS), and FOUR were elected to Phi Beta Kappa (i.e., in addition to other requirements, they ranked among the TOP 10% OF GRADUATES IN THE COLLEGE OF LIBERAL ARTS AND SCIENCES, by far the largest college in the University). This year the Department established an award for the Outstanding Undergraduate Student in Linguistics. The names of recipients will be inscribed on a plaque in the Henry and Renée Kahane Linguistics Research Room and they will receive a certificate and a check for $100.

During my short tenure of one year as Acting Head of the Department of Linguistics, I have come to know its faculty members much more intimately than before and to recognize in them an unusual aggregate of highly competent and dedicated scholar/teachers who will continue the proud tradition of excellence that has been the hallmark of the Department over the past twenty-five years in all its areas of responsibility. The highly successful, intellectually stimulating, and socially uplifting year-long celebrations of the twenty-fifth anniversary of the founding of the Department, so ably coordinated by Hans Henrich Hock, Chair of the Anniversary Committee, and aided by Braj Kachru, Chin-W. Kim, Charles Kisseberth, Jerry Morgan, Elmer H. Antonsen (ex officio), Rakesh Bhatt (Student Advisory Panel), and Henry Kahane (honorary member), amply attest to the energy of the individual faculty members and to the vitality of the Department as a whole.

No one need fear for the ability of the Department of Linguistics at the University of Illinois at Urbana-Champaign to face the new challenges that will inevitably arise in the next quarter-century and the new millenium.

Urbana   Elmer H. Antonsen
May 1991   Acting Head

THE ESTABLISHMENT OF LINGUISTICS AT ILLINOIS*

Henry Kahane
(University of Ilinois at Urbana-Champaign)

At Illinois, as elsewhere, Linguistics grew not so much from a single department as from a constellation of them. By the mid- and late forties, we had a group of faculty members, most of them associated with the Linguistic Society of America, who, in their respective departments and through common gatherings, tried to promote the cause of Linguistics. The most active were: in Speech, Lee Hultzén (1896-1968), oscillating between phonetics and phonemics, and Grant Fairbanks (1910-1964), an experimental phonetician and specialist in the acoustics of speech; in Psychology and Communications, Charles Osgood, the psycholinguist, and his faithful collaborator, Howard Maclay, who contributed to the concept of hesitation phenomena; in Philosophy, Leonard Linsky (at the University of Illinois from 1948 to 1967), the semanticist; in Anthropology, Joseph Casagrande (with us since 1960), an ethnolinguist, with special interest in the Amerindians, a scholar who activated the anthropologist's concern with linguistics; and in Romance (Spanish and Italian), the present chronicler, Henry Kahane, philologist. In terms of the general background, the terrible event of World War II proved to be a boon for linguistics: The Linguistic Society developed the so-called Army Method for teaching foreign languages to enlisted men, and through applied linguistics made university communities (among them, Illinois) aware of the existence of linguistics itself.

We decided to launch a Department of Linguistics. The academic steps, one after another, were the usual ones: (a) A small curriculum with a director but minus a budget, using the available faculty members on released time; (b) a modest budget for the curriculum; (c) an officially established Department under a head and with members still largely from other departments; and finally (d) a regularly constituted Department. The Department's foundation was a long affair which took about eighteen years. We succeeded when, after many hopeful and hopeless memoranda and frustrating nos, two Deans of our Liberal Arts College sensed the potentialities of the newcomer: the late Lyle Lanier (later Provost of the University) and Jack Peltason (later Chancellor of our Campus and now at the University of California at Irvine)). The program of the early

stage was determined, first, by the constraint, in view of our budgetary conditions, to use just the men and the courses available on campus, and second, by our consensus to balance, within what was available, the various directions of linguistics: These were, by then, psycholinguistics, phonology and experimental phonetics, semantics, and historical linguistics. The addition of a theoretical linguist was the most urgent desideratum: We had no doubt that linguistic theory would become the core of the curriculum. By 1961, the Program in Linguistics was in existence as a graduate program; in 1965 departmental status had been reached.

Five men have played a preponderant role in the early history of our department: Henry Kahane, a historian and comparatist linking linguistics to the humanities, the founder and first director, who put the curriculum on its feet and established the basic design for his successors to build on; Charles Osgood, who cooperated from the very beginning in the founding of the Department, the widely known creator of psycholinguistics, whose influence and prestige greatly helped to convince the skeptics, and whose field became one of the hallmarks of the linguistic offerings at the University of Illinois; Robert Lees, the representative of standard transformational theory, a brilliant intellectual, the first head, who gave to the department its decisive direction and put it on the map; Braj Kachru, our sociolinguist, who with extraordinary energy and never-failing gentlemanliness steered the department from its modest beginnings to a complex and flourishing University unit; and Charles Kisseberth, a leading neo-transformationalist, who gathered about him an enthusiastic group of adepts trying to push back the known frontiers. Nationwide, the curricula look very much alike. The real image of the Department was to be found in the personalities that made up the team.

NOTE

* This contribution is a brief excerpt from the talk 'Linguistics as personal experience: The formation of a department' with which Henry Kahane inaugurated the fall 1990 lecture series in honor of the twenty-fifth anniversary of the Department of Linguistics. It presents his personal reminiscences on the establishment of Linguistics at Illinois. The bulk of his presentation is to appear elsewhere.

COGNITIVE GRAMMAR: THE SYMBOLIC ALTERNATIVE

Ronald W. Langacker
(University of California, San Diego)

Whatever its reputation might be among those who have not been privileged to study it, in actuality COGNITIVE GRAMMAR is the simplest, most natural, down-to-earth, and non-speculative account of linguistic structure that I am aware of — the one most closely tied to observable phenomena. Yet because it represents a distinct, non-standard vision of language and linguistic investigation, a minimally adequate introduction is hardly possible in a short paper, or even in a full course. The following should therefore be thought of as a whirlwind tour that may afford some appreciation of its guiding spirit and descriptive strategy. (A reasonable basis for assessing its insights and explanatory potential may be obtained through assiduous study of the selected references in the Appendix.)

Language permits the symbolization of conceptual structures by means of phonological sequences. Granted this characterization, cognitive grammar takes the simplest, most straightforward approach possible to linguistic structure. Its central hypothesis is that language comprises semantic structures, phonological structures, and symbolic links between them — nothing more. A symbolic structure is said to be BIPOLAR: A semantic structure functions as its SEMANTIC POLE, and a phonological structure as its PHONOLOGICAL POLE, as shown in Fig. 1(a). Semantic, phonological, and symbolic structures of any degree of complexity are capable of being formed and coalescing as established UNITS, as sketched in Fig. 1(b). This much clearly has to be imputed to language. The central thesis of cognitive grammar is that ONLY this much need be imputed to it. In particular, lexicon, morphology, and syntax are seen as forming a gradation and as being fully describable by means of symbolic units alone.

Very stringent limits are imposed on what kinds of units one can postulate. The CONTENT REQUIREMENT specifies that the only units ascribable to a linguistic system are semantic, phonological, and symbolic structures that are part of overtly occurring expressions, SCHEMATIZATIONS of permitted structures, and CATEGORIZING RELATIONSHIPS between permitted structures. To see what this

means, consider a phonological example. The syllables [tap], [bed], and [ræn] are parts of overtly occurring expressions. The syllable canon [CVC] represents a schematization over such structures. And the following formula, with a solid arrow, indicates the categorization of [tap] as an instance of the [CVC] category: [[CVC]→[tap]]. The content requirement rules out all descriptive constructs that are arbitrary in the sense of not being immanent or directly discernible in the primary data of actual expressions. For example, it precludes the use of empty diacritics, or of any other construct attributed neither phonological nor semantic content (e.g. phonologically null syntactic 'dummies'). It also prevents one from generating every possible string of elements and then imposing the needed restrictions by means of a set of 'filters' that specify what can NOT occur. No other framework imposes such a powerful constraint.
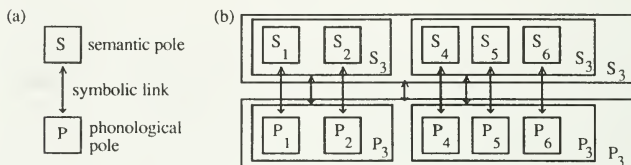
Figure 1

If it is workable, linguistic theorists ought to embrace this conception of language structure and abandon it only with the greatest reluctance in the face of overwhelming empirical evidence. Why? Because it is intrinsically desirable on grounds of conceptual unification, theoretical austerity, and naturalness. The conceptual unification it achieves — positing only symbolic links between semantic and phonological structures — is analogous to the 'Holy Grail' of theoretical physics: a unified theory of the strong, weak, electromagnetic, and gravitational forces. The content requirement imposes a severe austerity on the types of constructs theorists are allowed to invoke. Cognitive grammar is natural by virtue of being solely and squarely based on the function of language as a way of expressing meaning, and also because it invokes only obvious or easily demonstrable cognitive abilities, such as the following:

(1)   a.   the ability to form structured conceptualizations
       b.   the ability to perceive and articulate phonological sequences
       c.   the ability to establish symbolic associations between conceptual and phonological structures
       d.   the ability to use one structure as a basis for categorizing another
       e.   the ability to conceive a situation at varying levels of abstraction (schematization)

    f.   the ability to detect similarities between two structures
    g.   the ability to establish correspondences between facets
        of different structures
    h.   the ability to combine simpler structures into more
        complex ones
    i.   the ability to impose figure/ground organization on a
        scene
    j.   the ability to construe a conceived situation in alternate
        ways

But is it in fact workable? I believe so, and along with others I have been striving for over a decade to show just how — step by step and phenomenon by phenomenon. But does it not conflict with a fundamental tenet of generative theory, namely the thesis that grammar is autonomous? And has that thesis not been established beyond all reasonable doubt? It does contradict the autonomy thesis. However, I do not accept that thesis as having been established; I would argue instead that consideration of the issue has been clouded by erroneous assumptions and lack of imagination in regard to possible alternatives.

For one thing, standard arguments for grammatical autonomy presuppose an inappropriate view of linguistic semantics, namely an objectivist view based on truth conditions. For instance, the fact that either a verb or a noun — such as *explode* and *explosion* — can refer to the same event is taken as indicating that they have the same meaning and consequently that the noun and verb classes cannot be semantically definable. Suppose, however, that one adopts a subjectivist or conceptualist view of meaning. One can then argue (and intuitively I find it quite obvious) that *explode* and *explosion* have DIFFERENT meanings — more specifically, that the nominalization of *explode* to form *explosion* involves a kind of CONCEPTUAL REIFICATION. If so, semantic characterizations of the noun and verb classes remain possible, at least in principle. Also erroneous is the assumption that a grammatical morpheme must be meaningless unless one can formulate a single meaning that accounts for all its uses. We know, however, that lexical items are almost invariably polysemous, having not just one meaning but a family of related senses. Why should the same not be true of grammatical elements? In its different uses, for example, dative case in German has such meanings as 'experiencer', 'recipient', and 'source of a path'. There are plausible connections among these senses, and failure to reduce the German dative to a single Gesamtbedeutung would not entail that it is meaningless.

Consideration of the autonomy thesis has not been a model of conceptual lucidity. I will understand that thesis as claiming that grammar constitutes a separate level or domain of linguistic structure — with its own primitives, representations, and so on — that is properly described without essential reference to meaning. Now it is commonly assumed (explicitly in Newmeyer 1983) that

such autonomy is established if any aspect of grammatical structure is less than fully predictable on the basis of meaning or other independent factors — i.e. if any facet of grammar has to be learned or stated explicitly instead of simply 'falling out' as an automatic consequence of other phenomena. And of course, any clear-headed person must recognize that absolute predictability of this sort cannot be achieved. Grammatical patterns and restrictions do have to be specifically learned and explicitly described. In that sense, grammar IS autonomous. Crucially, however, this does not entail the autonomy thesis as defined. To proceed from non-predictability to the further conclusion that grammar represents a separate, asemantic domain of linguistic structure is to embrace the type/predictability fallacy — it confuses two quite distinct issues, namely what kinds of structures there are, and the predictability of their behavior.

Unconfusing these issues allows one to formulate a position that I will call the SYMBOLIC ALTERNATIVE: that grammatical patterns and restrictions are indeed less than fully predictable, but that their description requires nothing more than symbolic units, each with both conceptual and phonological import. This represents a fundamental claim of cognitive grammar. In what follows, I will try to show that a grammatical description employing only symbolic units is workable, at least in principle. To do this, I must start by sketching an appropriate view of linguistic semantics.

I take a subjectivist approach to semantics, in which meaning is equated with conceptualization in the broadest sense of that term (any kind of mental experience). Moreover, a particular symbolic unit — such as a lexical item or a grammatical morpheme — typically has more than one meaning. That is, its meaning represents a COMPLEX CATEGORY. Most linguistic categories are complex in the sense that they do not reduce to any single structure — such a category must instead by described by a NETWORK whose nodes are structural VARIANTS and whose links are CATEGORIZING RELATIONS. Two basic types of categorizing relationships can be distinguished. A solid arrow is used for ELABORATION (or INSTANTIATION), where the categorizing structure is SCHEMATIC and its instantiation is characterized with greater precision and detail. A dashed arrow stands for EXTENSION from a PROTOTYPE, which — unlike instantiation — implies some conflict in specifications between the two structures. A linguistic expression having multiple, related senses is said to be POLYSEMOUS: Semantically it comprises a complex category representable as a network, as illustrated in Fig. 2, where heavy lines indicate the prototypicality of certain senses.

Cognitive semantics is ENCYCLOPEDIC, in that it denies the existence of any sharp, motivated boundary between semantics and pragmatics, or 'linguistic' and 'extra-linguistic' knowledge. Instead, an expression is thought of as flexibly invoking a large array of potentially open-ended knowledge systems, which provide the basis for its semantic characterization. I refer to these as COGNITIVE

DOMAINS. For example, the conception of the overall configuration of an arm is one cognitive domain invoked for the characterization of *elbow*. Similarly, the meaning of *onside kick* presupposes substantial knowledge of the rules, strategies, and objectives of football. Given the appropriate knowledge base, describing the meaning of such expressions is fairly straightforward; without it, the task is hopeless. Observe that a cognitive domain represents an integrated conception or conceptual complex — it is not equivalent to a bundle of semantic features or criterial attributes. In this view, linguistic semantics cannot be divorced from the study of conceptual structure and cognitive development.
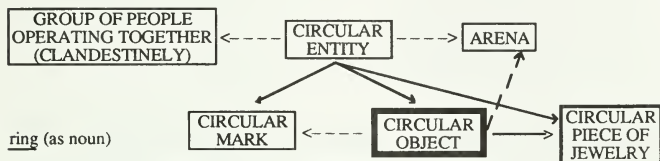
Figure 2

It is essential to realize, however, that an expression's meaning is more than just an array of conceptual content. Linguistic meaning depends not only on the content evoked, but also on how that content is CONSTRUED. Commonly, in fact, expressions that invoke roughly the same body of conceptual content are nevertheless semantically distinct because they construe it in different manners. There are many aspects or dimensions of construal, only a few of which are singled out here for brief illustration.

First, a conceived entity or situation can be characterized at different levels of specificity and detail. Listed in (2) are three sets of expressions related in this fashion; within a given set, each expression is schematic with respect to the one that follows (as indicated by the solid arrows).

(2) a. thing $\rightarrow$ animal $\rightarrow$ mammal $\rightarrow$ dog $\rightarrow$ beagle
    b. do $\rightarrow$ act $\rightarrow$ propel $\rightarrow$ throw $\rightarrow$ hurl
    c. Something happened. $\rightarrow$ Someone did something. $\rightarrow$
        An adult propelled a physical object. $\rightarrow$ A women threw
        a rock at a mammal. $\rightarrow$ A muscular woman hurled a
        large, jagged rock at a vicious beagle that had been
        growling at her.

Observe that such relationships hold not only between lexical items, but also between novel expressions of any size, as in (c). Indeed, there is no fundamental distinction in this framework between 'lexical' and 'sentential' seman-

tics — the same constructs are used for the semantic description of semantic structures at any level of organization.

A second aspect of construal is the assessment of one structure against the BACKGROUND provided by another. Under this rubric fall such notions as presupposition, metaphor, and construal relative to different assumptions and expectations. Previous discourse constitutes another kind of background; it is in this respect that sentences (3a-c) contrast semantically although they describe the same event in the same words.

> (3) a. JACK insulted Jill.
>   b. Jack INSULTED Jill.
>   c. Jack insulted JILL.
>   d. They {even/only} have three cars.

Note that certain expressions, such as *even* and *only* in (3d), have no other function than to indicate where something falls in regard to expectations.

A third aspect of construal is what I refer to as SCOPE. An expression's scope is the extent of its coverage in relevant cognitive domains, i.e., how much of those domains it specifically evokes and relies on for its characterization. For example, the conception of an arm provides the immediate scope for the characterization of *hand,* while the conception of a hand is the immediate scope for finger, and that of a finger for *knuckle.* Though usually implicit and only vaguely delimited, scope has important structural consequences — note, for instance, that we say *fingernail* rather than *handnail* or *armnail.* The same expression can often be construed with different scopes. Thus (4a) invokes the minimal scope for *jump* (it need only include the conception of someone leaving the ground), whereas the scope of *jump* in (4b) subsumes an entire scenario of preparation, running, leaving the ground, sailing through the air, landing, and measurement.

> (4) a. She jumped to a height of seventeen inches.
>   b. Carl Lewis is jumping now.

The fourth dimension of construal, PERSPECTIVE, includes such factors as VANTAGE POINT, ORIENTATION, and DIRECTIONALITY. The first two terms are self-explanatory and can be illustrated by the expression *in back of.* In some uses, this expression invokes an implicit vantage point; thus, in Fig. 3, *The tree is in back of the rock* is appropriate with respect to vantage point 1, but not with respect to vantage point 2. In other uses, *in back of* relies on the orientation of its object; it is Jill's orientation in Fig. 3(b) — the fact that she is facing away from Jack — that makes the sentence *Jack is in back of Jill* felicitous.

The term 'directionality' is also self-explanatory in examples like (5), which describe the physical motion of an explicitly-mentioned participant.

(5)   a.   The balloon rose swiftly from the valley floor.
       b.   The rocket fell to the ground.
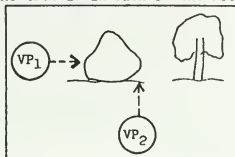
(a) The tree is in back of the rock.   (b) Jack is in back of Jill.
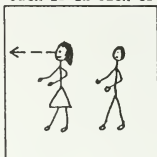
Figure 3

(6)   a.   The hill gently rises from the bank of the river.
       b.   The hill gently falls to the bank of the river.

(7)   a.   This nerve branches just below the elbow.
       b.   These nerves merge just below the elbow.

However, consider examples (6) and (7). In each case we find a pair of sentences that describe the same situation yet differ in meaning. Intuitively, moreover, the semantic contrast is in each case ascribable to a difference in directionality. But nothing moves, at least objectively — all four sentences describe single, static configurations. The directionality responsible for the meaning contrasts must therefore be subjective, i.e. a matter of construal. What we want to say (based on intuition) is that the speaker or conceptualizer (as opposed to the subject) scans mentally through the scene in one direction or the other. In (7), for example, (a) is appropriate when one is mentally tracing a nerve's outward path from the central nervous system, whereas (b) would be used when tracing its inward path from the periphery. I take this subjective directionality, residing in the direction of mental scanning by the conceptualizer, to be an inherent aspect of the linguistic semantic value of such expressions.

The last dimension of construal is the relative PROMINENCE accorded to the various facets of a conceptualization. By itself, of course, the term 'prominence' is vague and uninformative. There are numerous ways in which a conceived entity can be considered prominent, so a substantive analysis has to sort these out and properly distinguish them. I will concentrate here on just two kinds of prominence, both essential to grammatical structure. These are DESIGNATION and FIGURE/GROUND ORGANIZATION.

As one aspect of its meaning, every linguistic expression is construed as designating some entity within its scope. I will say that it imposes a particular PROFILE on the BASE its scope provides. Intuitively, the entity accorded this special kind of prominence is something like a focus of attention. An expression's profile can also be thought of as its referent — not its referent in the 'world' (if indeed it has one), but rather its referent within the conceptualization that functions as its base. For example, consider the nouns *hub, spoke,* and *rim.* In the pertinent sense, each invokes as its base the conception of a wheel; its role within the overall configuration of a wheel is crucial to its semantic characterization. The nouns differ semantically because they profile different substructures within this common base, as sketched in Fig. 4. (Observe that profiling is indicated by heavy lines.) We see from this simple example that two or more expressions may invoke essentially the same conceptual content, yet have distinct meanings by virtue of their contrasting profiles.
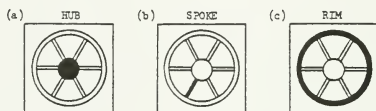
Figure 4

I use the term PREDICATION for the meaning of any expression, irrespective of its size or type. There are two basic kinds of predications: those which profile things, and those which profile relations. The terms 'thing' and 'relation' are used in a technical sense and defined quite abstractly. By 'thing' I do not mean just a physical object, but rather anything that can be characterized as a region in some domain. When used as a noun, for instance, *yellow* profiles (i.e., designates), a region in color space; a notation for this is given in Fig. 5(a). Similarly, *January* profiles a region within the conception of the calendrical cycle; *paragraph* designates a region within a written work; and *intermission* profiles a region within some kind of performance — a region characterized by the absence of the specified activity.
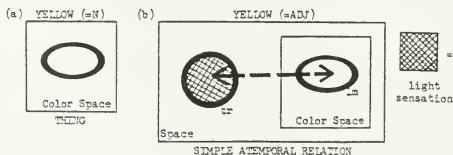
Figure 5

The term 'relation' is also used in a very general sense. We can think of a conceived relationship as residing in cognitive operations assessing the location, relative position, or interaction of entities within a domain. Like things, relations can stand in profile, i.e., they can be designate by linguistic expressions. When used as an adjective, for example, *yellow* profiles the relationship sketched in Fig. 5(b). Participating in this relationship are two things: One is the same region in color space profiled by the noun *yellow*; and the other is an object that is the locus of a light sensation (usually on its outer surface). The dashed arrow stands for the profiled relation, namely the specification that the light sensation in question falls within the yellow region of color space. Crucially, the entities participating in a relationship need not be distinct, salient, or mentioned individually. The adjective *yellow* can therefore be relational even though it takes only one overt argument, corresponding to the locus of the sensation (as in *yellow shirt*). Since the other relational participant (a region in color space) is uniquely identifiable from the adjective itself, there is no need to spell it out with a separate nominal argument. Likewise, the adjective *square* is considered relational even though it too takes just one overt argument (e.g. *square table*). The profiled relationship (equality of the sides, etc.) holds among subparts of the single participant, not between distinct participants.

Like nominal predications (which profile things), RELATIONAL PREDICATIONS sometimes invoke the same conceptual content yet differ in meaning by virtue of their profiles. In their prototypical senses, for example, both *give* and *receive* evoke as their base the conception of a canonical act of transfer. They contrast semantically because they profile different facets of this complex interaction, as shown in Fig. 6: *give* focuses on the agent's interaction with the mover, and *receive* on the recipient's.

A = agent   M = mover   R = recipient   ===> = energy transfer   ——> = motion
----> = perception/possession   .... = correspondence/identity   ( ) = sphere of control
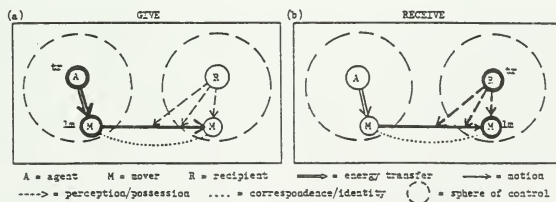
Figure 6

Yet profiling is insufficient by itself to distinguish many sets of relational predications that evoke the same conceptual content. Crucial in this regard is a final aspect of construal, namely the relative prominence accorded the various

relational participants. I interpret this as being a matter of figure/ground organization. The term TRAJECTOR (tr) is used for the participant serving as the figure in a profiled relationship; a salient entity other than the trajector is referred to as a LANDMARK (lm). Consider the expressions *in front of* vs. *in back of*. They are clearly not synonymous, but precisely how to characterize their semantic difference is less than obvious. (The traditional practice of referring to them as converses or relational opposites merely labels the difference without providing a characterization.) As sketched in Fig. 7, the two expressions pertain to the same configuration, each profiling the relationship wherein one participant is roughly in the line of sight leading from a vantage point to the other participant. The difference, I suggest, is that *in front of* takes the far participant as a landmark for locating the near one, whereas *in back of* takes the near participant as the landmark. The other participant — the one being located — is the trajector, which I characterize as the figure within the scene.
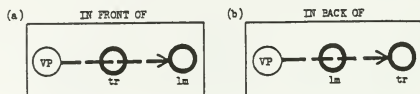
Figure 7

A comparable analysis is offered for the examples in (8), which I regard as non-synonymous despite their truth-conditional equivalence.

  (8) a. Line A is parallel to line B.
       b. Line B is parallel to line A.
       c. Lines A and B are parallel.

When I say that *A is parallel to B,* I am concerned with locating A and use B as a landmark for this purpose. Conversely, *B is parallel to A* makes B the figure within the scene and locates it with reference to A. What about the third example? I see no reason not to take the surface evidence at face value: The figure within the profiled relationship is not either line individually, but rather the higher-order entity comprising both lines. There is nothing mysterious or unnatural about this — note that comparable higher-order entities are profiled by nouns like *pair, set, row,* and *colonnade.* When the ensemble comprising A and B is accorded the status of trajector (i.e. relational figure), the profiled relationship no longer holds between distinct participants, but rather between what are construed as facets of a single higher-order participant (just as in the case of *square*).

Given a conceptualist semantics of this sort, based on construal, it becomes feasible at least in principle to claim that all valid grammatical constructs have some kind of meaning or conceptual import. In the symbolic alternative,

grammatical structure itself is inherently meaningful, consisting solely in patterns for the structuring and symbolization of conceptual content. By choosing one grammatical construction or grammatical marker rather than another, one is inherently choosing to construe and portray a situation in a particular way — the difference in form symbolizes a meaning difference. Construal is especially important for understanding grammatical structure: Though lexicon and grammar form a gradation, it is not a gross distortion to say that the primary function of the lexicon is to provide conceptual content, and that grammar imposes a particular construal on such content.

Importantly, it is not claimed that grammar is predictable from meaning — and certainly not from meaning of the sort contemplated in objectivist or truth-conditional semantics. The claim is rather that a grammatical element is inherently symbolic, or bipolar: Its semantic pole embodies a particular way of construing conceptual content, while its phonological pole provides a way of symbolizing that construal. Moreover, we cannot determine construal simply by consulting intuitions — indeed, we tend to be oblivious to construal (certainly most traditional semantic theory has been), perhaps because we are more concerned with the content conveyed. What construals expressions impose, and the optimal way to describe them, are matters that have to be determined by careful investigation and ultimately require some kind of explicit justification. What this means in practice is that an account of meaning and an account of grammar have to be developed simultaneously, each supported and informed by how it articulates with the other. It is the insight and coherence of the overall account that demonstrates the viability of the general approach.

What kinds of justification can in principle be offered for semantic descriptions of the sort proposed? One kind is intuitive naturalness — for whatever that may be worth. A more substantive point is that the analyses rely only on well-established cognitive phenomena (such as figure/ground organization, the ability to focus attention on some limited aspect of a scene, our capacity to conceive of a situation at different levels of specificity, and so on). Furthermore, a particular, restricted set of descriptive constructs are employed that prove systematically applicable to an extremely broad array of diverse data. For instance, the notion of profiling is applicable to all expressions at every level of organization (not just lexical items), and trajector/landmark organization holds for all relational predications.

Another potential source of justification are predictions about distribution and well-formedness that follow from the different construals imputed to otherwise similar expressions. Consider the contrast in (9a) between *few* and *a few*.

(9) a.   He has {few/a few} close friends.
     b.   {Few/*A few} linguists have any common sense.

In terms of absolute quantity, they may be the same — with either one, there might be just three close friends, for instance. I would argue, however, that *few* is negative in the sense that it construes the quantity as a downward departure from some norm or expectation, whereas *a few* is positive because it views the quantity relative to a baseline of zero. These characterizations afford the prediction that *few*, but not *a few*, should be able to sanction a negative polarity item, such as *any*. We see from (9b) that this is in fact the case.

I have in general concentrated more on two other sources of justification: Proposed semantic descriptions must be able to support a revealing characterization of grammatical structure, and they must allow one to represent, in a non-ad-hoc way, both the similarities and the subtle differences among sets of expressions that are comparable in the conceptual content they invoke. Illustrating both points are the examples in (10), involving different uses and senses of *open* or the participle *opened*.

(10) a. A butler OPENed the door.
     b. The door OPENed easily.
     c. Just then the door OPENed.
     d. The door was OPENED by a butler.
     e. the OPENED door
     f. the OPEN door

The respective senses of *open* and *opened* are diagrammed in Fig. 8, where heavy lines indicate profiling, *tr* identifies the trajector (relational figure), and a circle or ellipse represents the scope of predication.
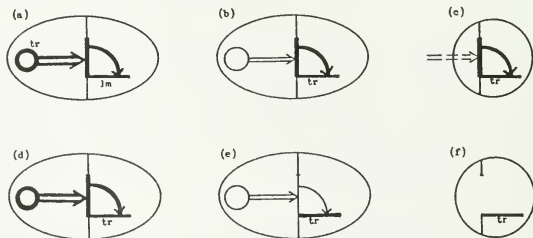
Figure 8

Fig. 8(a) depicts *open* in its use as a transitive verb. It profiles both the transmission of energy (indicated by the double arrow) and the motion that results (represented by the single arrow). Observe that the agent is chosen as tra-

jector, and the mover is singled out as a participant with substantial prominence (hence a landmark). I have argued elsewhere (1982) that the corresponding passive — *be opened* — also profiles this full course of action, as shown in (d). The active/passive contrast does not reside in content or profiling, but only in the choice of trajector. Consequently, the distinctive property of (d) is simply that the mover (rather than the agent) stands out as the figure within the scene.

Next consider (b), *The door opened easily.* This expression does invoke the efforts of an agent (otherwise the adverb *easily* makes no sense), yet somehow we also want to say that it only describes what the door does, not the agent. In the present framework, this amounts to saying that the agent and the force it exerts are included within the scope of predication but remain unprofiled; what (b) profiles — designates — is merely the door's resultant motion. This construction is like a passive in that the mover (or undergoer) is selected as relational figure, but it differs from both a passive and an active transitive by virtue of its limited profile.

Let us now examine the contrast between (b), *The door opened easily,* and (c), *Just then the door opened.* Both involve an intransitive sense of *open* that profiles only the motion of the door (the trajector). The difference is that (c) does not necessarily invoke the conception of an agent or the transmission of energy — the door's motion is portrayed more as a spontaneous occurrence. To be sure, this is a matter of degree, strongly influenced by the accompanying adverbs, but nothing hinges on there being a sharp or absolute distinction. To the extent that we do observe the contrast, it is describable with reference to scope of predication: whether (or to what degree) the scope extends beyond the profiled movement to encompass the force that induces it.

Finally, we must consider the distinction between the stative participle and the simple adjective, i.e. between *the opened door* and *the open door.* Each modifier profiles a particular spatial relationship involving its trajector — precisely the same relationship in both instances. The difference is that an *opened* door has to have undergone the process of opening, whereas an *open* door need not have (e.g., it may have been placed on its hinges in the open position and never have been closed). In other words, *opened* evokes as part of its base the conception of the transitive event of opening, and within that base it profiles only the final, resultant spatial configuration of the door. By contrast, the adjective *open* has the same profile but does not necessarily include within its scope any conception of the process of opening.

What have we done here? We have taken some of the constructs required for lexical semantics and used them to describe in conceptual terms the similarities and differences among expressions representing distinct grammatical constructions (active, passive, patient-subject construction, etc.). Perhaps this affords an initial glimpse of how a particular type of semantic description can be

said to articulate with a certain conception of grammatical structure in a mutually supportive fashion.

Let us now direct our attention to grammar per se. The issue is whether — as one would hope — a workable account of grammatical structure can in fact be devised that posits only symbolic units. Such an account will have to handle all of the phenomena listed in (11), which are generally taken as supporting the autonomy thesis:

(11) Need to account for:
    a.   grammatical categories;
    b.   grammatical rules and constructions;
    c.   supposed representations and primitives specific to grammar;
    d.   "semantically empty" grammatical markers;
    e.   the semantically arbitrary fact that expressions often have to take a certain form, even though another form could perfectly well express the same meaning;
    f.   non-predictabilty of the class of elements that participate in a particular morphological or syntactic construction;
    g.   the apparent ability to judge grammaticality independently of meaning;
    h.   restrictions that apparently have to be stated in purely formal terms.

I will now consider each matter in turn and indicate, at least in very broad terms, how the symbolic alternative can in principle accommodate it.

The first phenomenon is the existence of basic grammatical categories, such as *noun, verb, adjective,* etc. These are often considered grammatical "primitives", on the grounds that they are not susceptible to semantic characterization — and certainly they are not if one adheres to an objectivist view of meaning. If, however, one adopts a subjectivist view of meaning that properly recognizes the pivotal role of construal, semantic characterizations can be envisaged that are at least coherent (even if not demonstrably valid). In a recent article (1987), I have made reasonably explicit proposals about what it is that all nouns have in common semantically, and all verbs, as well as their major subclasses (count vs. mass nouns, perfective vs. imperfective verbs). By way of partial justification, I showed that the analysis makes it possible — in the manner of (10) and Fig. 8 above — to give precise characterizations of the semantic similarities and differences among various types of relational predications (such as verbs, adjectives, prepositions, infinitives, present participles, and the several kinds of past participles), and that their meanings allow us to explain much of their grammatical behavior as well as central features of the English auxiliary. I cannot go through the analysis here, but I recommend it as an example worked out in considerable detail of how a symbolic account of grammar that properly

recognizes the role of construal is able to make sense of what are usually regarded as purely formal classes, patterns, and restrictions.

Adopting the perspective of cognitive grammar, we can make the generalization that an expression's grammatical category is determined by the nature of its profile — it is thus a matter of construal rather than of content per se. For this reason a transitive verb like *open*, its intransitive counterpart, and the stative participle *opened* formed on it can all represent distinct grammatical classes despite invoking exactly the same conceptual content (as sketched in diagrams (a), (b), and (e) of Fig. 8). Now, I have already made a broad distinction between expressions that profile things and those that profile relations, and emphasized that these are technical notions defined quite abstractly (e.g., a thing is a region in some domain, not just a physical object). We can now characterize a NOUN as an expression that profiles a thing, whereas other basic classes — such as adjectives, prepositions, participles, and verbs — designate different sorts of relations. A VERB profiles a complex relation that saliently involves time in particular ways. I call this a PROCESS. Other relational predications profile ATEMPORAL RELATIONS.

Some notational abbreviations are given in Fig. 9. A circle abbreviates a thing. A simple relationship is represented by a line connecting the relational participants. Some relations are complex, in the sense that they do not reduce to a single, consistent configuration but rather comprise a series of configurations, or states. A process is a complex relation that further invokes the notion of time, in two ways. First, the component states of the process are conceived as being distributed through a continuous span of time, represented by the arrow (how many states are depicted diagrammatically is arbitrary — three are shown in this diagram, just one in others; the important thing is that they form a continuous series). Second, a process is temporal in the sense that the conceptualizer scans through the component states sequentially rather than construing it in a purely holistic fashion.
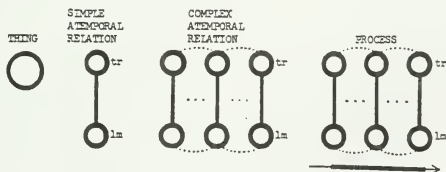
Figure 9

Some illustration is provided in Fig. 10. The preposition *in* designates a simple atemporal relation involving two things, prototypically a relationship of spatial inclusion. *Into,* in contrast, profiles a complex relation, which does not reduce to a single spatial configuration, but resides instead in a series of such relations. Observe that the final component state of *into*'s profile matches the single component state profiled by *in*. The dotted lines represent correspondences. Here they show that *into* has the same trajector in all its component states, as well as the same landmark. At least in terms of the spatial path it describes, the verb *enter* is the same as *into*. The major difference is that *into* is merely a complex locative predication, while *enter* — as a verb — highlights the temporal evolution of the spatial relationship, in the ways just described.
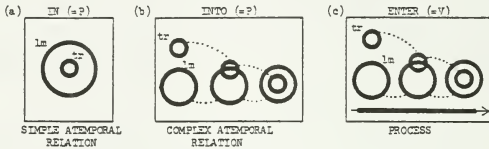
Figure 10

After this all-too-brief discussion of grammatical classes, let us now consider how RULES and CONSTRUCTIONS can be handled in the symbolic approach. Rules and constructions are actually not distinguished in this framework: In accordance with the content requirement, grammatical rules take the form of constructions characterized schematically. That is, rules are simply schematizations over sets of overtly-occurring expressions parallel in formation, representing whatever commonality is observable in these expressions. I thus refer to such a rule as a CONSTRUCTIONAL SCHEMA. Internally, a constructional schema is a complex symbolic structure directly analogous to the expressions it schematizes — it is merely more abstract. The function of a constructional schema is threefold: (i) it captures whatever generalizations are inherent in the primary data; (ii) it is available as a template for constructing or evaluating other expressions on the same pattern; and (iii) its categorization of such an expression constitutes the latter's structural description. (Let me note in passing that cognitive grammar basically subsumes the theory of construction grammar being developed by Fillmore (1988) and others. The major difference is that proponents of construction grammar would not necessarily accept my conceptual characterization of basic grammatical categories, hence their approach does not achieve the full reduction of grammar to configurations of symbolic structures.)

What do I mean by 'construction'? A construction is a specific, symbolically complex expression, or else a schematization over such expressions at some level of abstraction. In the simplest case, a construction involves the combination, or integration, of two symbolic structures to form a symbolic structure of greater complexity. I will say that two component structures are integrated to form a composite structure. Their integration is BIPOLAR, i.e. it takes place at both the semantic pole and the phonological pole. Integration is effected by correspondences established at each pole between substructures of the two components. The composite structure results from merging the two component structures through the superimposition of corresponding entities.

An example should make this clear. Represented in Fig. 11(a) (next page) is a simple symbolic structure, namely the noun *balloon*. The picture at the semantic pole is purely mnemonic — it abbreviates the full, multifaceted conceptual complex that constitutes our understanding of this notion. (As an aside, I should note that cognitive grammar makes no claim whatever that meaning reduces to visual images, or that drawings done for expository purposes are the formal objects of semantic description. These common misconceptions have no basis in anything I have ever said or written.) The notation given at the phonological pole similarly abbreviates a complex phonological structure. Note in particular that the ellipse labeled W represents a 'word', and that the arrow labeled T stands for 'speech time'.

In a simple construction, two symbolic structures of this sort function as component structures, and are integrated to form a composite structure, as shown in Fig. 11(b). The dotted lines indicate the correspondences that effect this integration at each pole. That is, some facet of s_1 is put in correspondence with some facet of s_2, where s_1 and s_2 are the semantic poles of the two component structures. Likewise, some facet of p_1 is put in correspondence with a facet of p_2, where p_1 and p_2 are the component structures' phonological poles. By the superimposition of corresponding entities, s_1 and s_2 merge to form s_3, while p_1 and p_2 merge to form p_3. This is COMPOSITION — it yields a composite structure in which s_3 is symbolized by p_3.

Consider the integration of the adjective *yellow* and the noun *balloon* to form the phrase *yellow balloon* *Yellow* and *balloon* are the two component structures. Their integration at the semantic pole is diagrammed in Fig. 12(a), and their phonological integration in 12(b). At the semantic pole, *yellow* profiles a simple atemporal relation, as previously described (Fig. 5(b) above), while *balloon* designates a thing. Recall that the landmark for *yellow* is a region in color space, and its trajector a physical object that is the locus of a light sensation. Semantic integration is effected by a correspondence that identifies this trajector with the thing profiled by *balloon*. Superimposing these entities yields the composite structure shown at the top, in which the locus of the color sensation is specified as being a balloon in particular. Observe that the
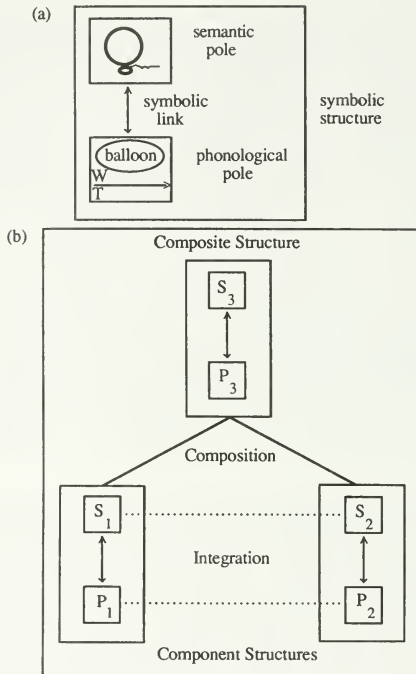
Figure 11

composite structure designates the *balloon* — its relationship to color space is included within the scope of predication but is unprofiled at the composite-structure level. Hence *yellow balloon,* taken as a whole, is categorized as a (complex) noun.

This semantic integration is symbolized by the phonological integration of *yellow* and *balloon,* sketched in Fig. 12(b). Specifically, *balloon* is identified as the word that directly follows *yellow* along the temporal axis. That is, the temporal contiguity and ordering of *yellow* and *balloon* symbolizes their semantic relationship, wherein the property of being the locus for a yellow sensation is attributed to the balloon rather than to some other object.
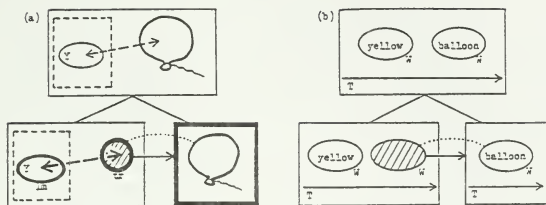
Figure 12

Yellow balloon, of course, instantiates a general pattern for the integration of adjectives with nouns in English. In cognitive grammar, that pattern — or rule — takes the form of a constructional schema, which is nothing more than a schematization of such expressions. This particular constructional schema is diagrammed in Fig. 13. It is a complex symbolic structure whose internal organization is directly analogous to *yellow balloon* and other instantiating expressions, the only difference being that specific characterizations of the adjective and noun are replaced by schematic characterizations: Semantically, they respectively profile a simple atemporal relation and a thing, while phonologically each is described as a word. However, their integration and profiling at the composite-structure level is just the same as in the specific expression. *Yellow balloon* thus participates in a *categorizing relationship* with the constructional schema, which thereby provides its structural description. Moreover, the schema is available for use as a template in assembling other expressions on the same pattern.
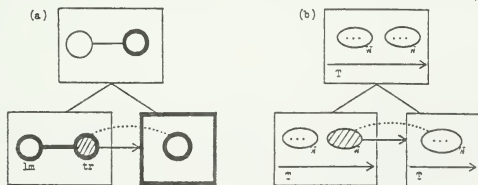
Figure 13

Besides rules and grammatical classes, the symbolic alternative will have to account for other supposed primitives and representations specific to gram-

mar: notions like 'head', 'modifier', 'subject', and 'object', as well as syntactic phrase trees. With respect to 'head' and 'modifier', let me call attention to a couple of additional features of diagrams 12 and 13. It was observed that in this construction the composite semantic structure profiles a thing rather than a stative relation — that is, the composite structure inherits its profile from the noun rather than from the adjective (*yellow balloon* designates the balloon, not its coloring). It is typical in a construction for the composite-structure profile to be inherited from one of the components. And in fact, it is this component that is traditionally regarded as the head. The notion head is so defined in cognitive grammar; diagrammatically, it is indicated by the box drawn with heavy lines.

Also observe the cross-hatching and solid arrows in Figs. 12-13. As before, the solid arrows indicate an elaborative relationship. In a construction, it is typical for one component structure to elaborate a subpart of the other (this subpart is indicated diagrammatically by the cross-hatching). For instance, *yellow* characterizes its trajector only schematically, and in the construction, *balloon* characterizes the corresponding entity with considerably greater specificity. We can now define a modifier as a component structure one of whose substructures is elaborated by the head. *Yellow* thus modifies the head *balloon* in *yellow balloon*.

The notion 'complement' (or 'argument') can also be defined in these terms. A complement is component structure that elaborates one of the substructures of the head. Examples of complements include subjects and direct objects. Consider the verb *enter*, diagrammed in Fig. 10(c), and the sentence *Sally entered the room*. The clausal head is *enter*, since the process it designates is profiled by the clause as a whole. *Sally* elaborates the schematic trajector of this process, and *the room* elaborates its schematic landmark. I would argue that subjects and direct objects are properly characterized as clause-level complements, specifically as nominal expressions that respectively elaborate the trajector and primary landmark of the clausal head. Observe that this characterization is based on semantic notions — profiling, correspondence, level of specificity — not on any particular constituency or syntactic tree structure. This has important consequences for its general applicability (e.g. in VSO languages).

What about syntactic tree structures? The information they represent seems crucial to linguistic structure, and as conceived in transformational grammar, trees are purely grammatical objects, neither semantic nor phonological (although they ARE used in semantic and phonological interpretation). The kinds of information represented in phrase trees are indeed important. I maintain, however, that such trees — conceived as separate, purely syntactic objects — are superfluous and artifactual.

Phrase trees incorporate three kinds of information: constituency, category membership, and linear order. All of these are accommodated in the present

approach by positing only symbolic units. Constituency is simply a matter of smaller symbolic units being successively integrated to form progressively larger symbolic structures. This happens when the composite structure at one level of organization functions as a component structure in a higher-order construction. Moreover, a component or composite structure inherently represents a particular grammatical category by virtue of instantiating the schema defining that category. In this approach, category membership is not represented by contentless node labels, but instead resides in categorizing relationships between schematic and specific symbolic structures. Lastly, linear order is in reality temporal order, one dimension of phonological space. Temporal ordering is specified as part of the internal structure of every expression's phonological pole. It is the arrow labeled T in Figs. 11-13. Observe that temporal ordering is distinguished from constituency. The symbolic structures functioning as nodes in a constituency hierarchy are not temporally ordered with respect to one another — rather, temporal ordering is specified internally to each node as part of its phonological characterization.

What about so-called grammatical morphemes, often regarded as semantically empty markings used exclusively for syntactic purposes? I believe that all such markers can in fact be attributed conceptual import and revealingly analyzed as symbolic units. I have tried to show this by taking many of the toughest examples and describing in fairly explicit detail just what I think they mean and how that meaning accounts for their grammatical behavior. Among the "grammatical" elements that I have described in this way (in one publication or another) are *be*, the auxiliary *have ... -ing*, the perfect *have ... -ing*, the past participial morpheme, the nominalizer *-er*, gender markers, the passive *by*, *of*, the possessive morpheme, case markers, etc. There are various reasons why their semantic import has not been generally recognized: Because they are highly schematic; because their value is primarily a matter of construal; because they are polysemous; and because they are fully overlapped by the meanings of other elements. From the standpoint of cognitive semantics these reasons are all invalid.

Consider the morpheme *-er*, as in *killer, swimmer, complainer, driver*, etc. As shown in Fig. 14(a), it invokes as its base a highly schematic process, hence it has nothing in the way of specific conceptual content. Its import resides in construal: the fact that it profiles the trajector of the schematic process serving as its base. That schematic process is elaborated by a verb stem, such as *kill*, and since *-er* is the head in this construction, it imposes its own profile on the specific process supplied by the stem; a *killer* is thus characterized as the trajector with respect to the process *kill*.

Similarly, the auxiliary *do* is analyzed as profiling a fully schematic process. When it combines with another verb, as in *They do like her*, this schematic process is put in correspondence with, and elaborated by, the
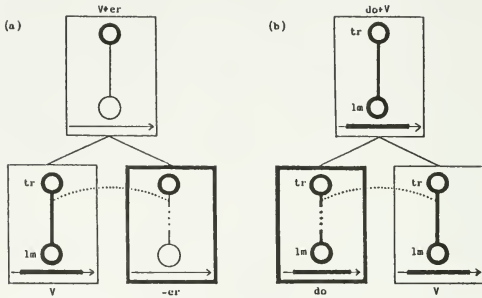
Figure 14

specific process profiled by the other verb, as shown in Fig. 14(b). *Do* adds neither content nor profiling — semantically it is fully subsumed by the main verb. But that does not entail that it is meaningless: Meaningfulness is not the same as non-overlapping meaning. There is semantic overlap of some sort in every construction. The overlap between *yellow* and *balloon* in *yellow balloon* was indicated by the correspondence line in Fig. 12(a); although each component contributes conceptual content not evoked by the other, the former's schematic trajector is equated the latter's profile. In Fig.14(a), the conceptual content of *-er* is completely subsumed by that of the verb stem, yet *-er* has a discernible semantic effect owing to the distinct profile it imposes. The overlap is even more extensive in 14(b) because the two profiles correspond. The differences among such examples reside only in the extent (not the existence) of their semantic overlap, and consequently in how "visible" the meaning of *yellow, -er,* or *do* is to the analyst. Complete overlap, as with *do*, is merely an expected limiting case.

Examples like *pants, binoculars, tongs, pliers, scissors, glasses, shorts, trousers, tweezers,* etc. are often cited to show that the semantic and grammatical notions of plurality have to be distinguished: Such forms are grammatically plural but supposedly semantically singular. The argument is fallacious, for it ignores the possibility that the plural morpheme might be polysemous. In its prototypical sense, the plural morpheme designates a set of distinct entities all of which instantiate the same class and could be labeled individually by the singular noun stem. That is not the case with *pants, binoculars, scissors,* etc.; but clearly, the occurrence of the plural ending in precisely these forms is not an accident — these nouns designate unitary objects that are nevertheless characterized by salient internal duality. I interpret

such duality (and more generally, multiplicity) as constituting a secondary meaning of the plural morpheme, a natural extension from the prototype.

A standard reason for subscribing to the autonomy thesis is that expressions often have to take a certain form, even though another form could perfectly well convey the same meaning. As an example of such arbitrary formal requirements, consider 'government', for instance the fact that certain prepositions in German (among them *gegen* 'against', *bis* 'until', *durch* 'through', *für* 'for', *um* 'around', and *ohne* 'without') require that their object be marked for accusative case, while others (including *aus* 'out of', *von* 'from', *seit* 'since', *bei* 'by', *mit* 'with', *nach* 'toward', and *zu* 'at') govern dative case. Now, first of all I would argue (as a student of mine, Mike Smith, has done in great detail (1987)) that these case inflections are actually meaningful. They appear not to be, because the meanings are schematic (e.g., 'goal-directed path' is the accusative prototype), each category is polysemous, and the meanings of the case elements are subsumed by those of the governing prepositions. But let us focus here on the fact that the case markings HAVE TO OCCUR even though the expressions would be semantically viable without them. Is this not a matter of a certain form being required arbitrarily by grammatical convention?

Though I might quibble about how arbitrary it is, grammatical convention certainly does impose a formal requirement that simply has to be stated, learned, and adhered to. However, this does not establish the autonomy thesis, as I have defined it, because it is perfectly possible to describe the situation in a framework that posits only symbolic units. For example, the fact that *gegen* occurs with accusative case would be specified by means of the constructional schema that we can abbreviate here as [[*gegen* [ACC + NML]]]. Abstracted from instantiating expressions (e.g. *gegen einen* (ACC) *Baum* 'against a tree'), this schema details the integration of the preposition *gegen* with a nominal (i.e. noun phrase) bearing accusative case. Another constructional schema, abbreviated [[*aus* [DAT + NML]]], describes a pattern wherein *aus* takes an object marked with dative case (e.g. *aus dem* (DAT) *Haus* 'out of the house'). Granted that the case markers themselves are symbolic structures, the patterns in question are characterized by means of symbolic units alone. The patterns are listed, not strictly predicted, but only symbolic structures figure in the listing.

What about the fact that these patterns are obligatory? That *gegen*, for instance, governs accusative and does not tolerate a dative or caseless object? All this implies is that no constructional schema other than the one that specifies accusative case is available to sanction the integration of *gegen* with a nominal object. No constructional schema allowing *gegen* with, say, a dative object is extracted by the language learner because no expressions of that sort occur to provide the basis for schematization. If such an expression were to be used, it would thus be categorized as an intended instance of [[*gegen* [ACC + NML]]], whose specifications it violates.

This example also illustrates the approach taken to arbitrary distributional classes, i.e., the fact that the elements occurring in a particular morphological or syntactic construction are often less than fully predictable, if at all. To indicate that an element does occur in a given construction, one does not tag it with a diacritic or syntactic feature — that would violate the content requirement. Instead, the information is provided by a constructional schema which specifically mentions that element, such as [[*gegen* [ACC + NML]]].

Like construction grammar, cognitive grammar treats general constructions — for instance, the prepositional-object construction—as complex categories. Such a construction takes the form of a NETWORK, where each node is itself a constructional schema, as illustrated in Fig. 15. This network subsumes specific expressions learned as fixed units; constructional subschemas that mention particular lexical items, like those at the bottom level in the diagram; and more abstract schemas representing higher-level generalizations. The nodes in such a network differ both in specificity and in cognitive salience or entrenchment. I assume a processing model in which the nodes in a network compete with one another for the privilege of categorizing a novel expression. Other things being equal, a lower-level structure wins out over a more abstract structure in this competition, for it overlaps with the target expression in many points of specific detail, each of which tends to activate it. As a consequence, a German prepositional phrase in which a dative follows *gegen* will judged a deviant instance of the *gegen*+accusative construction, not as a well-formed instance of the higher-level schema which merely specifies the possibility of a preposition taking a dative-marked object. This is admittedly quite sketchy; but it may at least indicate that arbitrary distributional restrictions are not per se incompatible with the symbolic alternative. Certainly they do not themselves establish the autonomy of grammatical structure as a separate level or domain of structure. (Recall the type/predictability fallacy.)

Two more things have to be accounted for: our apparent ability to judge grammaticality independently of meaning, and restrictions that evidently have to be stated in purely formal terms. I will deal with them only very briefly.
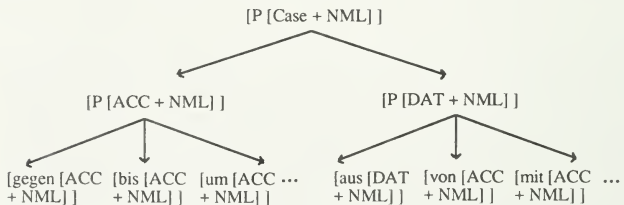
Figure 15

The first point is exemplified by that well-known novel sentence *Colorless green ideas sleep furiously,* which is supposedly grammatical though semantically anomalous. Such examples pose no special problem in cognitive grammar, which does recognize the existence of grammatical patterns and restrictions, but simply claims that they are fully describable by means of constructional schemas employing only symbolic units. Examples like *Colorless green ideas sleep furiously* involve the proper use of constructional schemas, with each schematic element instantiated by a lexical item belonging to the appropriate class, but where certain specifications of these lexical items happen to be mutually incompatible. Consider *green idea*. It represents one possible instantiation of the constructional schema sketched in Fig. 13. This schema however specifies that the trajector of the adjective corresponds to the profile of the noun, with corresponding entities being superimposed to form the composite structure. Now the adjective *green* characterizes its trajector as a physical entity of some sort, while *idea* profiles an abstract entity. Thus, when *green* and *idea* are integrated in the manner dictated by the constructional schema employed, entities with incompatible specifications are superimposed, and the result is perceived as semantic anomaly. Still, the expression does instantiate a grammatical pattern, characterized in terms of symbolic units alone.

Finally, what about restrictions that have to be stated in purely formal terms? An example might be the coordinate structure constraint, exemplified in (12).

> (12) a.   She likes the blouse but hates the skirt.
>   b.   *What does she like but hates the skirt?

I will make only two brief observations. First, it is doubtful that such restrictions can in fact be stated just in formal terms. On the basis of well-formed sentences like (13), for instance, Lakoff (1986) has argued that so-called extraction is sensitive to semantic factors that tend to correlate with certain structural configurations but are in fact independent of them.

> (13) a.   What did she go to the store and buy?
>   b.   How much can you drink and still stay sober?

More generally, we have seen that cognitive grammar does recognize and accommodate the various kinds of relationships depicted in standard syntactic phrase trees — it simply interprets and handles these relationships in a different manner, as distinct aspects of symbolic configurations. In principle, therefore, any patterns and restrictions that do make reference to tree configurations are susceptible to reformulation in symbolic terms.

Let me conclude by trying to put things in perspective. I believe it is true that over the last three decades literally tens of thousands of human work years

have been devoted to investigating language from the standpoint of generative theories that presuppose the autonomy of grammatical structure. The terms of this inquiry are by now so familiar that they are easily taken for granted and accepted as self-evident. By contrast, at most a few tens of human work years have been devoted to working things out from the standpoint of cognitive grammar. One must be careful not to confuse the unfamiliarity of its concepts, notations, and general outlook with the question of its potential viability and insight. Given that language effects the phonological symbolization of conceptual structure, cognitive grammar's view of linguistic organization is the most straightforward, unified, natural, and intrinsically desirable one imaginable. Despite its preliminary character, linguistic theorists ought to be vitally concerned with trying to make it work if at all possible. In my own eyes, the matter is clear: Language makes complete sense when viewed in this way, whereas seen through the lenses of more traditional approaches, much of it is opaque and mysterious.

REFERENCES

FILLMORE, Charles J. 1988. The mechanisms of "Construction Grammar".
    BLS 14.35-55.
LAKOFF, George. 1986. Frame semantic control of the coordinate structure
    constraint. Papers from the Parasession on Pragmatics and Grammatical
    Theory, ed. by Anne M. Farley et al. 152-167. Chicago: Chicago Lin-
    guistic Society.
LANGACKER, Ronald W. 1982. 'Space Grammar, Analysability, and the
    English Passive'. Language 58.22-80.
-----. 1987. 'Nouns and Verbs'. Language 63.53-94.
NEWMEYER, Frederick J. 1983. Grammatical theory: Its limits and its possib-
    ilities. Chicago and London: University of Chicago Press.
SMITH, Michael B. 1987. The semantics of dative and accusative in German:
    An investigation in Cognitive Grammar. San Diego: UCSD Ph.D.
    dissertation in Linguistics.

APPENDIX: Selected references in Cognitive Grammar

CASAD, Eugene H., & Ronald W. Langacker. 1985. "Inside" and "outside" in
    Cora Grammar. IJAL 51.247-281.
COOK, Kenneth W. 1988. A cognitive analysis of grammatical relations, case,
    and transitivity in Samoan. San Diego: UCSD Ph.D. dissertation in
    Linguistics.

FAUCONNIER, Gilles. 1985. Mental spaces: Aspects of meaning construction in natural language. Cambridge, Mass. & London: MIT Press/Bradford.

FILLMORE, Charles J. 1982. Frame semantics. Linguistics in the Morning Calm, ed. by the Linguistic Society of Korea, 111-137. Seoul: Hanshin.

-----. 1988. The mechanisms of "construction grammar". BLS 14.35-55.

HAIMAN, John. 1980. Dictionaries and encyclopedias. Lingua 50.329-357.

HAWKINS, Bruce W. 1984. The semantics of English spatial prepositions. San Diego: UCSD Ph.D. dissertation in Linguistics.

JANDA, Laura A. 1984. A semantic snalysis of the Russian verbal prefixes *za-, pere-, do-*, and *ot-*. Los Angeles: UCLA Ph.D. dissertation in Linguistics.

-----. To Appear. A geography of case semantics: The Czech dative and the Russian instrumental. Berlin: Mouton de Gruyter.

JOHNSON, Mark. 1987. The body in the mind: The bodily basis of meaning, imagination, and reason. Chicago & London: University of Chicago Press.

LAKOFF, George. 1986. Frame semantic control of the coordinate structure constraint. Papers from the Parasession on Pragmatics and Grammatical Theory, ed. by A. M. Farley et al., 152-167. Chicago: Chicago Linguistic Society.

-----. 1987. Women, fire, and dangerous things: What categories reveal about the mind. Chicago & London: University of Chicago Press.

-----, & Peter Norvig. 1987. 'Taking: A Study in Lexical Network Theory'. BLS 13.195-206.

LANGACKER, Ronald W. 1982. Space grammar, analysability, and the English passive. Language 58.22-80.

-----. 1984. Active zones. BLS 10.172-188.

-----. 1985. Observations and speculations on subjectivity. Iconicity in syntax, ed. by John Haiman, 109-150. Amsterdam & Philadelphia: Benjamins.

-----. 1986a. Abstract motion. BLS 12.455-471.

-----. 1986b. An introduction to Cognitive Grammar. Cognitive Science 10.1-40.

-----. 1986c. Settings, participants, and grammatical relations. Proceedings of the Annual Meeting of the Pacific Linguistics Conference 2.1-31.

-----. 1987 (a). Foundations of Cognitive Grammar, vol. 1: Theoretical prerequisites. Stanford: Stanford University Press.

-----. 1987 (b). Nouns and verbs. Language 63.53-94.

-----. 1987 (c). Grammatical ramifications of the setting/participant distinction'. BLS 13.383-394.

-----. 1988. Autonomy, sgreement, and Cognitive Grammar. Agreement in grammatical theory, ed. by D Brentari et al., 147-180. Chicago: Chicago Linguistic Society.

-----. 1990. Subjectification. Cognitive Linguistics 1.5-38.

-----. In Press. Concept, image, and symbol: The cognitive basis of grammar. Berlin: Mouton de Gruyter.

-----. To Appear. Foundations of Cognitive Grammar, vol. 2: Descriptive application. Stanford: Stanford University Press.

LINDNER, Susan. 1981. A lexico-semantic analysis of English verb-particle constructions with *up* and *out*. San Diego: UCSD Ph.D. dissertation in Linguistics.

-----. 1982. What goes up doesn't necessarily come down: The ins and outs of opposites. CLS 18.305-323.

MALDONADO, Ricardo. 1988. Energetic Reflexives in Spanish. BLS 14.153-165.

POTEET, Stephen. 1987. Paths through different domains: A Cognitive Grammar analysis of Mandarin *daò*. BLS 13.408-421.

RICE, Sally. 1987a. Towards a transitive prototype: Evidence from some atypical English passives. BLS 13.422-434.

-----. 1987b. Towards a cognitive model of transitivity. San Diego: UCSD Ph. D. dissertation in Linguistics.

-----. 1988. Unlikely lexical entries. BLS 14.202-212.

RUDZKA-OSTYN, Brygida (ed.) 1988. Topics in cognitive linguistics. Amsterdam & Philadelphia: Benjamins.

SMITH, Michael B. 1987. The semantics of dative and accusative in German: An investigation in Cognitive Grammar. San Diego: UCSD Ph.D. dissertation in Linguistics.

SWEETSER, Eve E. 1984. Semantic structure and semantic change: A cognitive linguistic study of modality, perception, speech acts, and logical relations. Berkeley: University of California Ph.D. dissertation in Linguistics.

-----. 1988. Grammaticalization and semantic bleaching. BLS 14.389-405.

TALMY, Leonard. 1978. Figure and ground in complex sentences. Universals of Human Language, ed. by J. H. Greenberg, 4.625-649. Stanford: Stanford University Press.

-----. 1983. How language structures space. Spatial orientation: Theory, research, and application, ed. by H. Pick & L. Acredolo, 225-282. New York: Plenum Press.

-----. 1988. Force dynamics in language and cognition. Cognitive Science 12. 49-100.

TUGGY, David. 1981. The transitivity-related morphology of Tetelcingo Nahuatl: An exploration in space grammar. San Diego: UCSD Ph.D. dissertation in Linguistics.

-----. 1986. Noun incorporations in Nahuatl. Proceedings of the Annual Meeting of the Pacific Linguistics Conference 2.455-469.

VANDELOISE, Claude. 1985. Au-delà des descriptions géométriques et logiques de l'espace: Une description fonctionnelle. Lingvisticae Investigationes 9.109-129.

-----. 1986. L'espace en français. Paris: Editions du Seuil.

WIERZBICKA, Anna. 1988. The semantics of grammar. (Studies in Language Companion Series, 18.) Amsterdam & Philadelphia: Benjamins.

A TRIMODULAR ACCOUNT OF YIDDISH SYNTAX*

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During the first semester of the official existence of the Department of Linguistics at the University of Illinois, I wrote a term paper on Yiddish for Linguistics 401, the introductory course in syntax. I find no grade on the typescript that remains in my possession, and do not now recall what I got. My own assessment of the paper, even allowing for the limitations of the theory of syntax as it then existed, and allowing for the fact that it was my first course in syntax, would be that it deserved no better than a B. One innovative change in the treatment that I presented would have greatly improved my opinion of my fledgling attempt at syntactic description. This change, while not suggested by the descriptive traditions current in 1965, was also not forbidden by them, as we shall see.

What I will do here is briefly summarize the ideas I had twenty-five years ago, compare them to a state-of-the-art treatment of some of the same facts, and then go on to present what I find to be a much more satisfying description that is made available by the non-transformational view of grammar that I have been developing for more than five years now.

Sadock 1965

To handle the basic fact that Yiddish is a rather rigidly verb-second language, as well as the fact that almost any constituent may be the first in the sentence, I postulated deep structures along the lines of (1), and three movement rules: rule (2) that fronted any constituent, substituting it for a dummy element dominated by PRS; rule (3) that inverted the subject and finite element FIN; and rule (4) that combined the main verb of the verb phrase with the element FIN, the bearer of person and number information (NU).

The presentential element PRS in the deep structure of (1) was the position under which sentence adverbs were generated. If an adverb such as *avade* 'certainly' was present, it would trigger inversion. If one of two phonetically

(1) Deep Structure:

```
                          S
             ┌────────────┼────────────┐
          (PRS)          NP           PRED
                                ┌──────┴──────┐
                              FIN            VP
                               │          ┌───┴───┐
                              NU          V      ...
```

(2) Topicalization:

PRS - X - C - Y   ⇒   PRS - X - Y
        | |
DUM   C

(3) Inversion:

PRS - NP - FIN - X   ⇒   PRS - FIN - NP - X

(4) Verb Raising:

```
          PRED                          PRED
       ┌────┴────┐                   ┌────┴────┐
      FIN        VP       ⇒         FIN        VP
       │      ┌───┴───┐              │         │
      NU      V       X            NU + V      X
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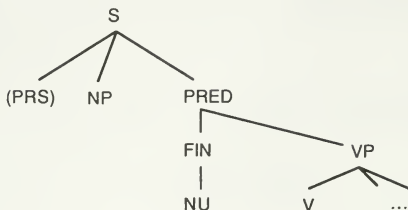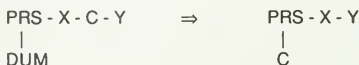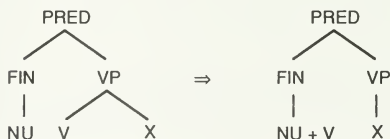
empty elements was generated under PRS, viz. an interrogative marker or a consecutive marker meaning, roughly, 'so', inversion would also take place, but since these were assumed to lack phonetic content, the sentences containing them would appear to be verb-initial. This accounted for the fact that a string like *Geyt er aheym* can mean either 'Does he go home?' or, roughly, 'So he goes home', depending on intonation. If the presentential element dominated a dummy element, the subject or some other constituent had to take its place, in which case it would be interpreted as topic.[1] If there was no PRS element, the subject would remain in initial position and would not be understood as a topic.

What I failed to see was that one of these rules, namely inversion, could be eliminated entirely if, non-standardly for the time, the finite element were generated above the subject, rather than below it, as in (5).

(5)

```
              ?
         ┌────┴────┐
        PRS        ?
               ┌───┴────┐
              FIN       ?
                    ┌───┴───┐
                   NP      VP
                         ┌──┴──┐
                         V    ...
```
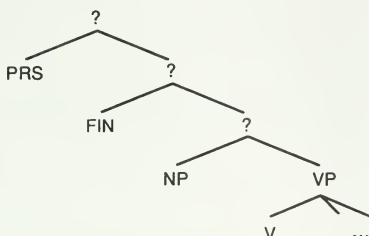
Provided that the presentential element were obligatorily present and contained either an overt sentence adverb or the dummy element, then verb-second order could have been accounted for with two rules instead of three. The verb would always move to FIN which is preceded either by a base-generated adverbial, or an element (possibly the subject) that has moved to PRS to replace the dummy element.

Diesing 1990

Twenty-five years later, there are elements of this treatment that look rather old-fashioned, but in other respects the treatment seems fairly up to date. Diesing (1990) has recently published a state-of-the-art account of the basic facts of Yiddish syntax that posits base structures and derivations for main clauses such as that schematized in (6) above.

(6)
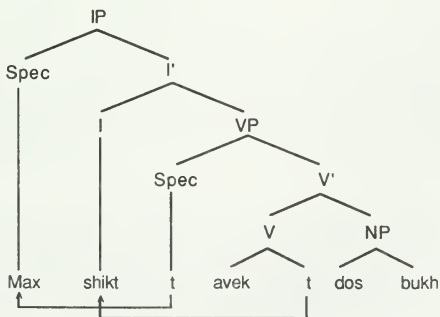
Except for the modish labeling of nodes, the topology of the modern theory is identical to what I should have given in 1965. There are, of course, other differences, in particular the fact that the new theory is supposed to be grounded in principles of universal grammar, and thus is supposed to explain, rather than simply observe, the panoply of facts it covers. I cannot help but observe, however, that the modern theory is a lot looser than its proponents make it out to be.[2]

Further facts

Let me now turn to some facts of Yiddish syntax that neither the portion of my antique view sketched above nor Diesing's up-to-the-minute treatment deal with, namely the position of pronominal arguments. These occur in a fixed order immediately following the finite verb, an order which is different from the order of full NP arguments.

(7) Ikh hob is   im   gegebn
     I   have it   him given
     'I have given it to him.

(8) Ikh hob gegebn dem zeydn   a matone
     I   have given   the grandfather a present
     'I have given a present to Grandfather.'

The ordering of pronominal elements turns out to be as follows: An inverted subject, if present, is first, a reflexive pronoun next,[3] followed by an accusative pronoun, and finally a dative pronoun. In my 1965 paper I dealt with the accusative and dative pronouns by postulating two obligatory, ordered rules that moved object pronouns from their original positions to a position immediately following the finite verb. The subject pronoun, and indeed any inverted subject, would be positioned after the finite verb by the inversion rule. The ordering of the pronouns was assured by moving first the dative pronoun and then the accusative pronoun, so that if both were present, the accusative would stand closer to the verb, i.e., in the opposite order from what we find when both are full noun phrases. Inversion would have to be ordered after both of these rules so as to insure that an inverted subject stood immediately after the finite verb and before any other pronouns. The reflexive was not dealt with at all.

Diesing (1990) only observes that the ordering of these pronouns is unexpected, referring the reader to a paper by den Besten and Moed-van Walraven (1985). All that is to be found by way of explicit treatment of the phenomenon in that paper, however, is the statement that 'the obligatory occurrence of weak [sic] pronouns in preverbal position, however, should be treated as a case of A' movement.' There is no indication of exactly what positions these pronouns

move to, what accounts for their strict ordering with respect to one another, or why the movement is obligatory.

Sadock 1990

I will now reconsider the facts of Yiddish word ordering in light of the sort of theory originally presented in Sadock 1985 and developed more fully in Sadock 1991. The hallmark of this view is the idea that different representations of a linguistic expression are not to be related derivationally. Rather, they occur as parallel structures governed by quite autonomous rules, but constrained with respect to each other by interface principles of various kinds.

The first of the levels that I will assume in my treatment of Yiddish is the syntax per se, the level at which ordinary syntactic constituents are defined, and at which syntactic relationships such as subject and complement are to be located. Here Yiddish displays a quite unremarkable rule set. Sentences consist of nominative (NOM) subject noun phrase and predicate verb phrase, in that order, the person and number (PN) features of the subject and predicate agreeing. Predicates, in turn, consist of a verb and its possible complements: a dative NP (DAT), an accusative NP (ACC), and either another VP, or a subordinate clause, in that order. The verb subcategorizes for some combination of these complements and for the feature of the complement clause that controls what complementizer it contains. A monostratal account of this much of English syntax would be identical, except that English does not distinguish morphosyntactic dative and accusative cases.

(9)   S   →   NP [NOM, PN] — VP [PN]

(10)   VP   →   V — (NP[DAT]) — (NP[ACC]) — (VP/S')

(11)   S'   →   Comp S

The second dimension is where discourse notions like topic and focus are represented. It is not syntax, but a separate and autonomous kind of representation with a different informational function, and therefore different categories.[4] There is only one rule here that we need to be concerned with for the time being, a rule that states that an utterance consists of a comment optionally preceded by a topic.

(12)   U   →   (TOP) COM

Lumping all sentence-initial non-subjects together under the heading of discourse topic is quite inaccurate, as noted by Ellen Prince (1981), but utterance-initial non-subjects always have some special pragmatic function, and this fact ought to be represented in a system separate from the syntax. The coarse description contained in (12) will do for the purpose of describing the

word order of Yiddish, though the treatment of the discourse consequences of word order clearly needs refinement.

Though (12) describes an independent discourse-functional level of organization, there is, of course, a connection between it and the ordinary syntax defined by (9) - (11), namely the fact that the elements of (12) are also represented in the syntax of Yiddish. In particular, an utterance (U) has to be a clause (S), a topic (TOP) has to be a phrase (X^n), and the comment (COM) has to be the rest of the sentence (i.e. an S/X^n in the notation of Gazdar 1981). Thus (12) could have been written as (12'), but that would give the impression that it is a rule of syntax, which it is not.

(12')   S   → X^n — S/X^n

I will therefore state the relation between the syntactic and discourse-functional structures as the two interface rules (13) that make explicit the required connection between the autonomous dimensions of analysis. This has the added advantage of making a separate statement concerning the syntactic nature of COM otiose, since it follows logically that it will have to be a clause minus an X^n, that is, an S/X^n.

(13)

	D-F Structure	Syntax
a.	U	S
b.	TOP	X^n

Now, according to (12), any constituent may be the first element of a topic-comment utterance (i.e. of a sentence, according to (13a)). This is a well-known feature of Yiddish and numerous other languages alike. Various sentence-initial constituents are illustrated by the following examples from the writings of Sholem Aleichem.[5]

(14) Dos shtikl shtol hob ikh   rekht   ongesharft ...
     that piece steel have I   properly   sharpened
     'That piece of steel I have properly sharpened ...' (DM, 10.)

(15) In kheder hob ikh   dos nit   getort   haltn.
     in school have I   that not dared   hold
     'In school I didn't dare to hold it.' (DM, 11.)

(16) Plutsim   khabt   zikh oyf der tate   vi   funm shlof.
     suddenly grabs   self up the father as   from sleep
     'Suddenly Father jumped up as if from sleep.' (DM, 11.)

(17) Morgn   leg ikh anider   tsurik   dos meserl.
     tomorrow lay I   down   back   the knife
     'Tomorrow I will put the knife back down.' (DM, 22.)

(18) Shraybn shraybt   er   zikh 'Albert'.
     write   writes   he   self 'A'
     'In writing, he calls himself "Albert".' (TsA, 157.)

When the subject is initial in the sentence, it may be a topic, as in (19), a sentence parallel to (17) in being part of a discussion of the pocket knife, or it may not be, as in (20), which has almost the same import as (17), but is not of topic-comment form.

(19) Dos meserl zol   zikh lign in keshene.
     the knife   should self lie in pocket
     'The knife ought to lie in (my) pocket.' (DM, 9.)

(20) Ikh vel   es   nokhdem tsurik   anider-legn.
     I   will it   later   back   down-lay
     'I'll put it back down later.' (DM, 16.)

Note that if there is a conflict in the ordering required by the syntax and that required by the discourse-functional component, the latter wins out. It couldn't be otherwise, since according to (12) the only expression of the discourse-functional organization of the utterance in Yiddish is in terms of word order. In other words, if syntactic order prevailed, we would have no reason to postulate rule (12) in the first place.

I turn now to the order of definite pronouns in Yiddish, which I propose to handle by means of a template that requires them to occur in a certain fixed order. The ordering template for the definite pronouns, the demonstrative *dos* 'that', as well as the indefinite nominative pronoun *me(n)* 'one' is:

(21) nominative — reflexive — accusative — dative

The following examples illustrate the ordering with various pairs and triples of pronouns.

(22) Ikh hob dos   mir   take   aleyn   gemakht.
     I   have that (ACC) me(DAT) actually alone made
     'I actually made it for myself by myself.' (DM, 9.)

(23) Ven ikh vil, zol ikh   dos   mir   aroysnemen.
     when I want shall I(NOM) it(ACC) me(DAT)   out-take
     'When I want to, I'll take me out that knife.' (DM, 9.)

(24) Es hobn zikh mir   gekholemt   ayzerne riter.
     it have self me(DAT) dreamed   iron rods
     'Iron rods appeared to me in a dream.' (DM, 22.)

(25) Epes   beyzert   er   zikh.
     Something angers   he(NOM)   self
     'He is angry over something.' (DM, 22.)

As mentioned, this cluster of pronouns immediately follows the finite verb. The template, then, must also mention this fact:

(26) V_{FIN} — Pro_{NOM} — Pro_{REF} — Pro_{ACC} — Pro_{DAT}

Such a template strongly suggests the clitic-ordering templates of Romance languages that Perlmutter (1971) argued have to be handled by surface constraints, or filters. Not only are the clitic elements of, say, French attracted to a position next to the finite verb, indeed, they occur in exactly the same order as they do in Yiddish. Other factors, such as the category of person, figure in distributing French clitics, and the cluster of pronominal elements occurs to the left, rather than the right, of the finite verb; but is is a remarkable fact that the nominative, reflexive, accusative, and dative clitics of French come in that order, just as they do in Yiddish. This is not to suggest, of course, that it is not necessary to make a parochial statement of the order of small elements in Yiddish.

What Perlmutter demonstrated in an eloquent way was that any attempt to constrain the individual transformations that moved elements around was doomed to include ad-hoc restrictions and to repeat information in various rules, just so as to conspire to produce the surface facts. Instead, he argued, the transformations should be allowed to operate freely, but only those results that conform to the template of clitic elements would be allowed to pass, the others being filtered out.

In the present framework, which lacks transformations entirely, the template simply defines an autonomous dimension of representation, separate from, and sometimes in conflict with, the ordinary syntax. The basic principle is that a proper expression must be well-formed with respect to all the components, though in cases of conflict, certain relaxations of this requirement must be allowed in order to get any descriptive mileage out of the separation of components. Each representational level in this view acts as a filter on each of the others.

For French and the other Romance, where the clitics are unstressed, cannot be conjoined, and are phonologically quite distinct from independent pronouns, this autonomous dimension can be identified with something like morphology.[6] The Romance clitics, in other words, have some of the quality of inflectional affixes. But in Yiddish, things are quite different, for here the pronouns are identical to the independent pronouns, bear their own word stress (and can even be contrastively stressed), can be conjoined, and so on.

This, then, is a kind of alternative, simplified syntax, in which linear precedence is the only structural relation. There is no pre-existing name for this level. I will dub it 'surfotax'.

An alternative to assuming a template to handle the ordering of pronouns in Yiddish would be a set of ordered rules that move the pronouns to their final positions, as in my 1965 term paper. The dative pronoun would be moved first to the position after the finite verb, and the accusative pronoun would be moved second, thus insuring that it precedes the dative if both are present, and so on. I will not go into the reasons why such a treatment is no longer acceptable, but I should point out that in any case, it is untenable in a theory without transformations such as the one I am investigating here.

Another idea, which suggests itself on the basis of much recent work in the Barriers framework (Diesing's is an example), would be to build in landing sites for the pronouns in the deep structures of Yiddish sentences, say, Spec of ACC', Spec of DAT', and so on. Having done that, however, it is clear that the stack of nodes from top to bottom is simply an ad-hoc means of ordering elements from left to right, which is exactly what the template does in a more ingenuous fashion.

This brings me to the last big step in my analysis, namely the addition to the template in (26) of a single additional position, one in front of the finite verb, reserved for constituents of unspecified type. The template now is (26') and accounts for the position of the verb in Yiddish, as well as for the position of pronouns.

(26') $!X^n$ — $!V_{FIN}$ — Pro_{NOM} — Pro_{REF} — Pro_{ACC} — Pro_{DAT}

This move calls to mind the proposal of Maling and Zaenen (1981) to handle the verb-second property of Icelandic by means of a 'positive surface filter' along the lines of the clitic template of Perlmutter's.[7] Their arguments for doing things this way rather than by constraining individual transformations are quite similar to Perlmutter's, showing, in the end, that powerful conditions on transformations that would conspiratorially act to produce the desired results could be eliminated by adopting the filter. Their one great worry was over the additional power that the adoption of a system of surface filters would add to a transformational grammar. This worry disappears entirely in the present context, since the surfotax supplants the transformations altogether.

A few remarks on optionality and obligatoriness as they pertain to the template are in order. The two initial positions are obligatorily present in every clause, but the pronouns are present in their stipulated positions only if there happen to be pronouns in the sentence. Rather than, say, parenthesize the pronouns, which might suggest that they are only optionally governed by the

template, I have marked the obligatory elements of the clause template in (26')
with exclamation points. Secondly, pronominal arguments may be present
without occurring where they are indicated in the template, provided that they
are the first element, X^n. The template should therefore be interpreted as
meaning that any pronoun in a clause is obligatorily positioned in the template,
either in its specified slot, or in the catch-all initial position.

Since the topic phrase in the discourse-functional string is optional,
clause-initial subjects will be ambiguous as to their discourse status, being first
either because they are subjects, positioned initially by the syntax, or because
they are topics, put first by the overriding demands of the discourse-functional
component. Other clause-initial elements will have to be topics. Note that
these remarks hold for both pronominal and non-pronominal constituents. If
we make the common assumption that the topic is stressed, then the only un-
stressed, sentence-initial pronouns will be subjects, a fact that has been ob-
served several times in the literature. (See Diesing 1990, §2, and the refer-
ences mentioned there.)

Some illustrative examples

Let us now see how this simple system, consisting of only five rules in
three autonomous components, accounts not only for the data that have been
introduced so far, but also for certain other facts that have not been dealt with in
the literature.

In a simple sentence with no topic, the subject will stand first in the sen-
tence, because the syntactic rule (9) puts the subject first. In initial position the
subject will also fulfill the requirement of the template that there be some single
element to the left of the finite verb: *Di zhabes qvaken* 'The frogs are croaking'
(DM, 9), *Di zun zetst zikh* 'The sun sets (itself)' (DM, 9), etc. If there is a prag-
matically emphasized item (a topic, in the inaccurate terminology that I employ
in common with many others), it must occur in utterance-initial position accord-
ing to the demands of the discourse-functional rule (12) which necessarily
overrides the syntactic demand for subject-initial clauses. Now the subject
cannot occur immediately before the verb phrase, because there would then
be two constituents to the left of the finite verb, in violation of the surfotactic tem-
plate. The subject will have to come later. Because the syntax places the sub-
ject first, it will come as close to the front of the sentence as it can without viol-
ating the template, the nearest possible spot being immediately after the finite
verb:

(27) Haynt   est der zayde   a joikh.
     today   eats the grandfather a soup
     'Today Grandfather is eating soup.'

Note that the template mentions the nominative PRONOUN as being the first element after the finite verb. Ordinary non-pronominal subject phrases are not mentioned in the surfotactic template, and indeed, such phrases regularly appear later in the sentence than one would expect from typical G-B treatments, or from the primitive system of Sadock 1965. In both the early and latter-day transformational theories of Yiddish, we should expect non-initial subjects to come immediately after the finite verb. But when one or more of the objects is pronominal and therefore controlled by the surfotactic template, by far the most common order is with the subject following the objects:

(28) Hoybt   mikh   mayne[8]   on   tsu traybn.
     starts   me(ACC)   mine(FEM) PART to nag
     'So my (wife) starts to nag me.' (DD, 144)

(29) ?? Hoybt mayne mikh on tsu traybn.

(30) Az ..., hot   uns   di gantse velt   mekane geven.
     when has   us(ACC) the whole world jealous been
     'When ..., the whole world was jealous of us.' (DD, 133)

(31) ?? Az ..., hot di gantse velt uns mekane geven.

Notice that in these examples the subject still goes as close to the beginning of the sentence as it can without violating the template. The explanation for this, as mentioned above, is that the subject is initial in the syntax, so if it cannot be initial in the surface, it must be as close to initial as it can be. The identical state of affairs obtains at the syntax-morphology boundary, as documented extensively in Sadock 1991. There it is shown that syntactic ordering requirements are preserved to the extent that they do not violate morphological ordering requirements.

Now, if the subject is a pronoun, its position is dictated by the template, and it therefore obligatorily occurs before any other pronominal arguments. This is illustrated by examples (15) and (23), repeated here as (32) and (34).

(32) In kheder hob ikh   dos nit   getort   haltn.
     in school have I   that not dare   hold
     'In school I didn't dare to hold it.' (DM, 11.)

(33) * In kheder hob dos ikh nit getort haltn.

(34) Ven ikh vil,   zol ikh   dos   mir   aroysnemen.
     when I   want shall I(NOM) it(ACC) me(DAT)   out-take
     'When I want to, I'll take me out that knife.' (DM, 9.)

(35) * Ven ikh vil, zol dos mir ikh aroysnemen.

For my account to go through, it must be the case that when the template and the ordinary syntax are at odds, the template wins out. Once again, this is the only logical assumption, since the template, like the discourse-functional rule, has only ordering as a means of expressing itself, and thus, if it yielded to the word-order demands of the syntax, it would not exist.

As several of the examples above also show, the template has the effect of interposing elements between the finite and non-finite parts of the verb. This is automatically accounted for by the simple trimodular theory, as we can see by considering example (32) more carefully. The syntax puts this sentence together as in (36), and in this order it would also be quite grammatical.

(36)
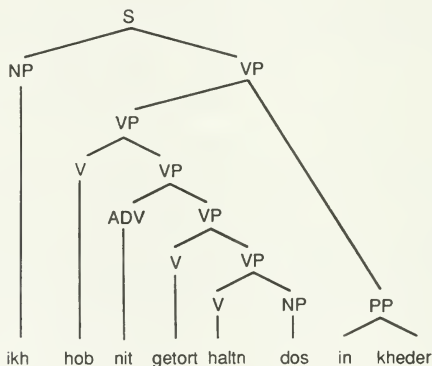
In (32), however, the prepositional phrase is not in its syntactic position, but is initial in the sentence because it is a topic. Since the finite verb *hob* must come next, according to the surfotactic template, the subject pronoun must also be displaced. Both it and the accusative pronoun thus are positioned immediately following the finite verb, giving the sequence *PP hob ikh dos.* Following this come the remaining pieces of the sentence, in the order in which the syntax puts them, vix. *nit getort haltn.*

The same considerations explain the positioning of various pieces of complex verbs in Yiddish. As shown by the pairs below, the non-verbal part of the complex verb follows its verbal part if it is finite, but precedes it if it is not finite. In (37) the non-verbal part is an adverbial particle, in (38) it is a nominal de-

rived from a verb (see Aronson 1985), and in (39) it is a particle of Hebrew origin.

(37) a. Ikh gey arayn.
         I   go   in
     b. Ikh vil arayn-geyn.
         I   want in-go

(38) a. Ikh tu   a kuk.
         I   do   a look
     b. Ikh hob a kuk   geton.
         I   have a look done

(39) a. Zey zenen maskem.
         they are   agreed
     b. Zey zenen maskem geven.
         they are   agreed been

We must assume something about the way these verbal augments are generated, and all that needs to be done here is to assume with others (e.g. den Besten & Moed-van Walraven 1985) that they are under the V node. A simple example like (37a) would have a complex verb in the syntax, but the templatic requirements would break it up, placing the finite-verb word itself[9] in second position. This is illustrated by the dual tree in (40).

(40)
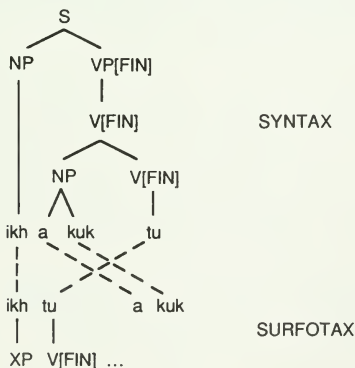
Other elements positioned by the template will precede the stranded part of the complex verb, since it is not specifically mentioned in the template at all.

A non-initial, non-pronominal subject will also precede the verbal prefix, since it is positioned earlier in the syntax than the verb, but will follow the pronominal elements that are explicitly positioned by the template:

(41) Emitser   tut   mikh   a tore.
     someone do   me(ACC) a jab
     'Someone abruptly jabs me.'

(42) Es   hot   mikh   emitser   a tore   getan   fun hintn.
     it   has   me(ACC) someone a jab   done   from behind
     'Someone has abruptly jabbed me from behind.' (DD, 134)

Subordinate clauses

The most basic facts concerning the form of subordinate clauses of Yiddish fall out from the simple trimodular system with the addition of a very few, quite straightforward assumptions. First, ordinary indicative clauses, which behave exactly like main clauses in having verb-second word order and in freely allowing topicalization (both problems for the GB treatments mentioned above), are simply treated like main clauses. The complementizer, which is absent in main clauses, may be present in the subordinate clause, but at the level of S', rather than S. The domain of the verb-second template, though, is S, so the complementizer is simply irrelevant. The possibility of topicalization is a matter for the discourse-functional component, and here the question is not the syntactic, but rather the pragmatic status of the subordinate clause. Those subordinate clauses whose pragmatic status is such that topicalization within them makes sense should freely allow it. (See Green 1976.)

For interrogative subordinate clauses, we need only assume that the interrogative phrase, either a single interrogative pronoun or a prepositional phrase whose object is an interrogative pronoun, is the complementizer. Otherwise, the account is the same as for indicative complements. This assumption also explains the appearance of a fronted element, either a topic or the empty pronoun es, when the subject postion is relativized, as in (43) and (44), respectively. Since the interrogative word or phrase is not in the clause proper, either a fronted element as in (43), or an epenthetic element as in (44), is required by the template so that the finite verb will be second in the clause.

(43) (s'zol   keyn ben-odem nit visn)   ver do   ligt.
     (it should no human   not know)   who there lies
     '(No one should know) who is lying there.' (TsA, 155)

(44) ... ver   es   ligt do
     ... who   it   lies there
     '... who is lying there.'

Main-clause interrogatives have no complementizer, and therefore the fronted interrogative element counts in the template. It must be initial because it is a topic in discourse-functional structure, and therefore no other element may be fronted in such examples:

(45) Ver ligt do?
     who lies there
     'Who is lying there?'

(46) *Ver do   ligt?

Antitopic postponement

Non-initial subjects often come later than the theory presented above predicts, namely at or near the end of the clause. Examples (16) and (24) above are instances of this, as is the following, simpler example.

(47) Es iz ibergegangn a yor.
     it is passed   a year
     'A year has passed.'

Like fronted elements, this postponed subject has special discourse properties, but these are in some ways the reverse of those of the topic, as demonstrated in a detailed study of Ellen Prince's (1988). The displacement of the 'antitopic' from its syntactic position should therefore be relegated to the discourse-functional component, as roughly sketched in the multi-structural diagram (48). Note that the expletive element *es* is not represented in the syntax

(48)
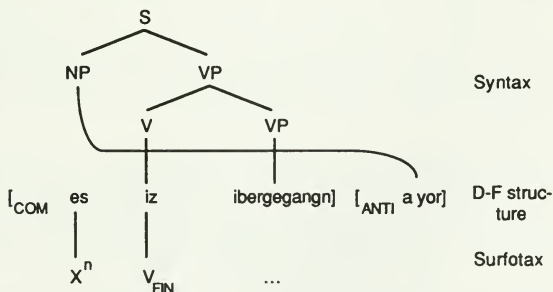
at all, nor is it a topic in discourse-functional structure. The phrase *a yor*, with which the verb agrees, is the syntactic subject. With a displaced subject and no topic present, *es*, the syntactically and semantically empty lexical item of Yiddish, must be present to satifsy the verb-second requirement of the surfo-tactic template. It would not be needed — or allowed —, if some other element, say, a discourse-functional topic, were in initial position, a well-known feature of Yiddish syntax exemplified by (49).

(49) Fun yener tsayt on   iz   ibergegangn   a yor.
     from that time on   is   passed   a year
     'A year has passed since that time.' (cf. DM, 13)

While both topics and anti-topics are displaced from their natural syntactic positions by the discourse-functional component,[10] an unfair competitor in the battle for the ordering of elements, these two positions are not the same. The reason is that the topic position also counts in the surfotactic template as X^n, whereas the final position of a clause is not mentioned by the template. There-fore, pronominal elements may be 'hidden' in topic position, but not in anti-topic position. Only full NPs may be displaced rightwards, and this is again the correct result. (See Prince 1988 for further discussion.)

Matters for further study:

The five rules distributed among three components provide a considerable coverage of the facts of Yiddish syntax, more in fact than in any other explicit study of Yiddish that I am aware of. They do not, however, do everything. In closing I would like to point out some further details of Yiddish syntax and sug-gest how they might be accommodated in the present framework, without working out the details.

Adverbials: Various sorts of adverbial expressions, particularly small ones, tend to gravitate toward the zone between the finite and non-finite parts of the verb phrase. Such adverbials may also occur elsewhere in the sen-tence, either initially or finally, depending roughly on semantics. The variation is nicely illustrated by the following near-minimal pair.

(50) ... er kon dos unz eybig   nit   fargesn.
     ... he can it   us   forever   not   forget
     '... he could never forget it (on our behalf).' (DD, 143)

(51) ... er vet dos unz nit   fargesn eybig.
     ... he will it   us   not   forget   forever
     '... he would never forget it (on our behalf).' (DD, 143)

Note that as predicted, the intercalated element *eybig* in (50) follows the specifically mentioned prominal elements, but precedes the negation[11] and the

non-finite verb. But the stream of pronouns can be interrupted by small, parenthetical items, though the relative order of the pronouns remains the same. Thus, the actual text of example (28) reads:

(52) Hoybt dokh mikh mistame mayne on tsu traybn ... (DD, 144)

with the words *dokh* 'in fact' and *mistame* 'probably' interrupting the sequence of post-verbal elements. I suggest that these are simply too small to be seen by the template, though an actual treatment of them remains for future research.

One argument in the template: As observed by den Besten and Moed-van Walraven (1985), either the direct object or the indirect object, but not both, may also optionally appear between the finite and non-finite parts of the verb. This is particularly common with negative indefinite objects, but is by no means restricted to them.

(53) Ikh kon keyn vetshere nit   esn.
     I   can no   dinner   not   eat
     'I can't eat any dinner.' (DM, 16)

(54) Konst   zikh shoyn   gor keyn arbet nit   op-zukhn?
     can (2s) self already at all no work   not   out-seek
     'Can't you find any work at all for yourself?' (DM, 20)

Note the position of the intercalated object in (54), between the little adverbials and the part of the sentence not under the control of the template. This suggests the existence of a truly optional position in the template, making (55) its final form:

(55) $!X^n$ — $!V_{FIN}$ — Pro_{NOM} — Pro_{REF} — Pro_{ACC} — Pro_{DAT} — (NP)

NOTES

[1] The obligatoriness of the rule was taken care of by assuming that any sentence containing this dummy element in surface structure would be filtered

out, as in Chomsky's (1965) treatment of the obligatoriness of movement in relativization.

2 Among the numerous 'principles' and 'paramaters' invoked in accounting for Yiddish word order are the direction of Case assignment, whether there is one or more complementizer position, whether or not the complementizer position can be doubly filled, whether the subject moves to Comp or Spec of IP, whether the subject is generated under VP or S, whether movement to IP is A movement or A' movement, whether there are empty complementizers, and several other things as well. Putting all these parametric and theoretical options together, one sees that the theory allows literally thousands of possible Yiddish-like languages. The claim that Yiddish syntax is explained by such a theory seems greatly exaggerated.

3 I have a few examples in which the reflexive precedes the neuter nominative pronoun, suggesting that the theory developed below needs refinement. One example of this is:

> Dort   ligt   zikh es   gants ruig
> there   lies   self it   very peaceful
> 'It lies there very peacefully.' (TsA, p. 154)

4 Many of the traditional difficulties that are encountered in determining the position of topic phrases in syntax are eliminated if topics are not located in the syntax at all, but rather in a component whose units all regard the discourse status of the pieces of an expression.

5 The page references in these citations refer to the collection Sholem Aleichem 1926. The abbreviations are as follows:

> DM =   Dos Meserl ('The pocket knife'), in volume 7: Mayses far
>   Yidishe Kinder;
> DD =   Der Daytsh ('The German') in volume 9: Oreme un Frey-
>   lekhe;
> TsA =   Tsvay Antisemitn ('Two antisemites') in volume 10: Oreme
>   un Freylekhe.

6 More specifically, this would seem to be the level of morphophonology argued for by Woodbury (1989) and Baker (In Press).

7 The two ideas come together in the proposal of Hock's (1990) that verb-second word order originated with the cliticization of the finite verb to the first sentential element.

8 The word *mayne* is a possessive pronoun, but is not used pronominally. Its declension shows that it is an adjective in this usage, presumably a modifier of a phonetically empty noun. Hence it is not under the control of the template.

[9] In finding the finite verb, clearly the template looks for a morphological, rather than a syntactic form. Thus, although *arayn gey, a kuk tu,* and *maskem zenen* are the syntactic finite verbs in the (a) examples of (37) - (39), only the morphological finite verbs *gey, tu,* and *zenen* are positioned by the surfotax. This fact highlights the non-syntactic nature of the surfotactic template.

[10] It is not clear to me whether the three elements that we have now recognized in the discourse-functional pattern should be generated as a 'flat' structure or whether, perhaps, the comment and topic should form a constituent, or the comment and antitopic should.

[11] I assume that negation is generated in the syntax as a modifier of VPs and is not handled specifically by the template.

REFERENCES

ALEICHEM, Sholem. 1926. Ale Verk fun Sholem Aleichem. New York: Sholem-Aleichem Folskfond Oysgabe.

ARONSON, Howard I. 1985. On aspect in Yiddish. General Linguistics 25.171-88.

BAKER, Mark. In Press. On the syntax of pronominal agreement morphology. CLS 26.

CHOMSKY, Noam. 1965. Aspects of the theory of syntax. Cambridge, MA: MIT Press.

DEN BESTEN, Hans, & Corretje Moed-van Walraven. 1985. The syntax of verbs in Yiddish. Haider & Prinzhorn 1985:111-35.

DIESING, Molly. 1990. Verb movement and the subject position in Yiddish. Natural Language and Linguistic Theory 8.41-80.

GAZDAR, Gerald. 1981. Unbounded dependencies and coordinate structure. Linguistic Inquiry 12.155-84.

GREEN, Georgia. 1976. Main clause phenomena in subordinate clauses. Language 52.382-97.

HAIDER, H., & M. Prinzhorn (eds.). 1985. Verb second phenomena in Germanic languages. Dordrecht: Foris.

HOCK, Hans Henrich. 1990. V2 in early Germanic: A 'heretical' view. Ninth East Coast Indo-European Conference, University of Pennsylvania.

MALING, Joan, & Annie Zaenen. 1981. Germanic word order and the format of surface filters. Binding and filtering, ed. by F. Heny, 255-78. London: Croom-Helm.

PERLMUTTER, David M. 1971. Deep and surface structure constraints in syntax. New York: Holt, Rinehart & Winston.

PRINCE, Ellen. 1981. Topicalization, focus movement, and Yiddish-movement: A pragmatic differentiation. BLS 7.249-64.

-----. 1988. The discourse function of Yiddish expletive *es*+subject-preposing. Papers in Pragmatics 2.176-94.

SADOCK, Jerrold M. 1965. Some aspects of Yiddish syntax. Unpublishable term paper, University of Illinois at Urbana-Champaign.

-----. 1985. Autolexical syntax: A theory of noun incorporation and similar phenomena. Natural Language and Linguistic Theory 3.379-440.

-----. 1991. Autolexical syntax: A theory of parallel grammatical representations. Chicago: University of Chicago Press.

-----. Forthcoming. A paper on Yiddish for James D. McCawley. The joy of grammar: A festschrift in honor of James D. McCawley, ed. by D. Brentari, L. McC. Hand, and G. N. Larson. Amsterdam: Benjamins.

WOODBURY, Anthony C. 1989. On restricting the role of morphology in autolexical syntax. Workshop on Autolexical Syntax, University of Chicago, 16 April 1989.

SOME ISSUES IN LANGUAGE ORIGINS AND EVOLUTION

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Linguists have long considered discussion of the origins and evolution of language to be disreputable. In 1866 the Société Linguistique de Paris issued an outright injunction against speculation on the topic at its conferences and in its publications. Rumor has it that the Linguistic Society of America considered the same ban upon its founding in 1924, but settled instead for a 'gentlemen's agreement' (as such things were then known) prohibiting papers on language origins. Whether this story is true or not, not a single article in *Language* has ever addressed the topic.

It is not difficult to understand the reasons for the ill repute associated with the question of the origins of language. There is probably no area of concern to linguists that lends itself to so much uncontrolled speculation. And this follows from the fact that there is so little in the way of hard evidence to fuel sensible theorization. There are no archeological digs turning up specimens of proto-language. While fossil evidence has given us a clear picture of the evolution of the vocal tract (Lieberman 1984), grammatical structure leaves behind no fossils whatever. And, most seriously, a major tool of evolutionary biology, the comparative method, is inapplicable to the study of the origins of language. This method demands homologs in related species to the trait under examination, in which, from minimal differences between them one can build plausible stories about the trait's evolution. Yet the central aspects of language — syntax and phonology — have no homologs, even for our most closely related species. Language is thus an emergent trait (or 'key innovation') and therefore poses, along with all such traits, particular problems for evolutionary biology.

As a result, much that has been written about the origins of language has the flavor of 'just-so' stories, not much more advanced than the bow-wow, heave-ho, and ding-dong theories reported in the introductory texts.

Nevertheless, I feel that it is time to put the question back on the theoretical linguist's research agenda.[1] Several factors now allow at least some of the woolliness to be removed from the admittedly hirsute speculation that always

characterized it. First, several decades of work in generative grammar have led to reasonable hypotheses about which aspects of language are innately determined, and therefore germane to the question of the biological evolution of language in a way that its more contingent properties are not. Before we can know HOW language evolved, we need to be pretty sure about precisely WHAT evolved. Second, from attempts to teach signed language to chimpanzees and gorillas, we have a fairly clear understanding of the linguistic capacities of higher apes, which, in turn, opens up the possibility of reasonable hypotheses about the capacities of pre- and proto-hominids. And finally, new findings in paleoneurology have led to surprising discoveries about the evolution of the brain, in particular those areas dedicated to language.

It is my feeling as well that generative grammarians have an OBLIGATION to address the question of the evolution of language. A central tenet of the principal approach within generative grammar, that associated with Chomsky and his co-thinkers, is that our biological endowment embodies an innately determined universal grammar (UG) that accounts for the major grammatical properties of the world's languages and helps to shape the acquisition by children of particular grammars. A persistent criticism of this UG position has centered on the absence of any account of its phylogenesis. Why, it is often asked, would the hypothesized universal properties of language, whether at the level of grammatical organization as a whole or at the level of particular UG principles, ever have become incorporated into the human genome? One must concede that the absence of even the rudiments of an answer to this question has conferred a rhetorical advantage to those opposing the idea of an innate UG.

This criticism comes from many directions, but is especially vocal in the 'functionalist' wing of the field. While this wing is itself quite diverse, the majority reject the very concept of an autonomous UG. Rather, they believe that grammatical patterning is grounded in what is seen as the most important 'function' of language, namely communication. In place of an innate UG, they assume that the child is endowed with general learning strategies that underlie both the acquisition of grammar and the norms and conventions governing the appropriate use of language in social interaction.

Not all functionalists, however, share such a view. A wing of functionalism represented by Susumu Kuno, Ellen Prince, Georgia Green, and others does not reject the UG perspective. Indeed, Kuno 'finds no conflict [in theory] between functional syntax and, say, the government and binding theory of generative grammar' (1987:1). Such linguists are functionalists, not because they believe that functional principles invalidate the idea of an innate autonomous UG, but because their work is devoted to the discourse or processing functions of syntactic forms.

I hope to demonstrate that the study of the origins of language lends support to the Kuno-Prince-Green idea that there is no incompatibility between

taking a formalist perspective on language and taking a functionalist one. In fact, I will go even farther than this and argue that the more of a functionalist one is, the more one should be led to support the idea of an autonomous grammar whose central principles are innate.

One might at first assume that the innate principles of UG are simply immune to functional explanation. But this is not so. There exists a well-accepted (functional) mechanism for explaining the provenance of innate traits: natural selection. It is logically plausible that the design of the grammatical model as a whole or some particular grammatical principle might have become encoded in our genes by virtue of its being so successful in facilitating communication that the survival and reproductive possibilities of those possessing it were enhanced. In this sense, a functional explanation would hold at the evolutionary level.

Until very recently, formal linguists who have addressed the question at all have appeared quite reluctant to point to natural selection as the evolutionary force that shaped the language faculty. Chomsky, despite an earlier observation that 'language must surely confer enormous selective advantages' (1975: 252) and his speculation (with Lasnik) that if there is a functional explanation for a particular filter, it might hold 'at the level of evolution of the species' (Chomsky & Lasnik 1977:437), now takes the view that the nature of UG is perhaps beyond the reach of an adaptationist explanation, and points instead to 'physical principles' being at work:

> Evolutionary theory is informative about many things, but it has little to say, as of now, of questions of [language evolution]. The answers may well not lie so much in the theory of natural selection as in molecular biology, in what kinds of physical systems can develop under the conditions of life on earth and why, ultimately because of physical principles. (Chomsky 1988a:167)

While Chomsky does not elaborate on the nature of these principles, he presumably has in mind the sort discussed so elegantly by D'Arcy Thompson in 1917 (cf. Thompson 1961). Thompson explains that many patterns and shapes occurring repeatedly in nature are a natural consequence of such physical properties as the ratio of an organism's length to its surface area, design pressures for efficient utilization of space, and so on.

Elsewhere, Chomsky dismisses 'speculations about natural selection [as being] no more plausible than many others; perhaps [properties of UG] are simply emergent physical properties of a brain that reaches a certain level of complexity under the specific conditions of human evolution' (Chomsky 1988b: 22). In this article, Chomsky goes so far as to claim that, far from conferring selective advantage, some properties of UG are actually dysfunctional to the species. For example, he considers the 'Last Resort' principle, which insures

that derivations be as economical as possible and contain no superfluous steps, to be dysfunctional because it causes computational difficulties. (Chomsky 1986a) The parser would seem to have to scan globally all possible possible derivations before it came across the right one. He concludes that while language might be 'beautiful', it is at the same time 'unusable', and must resort to a number of 'computational tricks' to allow structure to be recovered at all.[2]

What I believe to be Chomsky's current position is elaborated by Piattelli-Palmarini (1989), who offers the opinion that 'the study of language has, in fact, disclosed many instances of specificity and gratuity in the design of all natural human languages, but hardly any instance of traits dictated by general communicative efficiency' (22). His two major examples are the Projection Principle (Chomsky 1981) and the principle of Full Interpretation (Chomsky 1986a), which 'adaptation cannot even begin to explain' (25). Piattelli-Palmerini's discussion of language evolution is embedded in a view popularized by Stephen Jay Gould and others that extra-adaptive mechanisms vie with or perhaps even eclipse natural selection as the prime mechanism of evolutionary change.[3] To Piatelli-Palmerini, language is a 'spandrel' (Gould & Lewontin 1979), essentially an epiphenomenal byproduct of evolution.[4]

It is logically possible that Chomsky and Piattelli-Palmarini are correct, that the innate principles of UG arose as a chance byproduct, as it were, of forces unrelated to their utility to the species. However, the remainder of this paper will be devoted to arguing that there is no reason to reach such a conclusion. Rather, I will defend the position that innate autonomous grammatical principles were selected for because they alloted a greater evolutionary advantage to populations that had them. In short, if the line of reasoning to be taken is correct, one can deduce the functional need for formal principles of grammar.

Let us begin with what linguists of all persuasions agree is the task of any linguistic theory, namely to relate sounds and meanings (perhaps 'expressions' would be a more appropriate term than 'sounds', so as not to exclude signed languages). Since humans can conceptualize many thousands of distinct meanings and can produce and recognize a great number of distinct sounds, one's first thought might be that this relation could be expressed in large part by a simple pairing of individual sounds with individual meanings, as in (1):

(1)

MEANING$_1$	MEANING$_2$	MEANING$_3$ ...	MEANING$_n$
SOUND$_1$	SOUND$_2$	SOUND$_3$ ...	SOUND$_n$
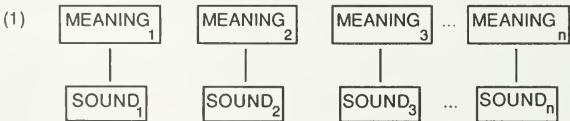
At the domain of lexical meaning, no such one-to-one pairing exists, of course. A vastly greater number of words can be stored, retrieved, and used efficiently if

sequences of a small number of distinctive sounds are paired with meanings than by a direct mapping between individual meanings and individual sounds.

But what about PROPOSITIONAL meaning, where the question of a one-to-one pairing is rarely, if ever, raised? The infinitude of possible messages that can be conveyed cannot in and of itself be the explanation. While humans can formulate an indefinite number of propositions, we can also produce and perceive an indefinite number of sound sequences. Thus a one-to-one pairing between them is at least within the realm of logical possibility.

The most plausible answer is that sound and meaning are too different from each other for this to have ever been a PRACTICAL possibility. Meanings, whatever their ultimate nature, are first and foremost MENTAL realities, with no obvious physical instantiation. Sounds, physical realities par excellence, are produced by a coordinated set of articulations in the vocal tract, under control of a very different area of the brain from that responsible for meaning. Furthermore, in the conceptual structures that represent meanings, temporality and linearity play no role.[5] Such structures do, however, contain diverse types of hierarchies and structured relationships: predicate argument dependencies, and relations of inclusion, implication, cross-classification, and identity. Moreover, conceptual structures are discrete. In the representation of a sentence like *the girl threw the ball,* for example, *girl, threw,* and *ball* do not grade continuously into one another.

Phonetic representations, on the other hand, have almost none of these properties. A phonetic representation is temporal and quantitative. While partly hierarchical in nature, there is no direct relationship between the hierarchy of a phonetic representation and that of a conceptual structure. Indeed, the articulatory gestures, formant frequencies, tone patterns, and so on relevant to phonetics have nothing in common with the properties of a conceptual structure. And this mismatch is alleviated only slightly by appealing to phonological instead of phonetic representations.

In other words, a major evolutionary step toward vocal communication was the development of an INTERMEDIATE level between sound and meaning, a 'switchboard', if you will, which had the effect of coordinating the two. Only at that point could propositional meanings be conveyed with any degree of efficiency.

What properties might we deduce about this intermediate level? First, it would have to contain a small number of basic units. No advantage would have been conferred by the development of a THIRD level with thousands of basic entities. And second, this level would need to share some properties with conceptual structures and some properties with phonetic representations, but be constructed out of units common to neither. Communication (and its benefits

to the species) would not have been facilitated if this level had been skewed too much either to the sound end or to the meaning end of the spectrum.

What we have just done, of course, is to deduce the selective advantage of autonomous syntax! This level contains a small number of basic units (no more than a couple dozen syntactic categories are postulated for any given language), which are related to each other by the simple notions of 'dominate' and 'precede'. In this way, a syntactic representation contrasts markedly with the complexity of a semantic or phonetic one. Further, a syntactic representation shares some properties with the former (hierarchy, dependency) and some with the latter (linear sequencing), yet is governed by a calculus neither semantic nor phonetic.

Again, from the functional pressure favoring the development of a workable system of communication (i.e. from pressure to pair sounds and meanings efficiently) and with it the reproductive advantage that this ability to communicate would confer, autonomous syntax arose in the course of language evolution.

Let us look more closely at the mapping between conceptual structures and phonetic representations; cf. (2) next page.

Each level is linked by a set of rules to the level above or below it, which carry a derivation a step closer to sound from meaning, or vice versa, and each level is governed by its own autonomous principles of organization.

Subparts of conceptual (i.e. semantic) structures are replaceable by individual lexical items in lexical conceptual structure (Hale & Keyser 1986, 1987) in accord with the lexicalization principle discussed in Jackendoff 1983. As a result of the linking rules, predicate-argument structures are created, in which the specific content of the thematic information present in lexical conceptual structure is lost (Rappaport & Levin 1988). Linearization principles (the Principle of Case Adjacency, directionality of Case and/or Q-role assignment, and so on) transform predicate-argument structures into syntactic structures terminating in phonologically specified lexical items.[6] The phonosyntactic rules are sensitive only to a subset of syntactic constituent structure, namely that provided by principles of X-bar theory, in building the phonological and intonational phrases that define the level of prosodic structure (Selkirk 1986). All syntactic information is lost by the time of the application of the phonological rules, and in the phonetic realization rules, quantitative information enters the derivation for the first time (Pierrehumbert & Beckman 1988). Thus, this autonomous-systems view embodies a small set of manageable operations functioning in concert to link the inherently disparate components of language.

(2)

```
        ┌─────────────┐
        │ CONCEPTUAL  │
        │ STRUCTURE   │
        └─────────────┘
              │  ◄─────────────── LEXICALIZATION PRINCIPLES
        ┌─────────────┐
        │   LEXICAL   │
        │ CONCEPTUAL  │
        │ STRUCTURE   │
        └─────────────┘
              │  ◄─────────────── LINKING RULES
        ┌─────────────┐
        │  PREDICATE  │
        │  ARGUMENT   │
        │ STRUCTURE   │
        └─────────────┘
              │  ◄─────────────── LINEARIZATION PRINCIPLES
        ┌─────────────┐
        │  SYNTACTIC  │
        │ STRUCTURE   │
        └─────────────┘
              │  ◄─────────────── PHONOSYNTACTIC RULES
        ┌─────────────┐
        │  PROSODIC   │
        │ STRUCTURE   │
        └─────────────┘
              │  ◄─────────────── PHONOLOGICAL RULES
      ┌───────────────┐
      │    SURFACE    │
      │ PHONOLOGICAL  │
      │ REPRESENTATION│
      └───────────────┘
              │  ◄─────────────── PHONETIC REALIZATION RULES
      ┌───────────────┐
      │   PHONETIC    │
      │ REPRESENTATION│
      └───────────────┘
```
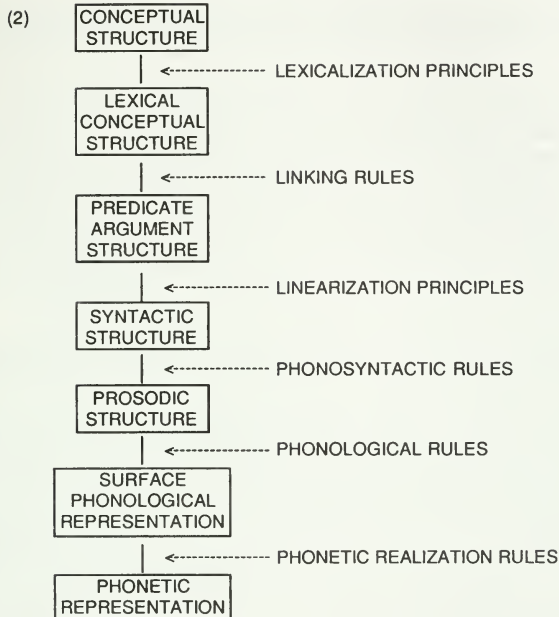
The reader who has been convinced of the functional utility of autonomous syntax might wonder whether selective forces could have shaped a grammatical model with the intricacy of that depicted in (2). Before addressing this question directly, I must say that I find Chomsky's Thompsonian explanation for the design features of any significant aspect of the language faculty to be utterly implausible. The hexagonal cell aggregates, the equiangular spirals, and so on found repeatedly in nature, and determined by the same laws of physics that suggest the optimal design for a bridge or arrangement of packing crates have no counterpart in the language faculty. Indeed, perhaps the most salient (and, at times, frustrating) aspect of UG is its lack of symmetry, the irregularity and idiosyncracy it tolerates, the widely different principles of organization of its various subcomponents and consequent wide variety of linking rules relating them.

And yet the entire package of properties is, without question, adaptive. In this respect, UG is like other complex organs containing a multitude of subparts,

each performing its role in harmony with the others. And the only explanation
we have available for the origin of adaptive complexity is natural selection.
Richard Dawkins (1986:288) makes this point with reference to the human eye:[7]

> There is one particular property of living things, however, that I want to
> single out as explicable only by Darwinian selection: adaptive com-
> plexity ... Following Paley, I have used the example of the eye. Two
> or three of the eye's well-'designed' features could, conceivably, have
> come about in a single lucky accident. It is the sheer number of inter-
> locking parts, all well adapted to seeing and well adapted to each
> other, that demands a special kind of explanation beyond mere
> chance. The Darwinian explanation, of course, involves chance too,
> in the form of mutation. But the chance is filtered cumulatively by
> selection, step by step, over many generations ... [T]his theory is cap-
> able of providing a satisfying explanation for adaptive complexity.

UG, with its 'sheer number of interlocking parts, all well adapted to [langu-
age] and well adapted to each other', demands an explanation in terms of
Darwinian natural selection as well.

But by what means and through what steps could natural selection have
yielded such a model? Clearly, if there were no alternative to the conclusion
that it came into being full-blown as a result of a single monster mutation of
gigantic and miraculously salubrious proportions, then skepticism about an
evolutionary account would be more than justified. Fortunately, however, there
is no reason to appeal to the evolutionary equivalent of divine intervention.
Rather, language evolution is an example of 'mosaic' evolution, in which selec-
tive forces steered once separate and evolutionarily unrelated components to
become integrated over the passage of time. Each step fed the following one,
each resulting in a more efficient and utilitarian system of communication.
Jacques Monod observed that 'as soon as a system of symbolic communication
came into being, the individuals, or rather the groups best able to use it, ac-
quired an advantage over others incomparably greater than any that a similar
superiority of intelligence would have conferred on a species without language'
(1972:126). And each evolutionary improvement in this system bestowed a fur-
ther advantage to those possessing it.

To begin our story, studies of ape intelligence (Premack 1976, Premack &
Premack 1983) suggest that prehominids possessed a surprisingly sophistica-
ted level of mental representation. The conditions for the subsequent develop-
ment of language as a medium of communication were set by the evolution of
this level into a faculty able to integrate 'information from peripheral systems
such as vision, nonverbal audition, smell, kinesthesia, and so forth' (Jackendoff
1983:18), i.e. into the level of conceptual structure. (For discussion of how this
might have taken place, see Wilkins & Dumford 1990, and In Preparation). It is
here that we find the central evolutionary antecedents of language. As Bicker-

ton (To Appear) rightly stresses, the properties of human language have little in common with any known system of animal communication, but much in common with animal, in particular primate, REPRESENTATIONAL systems.

A first step toward the evolution of this system for communication was undoubtedly the linking of individual bits of conceptual structure to individual vocalizations, perhaps along the lines manifested by animals whose communicative repertoire consists of a series of fixed calls. Once this was in place, the stage was set for the two crucial steps that would remove human communication forever from the company of animal communication: first, the development of the level of lexical conceptual structure whose central component is an autonomous lexicon consisting of a set of bidirectional sound-meaning pairings; and, second, the capacity to transmit an unbounded number of stimulus-independent messages.

In an important paper, Hurford (1989) speculates on how the level of lexical conceptual structure (which can be identified as the locus of the Saussurean 'sign') might have originated. Since vocal communication can take place without an autonomous lexicon (as in animal communication), he assumes that at an early stage our ancestors were able to vocalize concepts and to understand them when vocalized by others without having sound-meaning pairings stored as such. Language acquisition and communication took place simply as a result of generalizing observed verbal behavior. Employing mathematical models, Hurford demonstrates that successful communication is greatly facilitated if it is possible for the language learner to construct an autonomous sign on the basis of the observation of these acts of linguistic transmission and reception. Thus once the human brain had evolved to a level of complexity to allow it, the level of lexical conceptual structure came into being.

Simultaneously, a phonological level distinct from phonetic representation was in the process of evolving. Indeed, it seems likely that from the moment that the vocal channel was employed for the expression of concepts, a primitive phonology was in place. As Mattingly (1972) points out, the roots of phonology (the imposition of structure on the continuous speech stream) lie in the ability to perceive sign stimuli categorically, an ability shared by a wide variety of animal species. Furthermore, we know that the human vocal tract underwent a rapid evolution whose only function was seemingly to facilitate the production of an ever greater diversity of sounds (Lieberman 1984). At a certain point in this evolution, a workable system of phonotactics must have evolved, which allowed for the possibility of different combinations of a set of basic sounds, each combination linked with a different conceptual structure. In any event, the level of phonological representation allowed for an efficient storage and retrieval of a vastly greater number of elements than a phonetic level alone and must have conferred an enormous evolutionary advantage to the populations that developed it.

The reproductive advantage of being able to convey an unbounded number of stimulus-free messages can hardly be doubted, though the point at which the emergent linguistic system was first able to achieve this is a mystery. (Brandon & Hornstein (1986) suggest that evolutionary pressure for phenotypic transmission of information, which demands a system with such properties, was especially acute in the capricious and rapidly-changing environment in which our ancestors lived.) What is clear, however, is that the communication of propositions demands a syntactic level, the final link in the evolutionary chain leading to human language. This level, as suggested in the preceding section, has design features that suggest that it arose as an interface to link preexisting components, an idea stressed by Alvin Liberman (1974:44) in a paper not widely known to grammatical theorists:

> [T]he several components [of language] developed separately in evolution and in connection with different biological activities. At the one end of the system is long-term memory, as well as the nonlinguistic aspects of meaning and thought ... At the other end of the system, the components most directly concerned with transmission — the ear and vocal tract — had also reached a high stage of development before they were incorporated as terminals in linguistic communication ... We might assume, then, following Mattingly (1972), that grammar developed as a special interface joining into a single system the several components of transmission and intellect that were once quite separate.

The emergent syntactic level drew in particular on conceptual structure. Indeed, if Jackendoff (1983) is correct that every major phrasal constituent in a sentence corresponds to a conceptual constituent in the sentence's semantic structure, then the influence of conceptual structure on syntactic representations was profound. But the fact that syntax evolved to coordinate this former level with the vocal output channel led to other, and sometimes conflicting pressures on its design features. In particular, since concepts have to be expressed in real time and by means of a vocal tract exapted from structures originally evolved for respiration, olfaction, and digestion (and thus not in any sense 'perfected' for communication), a second set of forces contributed to the shaping of syntax. In particular, there arose many conflicts between the demand that it 'fit' well with semantics (which would favor a one-to-one match up between concepts and syntactic categories) and the demand that it feed smoothly into the expressive plane (which would favor structures designed for ease of production and perception). The resulting level, as a consequence, came to mirror neither perfectly, but rather developed its own distinct set of governing principles.

In the view of many formal linguists, it is not just the components of the grammar that are innately specified, but also many specific principles operating within and between components. One of these is Subjacency, which is stated as follows (Van Riemsdijk & Williams 1986:62):[8]

(3)   No rule can relate X, Y in the structure

... X ... $[_\alpha$ ... $[_\beta$ ... Y ... (or: ... Y ...$]_\beta$ ...$]_\alpha$ ... X ...)

where α, β are bounding nodes.

Subjacency, in effect, keeps rules from relating elements that are 'too far apart from each other', where distance apart is defined in terms of the number of designated nodes (bounding nodes) that there are between them.

Subjacency accounts for the violations of grammaticality in the English sentences (4a-b):

(4)   a.   *What$_i$ do you wonder where John put ___ $_i$?
       b.   *What$_i$ do you believe the claim that John ate ___ $_i$?

In these sentences, two bounding nodes intervene between the gap and the word *what.*

The strongest piece of evidence supporting the innateness of Subjacency is based on the poverty of the stimulus presented to the child language learner. Poverty of the stimulus arguments take the following form. One points to a hypothesized principle of UG and reasons that given its abstractness, the limited amount of relevant data made available to the child (in particular the fact that children's syntactic errors are rarely corrected), and the speed of acquisition, there is no way that it could have been learned inductively. Hence the principle must be innate.

Hoekstra & Kooij (1988), for example, motivate the innateness of Subjacency by pointing out that positive evidence alone could hardly suffice to enable the child language learner to come to the conclusion that (5a) is ambiguous as to the scope of *where,* while (5b) is not:

(5)   a.   Where did John say that we had to get off the bus?
       b.   Where did John ask whether we had to get off the bus?

They conclude, quite reasonably in my opinion, that knowledge of the permissible intervening structure between a *Wh*-phrase and its associated gap must be prewired into the child.

Many linguists have attempted to provide functional grounding for UG principles, in some cases arguing that such grounding invalidates their very existence. And to be sure, many functional explanations seem at first blush to be highly plausible. Subjacency, in particular, has received attention as a principle admitting to a functional explanation. Suggestions as to its functional basis have pointed to the processing problems created for the hearer in matching the

displaced *wh*-element with its coindexed gap (Givón 1979, Berwick & Weinberg 1984, Frazier 1985) or to cognition-based strategies of sentence interpretation that disfavor Subjacency-violating structures (Deane 1988). However, it is rarely pointed out that Subjacency performs no particular service for the speaker, whose 'easiest' task would simply be to *'wh'* any Noun Phrase regardless of its subcategorized position in the structure. In other words, Subjacency exhibits a functional asymmetry. This very asymmetry, it is worth pointing out, further serves to bolster the case for its innateness, since, surely, children learning their language could not be expected to refrain from uttering the relevant ungrammatical structures because they had come to realize through experience that their conversants might have trouble processing their utterances.

The same point can be made with respect to two other hypothesized principles of UG, Principle A of the binding theory (Anaphor Binding) and the ECP. While these principles may help the hearer more efficiently to pair anaphoric elements and their antecedents, they seemingly complicate matters for the speaker, who, of course, is fully aware of the identity of the intended referent and is thus forced to make a 'personally' unnecessary grammatical distinction. Anaphor Binding and the ECP are therefore functionally asymmetrical as well.

In short, it seems to be the case that those grammatical phenomena whose explanation is most convincingly attributed to some principle of UG tend to be those whose functional grounding is asymmetrical between speaker and hearer.

The tendency for innate constraints to exhibit a functional asymmetry is a natural consequence, I believe, of evolutionary pressure for language to serve as an ever more efficient medium of communication. In cases where ease for the speaker and the requirements of the hearer were in direct conflict, an obvious solution presented itself — to bypass directly the push-pull between speakers' demands and hearers' demands by incorporating those constraints necessary to the hearer directly into the innate language faculty itself. Thus the principles of UG were selected for, allowing a stable innate core to language, immune to the functional exigencies of the moment.

There was no evolutionary pressure, of course, to biologize what aided speaker and hearer equally. There would hardly be any benefit in encoding in our genes some linguistic principle that the path of least effort would lead both participants in a discourse to follow anyway.

It may seem at first blush a bit ironic that function-based factors should lead to an innate UG, but I feel that a moment's reflection will dispel any feelings of irony. If we agree with the functionalist thesis that the ability to communicate by spoken language is a paramount human attribute, and contributed more than anything else to the survival and development of the species, then we would EXPECT anything that facilitates this process to become biologized. If Sub-

jacency really does ease communicators' burdens, then is it not at least plausible that its biologization might have conferred an advantage to the species?

There are, however, serious obstacles that an adaptationist account of UG principles must overcome. To begin with, it is incumbent on one advocating such an account to make a convincing case that the survival and reproductive possibilities of constraint-bearing hominids are greater than those without them. Is this plausible? Would an individual whose grammar was governed by Subjacency be more likely to survive to adulthood than one without that constraint? The answer, it seems clear to me is, all other things being equal, the very idea is absurd. And so on for each individual constraint, taken one at a time, that has been posited to be part of UG.

But what about all of the constraints taken together as a single package? Here the answer is much less clear. If we consider the entire repertoire of UG constraints, Subjacency, Anaphor Binding, the ECP, the Q-Criterion, and the rest, then it is by no means far-fetched that their possession might have conferred an evolutionary advantage. UG principles are involved in the derivation of every sentence and therefore indirectly in every act of communicating. They constrain the interpretation of quantifier scope and the antecedents of gaps, they identify anaphoric elements, they help keep arguments distinct for particular predicates, and much more. In short, by allowing for an expressive richness that would be absent if they did not exist, they vastly aid the process of communication.

It seems clear that to the extent that UG principles can be linked to each other, i.e., one subsumed under the other, the less difficulty will be inherent in an adaptationist account. What is needed for such an account to work is a very small number of master principles arising in the course of evolution, and the great bulk of principles following deductively from these.[9]

A second problem involves the time frame. The conventional view links the origins of language to the origins of the species Homo sapiens, and that in turn to 'art, the domestication of animals, agriculture, and the creative explosion that produced the world we know today' (Bickerton 1991:xxx). If such a scenario is correct, then language must be very young indeed. According to recent estimates, our species may be only 100,000 years old, and possibly as young as 70,000 years. Australian aborigines, whose languages have essentially the same linguistic devices as other languages, split off from the rest of the human race about 40,000 years ago. As Bickerton notes, what may be as little as 30,000 years is far from enough time for all of the principles of UG to have arisen, each by a separate benificent mutation.

Again, we are led to the conclusion that only a very small number of master principles could have arisen in the course of evolution.

Furthermore, other evidence suggests that it is perhaps unwise to tie language to the origins of Homo sapiens. The time of the advent of civilization is only part of what we have available that might help us date the origins of the language faculty. Certain paleoneurological evidence suggests an evolutionary departure point coinciding with the emergence of the genus Homo, that is, between 2.5 and 2 million years ago — more than enough time for natural selection to run its course. For example, a specimen of Homo habilis yielded an endocast which showed a folding pattern in the left frontal lobe similar to that which is associated with Broca's area in living humans. This has led to the conclusion that Habilis may have been capable of some form of speech (Tobias 1981, Dumford 1989). There is also evidence that the Habilis brain had a Wernicke's area (Falk 1980, 1983), arguably indicating the possession of conceptual structure, in my view the most important evolutionary antecedent to language (see also Wilkins & Dumford 1990 and In Preparation). In short, it is not implausible that the language faculty, in whatever form, greatly antedates the cultural explosion to which Bickerton and many others appeal.

To conclude, focussing on language origins and evolution offers a new perspective on the old debate between formalists and functionalists in linguistics. Every formalist must recognize that many properties of the structural systems whose workings he or she is devoted to elaborating, including the innate principles which comprise them, arose for a good reason. More often than most formalists have been willing to accept, external factors based in communicative efficacy helped to steer grammar in the course of language evolution. Functionalists, then, have been right in stressing the interest and importance of identifying the external factors that have led grammar to take its present shape and form.

On the other hand, functionalists should follow the lead of Kuno, Prince, and Green and recognize that the existence of these factors, as profound as they may have been, in no way threatens the fundamental formalist tenet, namely that of the autonomy of grammar. Indeed, as we have seen, the functionalist position, worked through to its logical conclusion, leads to the realization that all linguists should accept the idea that central to language there exists an autonomous grammar, shaped in part by natural selection.

NOTES

[1] And I feel heartened by the fact that others have come to the same conclusion (see for example Hurford 1989, Pinker & Bloom 1990, Bickerton 1990, Wilkins & Dumford 1990 and In Preparation). Many of the issues taken up in the present paper are treated in more detail in Newmeyer 1990, 1991.

[2] In one article, Chomsky (1976) casts aspersions on anyone even raising the question of the evolutionary origins of language, suggesting that it is no more or less interesting than those of any other organ, say, the heart. He implies that the age-old quest for an answer to this question must reflect religious motives, rather than scientific ones. I find Bickerton's response (1981:315) to be wholly compelling:

> How we first got arms or a heart are questions so phylogenetically remote and so unrelated to the mental life of our species that Chomsky is right to dismiss them as not worth asking (except, presumably, for those whose professional specialism they are). But the evolution of language is so recent that we may reasonably suppose that its present nature is still conditioned by those origins, and its crucial role in distinguishing between us and other species (while any number of other species have arms and hearts) is such that it must strongly influence, even if it does not wholly determine, all that we think and do. Thus, to put the determination of its origins on a par with the determination of the origins of physical organs seems to me a piece of evasive perversity.

[3] Gould himself (1987) has taken the position that language is not the product of natural selection, but rather of nonadaptationist mechanisms.

[4] Chomsky's position is replete with irony. No one has campaigned more vigorously than he for the autonomy of grammar. Yet his position that language is, evolutionarily speaking, epiphenomenal, while not LOGICALLY incompatible with synchronic autonomy, does lead one to wonder how an epiphenomenon managed over the course of time to develop its own internal set of principles.

[5] In the approach taken in Langacker 1987, conceptual structures are linearly ordered, and consequently 'fit' with phonetic representations better than in the model I am describing. However, as I understand Langacker's theory, he achieves this fit simply by building a great deal of syntactic structure directly into his conceptual structures.

[6] For discussion of syntactic principles, see Chomsky 1981, 1986a,b, Sells 1985, Van Riemsdijk & Williams 1986, and Newmeyer 1986. I leave open the (for our purposes) irrelevant question of the number of levels of syntactic structure, i.e., whether the model contains the levels of D-Structure and Logical Form, as well as S-Structure.

[7] Pinker and Bloom (1990) discuss at length the adaptive complexity of language and its consequent implications for evolution. They also address a great many objections that have been raised to an evolutionary origin for UG. It is worth summarizing their responses to the two most serious. First, Lieberman (1984) claims that selection demands alletic variation, and none exists in syn-

tactic abilities. To this point, Pinker and Bloom note that enormous individual differences in such abilities exist, certain of which plausibly have a genetic basis. Indeed, there have been demonstrated to be genetically-transmitted syndromes of grammatical deficits.

Second, Geschwind (1980) argues that 'no hypothetical beneficial grammatical mutation could have benefitted its possessor, given that none of the person's less evolved compatriots could have understood him or her' (Pinker & Bloom 1990:xxx). To this they reply that comprehension abilities do not have to be in perfect synchrony with production abilities, a point that they amply illustrate with examples of asymmetries between the two.

[8] The principle of Subjacency dates from Chomsky 1973 and unifies several of the extraction constraints proposed in Ross 1967. In different ways, Kayne (1984) and Chomsky (1986b) attempt to unify Subjacency and the ECP, a result which, if correct, has no bearing on the conclusions of this paper.

[9] Bickerton (1990) makes the point that an adaptationist account demands a small number of principles and sketches briefly how UG principles might have arisen in the course of language evolution.

REFERENCES

BERWICK, Robert, & Amy Weinberg. 1984. The grammatical basis of linguistic performance. Cambridge, MA: MIT Press.

BICKERTON, Derek. 1981. Roots of language. Ann Arbor: Karoma.

-----. 1990. Language and species. Chicago: University of Chicago Press.

-----. 1991. Language origins and evolutionary plausibility. Language and Communication.

BRANDON, Robert, & Norbert Hornstein. 1986. From icons to symbols: some speculations on the origins of language. Biology and Philosophy 1.169-189.

CHOMSKY, Noam. 1973. Conditions on transformations. A festschrift for Morris Halle, ed. by S. Anderson & P. Kiparsky, 81-162. New York: Holt.

-----. 1975. Reflections on language. New York: Pantheon.

-----. 1976. On the nature of language. Origin and evolution of language and speech, ed. by S. Harnad, H. Stekelis, & J. Lancaster, 46-55. (= Annals of the New York Academy of Sciences, 280.) New York: New York Academy of Sciences, VIII.

-----. 1981. Lectures on government and binding. Dordrecht: Foris.

-----. 1986 (a). Knowledge of language. New York: Praeger.

-----. 1986 (b). Barriers. Cambridge, MA: MIT Press.

-----. 1988 (a). Language and problems of knowledge: the Managua lectures. Cambridge, MA: MIT Press.

-----. 1988 (b). Prospects for the study of language and mind. To appear in The Chomskyan turn, ed. by A. Kasher. Oxford: Blackwell. [Citations are from a pre-publication manuscript.]

-----, and Harold Lasnik. 1977. Filters and control. Linguistic Inquiry 8.425-504.

DAWKINS, Richard. 1986. The blind watchmaker. New York: Norton.

DEANE, Paul. 1988. Which NP's are there unusual possibilities for extraction from? Papers from the 24th Annual Regional Meeting of the Chicago Linguistic Society, 100-111.

DUMFORD, Jennie. 1989. Evolution of the brain and language. MS, Arizona State University.

FALK, Dean. 1980. A reanalysis of the South African Australopithecine natural endocasts. American Journal of Physical Anthropology 53.525-539.

-----. 1983. Cerebral cortices of East African early hominids. Science 221. 1072-1074.

FRAZIER, Lynn. 1985. Syntactic complexity. Natural language parsing, ed. by D. Dowty, L. Karttunen, & A. Zwicky, 129-189. Cambridge: University Press.

GESCHWIND, Norman. 1980. Some comments on the neurology of language. Biological studies of mental processes, ed. by D. Caplan, 301-320. Cambridge, MA: MIT Press.

GIVÓN, Talmy. 1979. On understanding grammar. New York: Academic Press.

GOULD, Steven Jay. 1987. The limits of adaptation: Is language a spandrel of the human brain? Paper presented to the Center for Cognitive Science, MIT.

GOULD, Steven Jay, & R. C. Lewontin. 1979. The spandrels of San Marco and the Panglossian program: A critique of the adaptationist programme. Proceedings of the Royal Society of London 205:281-288.

HALE, Kenneth, & Jay Keyser. 1986. Some transitivity alternations in English. Lexicon working papers #7, Center for Cognitive Science, MIT.

----- & -----. 1987. A view from the middle. Lexicon working papers #10, Center for Cognitive Science, MIT.

HOEKSTRA, Teun, & Jan Kooij. 1988. The innateness hypothesis. Explaining language universals, ed. by J. Hawkins, 31- 55. Cambridge: University Press.

HURFORD, James. 1989. Biological evolution of the Saussurean sign as a component of the language acquisition device. Lingua 77.187-222.

JACKENDOFF, Ray. 1983. Semantics and cognition. Cambridge, MA: MIT Press.

KAYNE, Richard, 1984. Connectedness and binary branching. Dordrecht: Foris.

KUNO, Susumu. 1987. Functional syntax. Chicago: University of Chicago Press.

LANGACKER, Ronald. 1987. Foundations of cognitive grammar. Stanford: Stanford University Press.

LIBERMAN, Alvin. 1974. The specialization of the language hemisphere. The neurosciences: third study program, ed. by F. Schmitt & F. Worden, 43-56. Cambridge, MA: MIT Press.

LIEBERMAN, Philip. 1984. The biology and evolution of language. Cambridge, MA: Harvard University Press.

MATTINGLY, Ignatius. 1972. Speech cues and sign stimuli. American Scientist 60.327-337.

MONOD, Jacques. 1972. Chance and necessity. London: Collins.

NEWMEYER, Frederick. 1986. Linguistic theory in America. 2nd ed. New York: Academic Press.

-----. 1990. Speaker-hearer asymmetry as a factor in language acquisition: A functional explanation for formal principles of grammar. Papers from the Aixteenth Annual Meeting of the Berkeley Linguistics Society.

-----. 1991. Functional explanation in linguistics and the origins of language. Language and Communication.

PIATTELLI-PALMARINI, Massimo. 1989. Evolution, selection, and cognition: from 'learning' to parameter setting in biology and in the study of language. Cognition 31.1-44.

PIERREHUMBERT, Janet, & Mary Beckman. 1988. Japanese tone structure. Cambridge, MA: MIT Press.

PINKER, Steven, & Paul Bloom. 1990. Natural language and natural selection. Behavioral and Brain Sciences.

PREMACK, David. 1976. Intelligence in ape and man. Hillsdale, NJ: Erlbaum.

-----, & Ann Premack. 1983. The mind of an ape. New York: Norton.

RAPPAPORT, Malka, & Beth Levin. 1988. What to do with Q-roles. Syntax and semantics, 21: Thematic relations, ed. by W. Wilkins, 7-36.

ROSS, John. 1967. Constraints on variables in syntax. MIT Ph. D. dissertation in Linguistics.

SELKIRK, Elisabeth. 1986. On derived domains in sentence phonology. Phonology Yearbook 3.371-405.

SELLS, Peter. 1985. Lectures on contemporary syntactic theories. Chicago: University of Chicago Press.

THOMPSON, D. W. 1961. On growth and form. [Abridged edition, ed. by J. T. Bonner.] Cambridge: Cambridge University Press.

TOBIAS, P. V. 1981. The emergence of man in Africa and beyond. Philosophical Transactions of the Royal Society of London, Series b, 292.43-56.

VAN RIEMSDIJK, Henk, & Edwin Williams. 1986. Introduction to the theory of grammar. Cambridge, MA: MIT Press.

WILKINS, Wendy, & Jennie Dumford. 1990. In defense of exaptation. Behavioral and Brain Sciences.

-----, & -----. In Preparation. The emergence of language: perspectives on evolution and acquisition.

PHONOLOGY AND ITS INTERACTION WITH SYNTAX AND MORPHOLOGY

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1. INTRODUCTION

Linguistic research in the past thirty years has made significant progress towards understanding the internal properties of the components of a grammar, especially phonology, syntax, semantics, and to a lesser degree, morphology. One of the remaining and more thorny problems in understanding the formal properties of phonology is determining how it interacts with other parts of the grammar. Starting with work by Mohanan and Kiparsky in the early 1980s, the theory of Lexical Phonology has emerged as the dominant research paradigm within which questions about the relationship between phonology, morphology, and syntax are framed. This paper takes a closer look at the theory of component interaction embodied in Lexical Phonology. Although the focus of my inquiry is the interaction between phonology, syntax, and morphology, and in particular the supposed ordering relation between morphology and phonology, a further conclusion emerges from this investigation, namely that much work remains to be done in order to answer the question 'What is morphology?' In particular, we will see that most of the evidence cited in support of the interactive view of phonology and morphology involves operations which are not necessarily part of morphology, and which, given a certain restriction on the generative power of morphology, is necessarily not part of morphology.

The principles of Lexical Phonology are generally summarized in the standard graphic metaphor (2) [next page], which is adapted minimally from Kiparsky 1982. The core principles of the theory appear to be those in (1).

(1) a. There is a construct 'level', common to phonology and morphology.
b. Levels in phonology are the same as levels in morphology.
c. There are significant formal differences between lexical and postlexical phonology.

d. Cyclic application of phonological rules derives from the inter-action between lexical phonology and morphology as charac-terized above.

e. Lexical phonology has no access to the output of the syntax.

f. Lexical phonology and morphology interact so that morphology has access to phonological properties derived by applying phonological rules on some earlier level

(2)
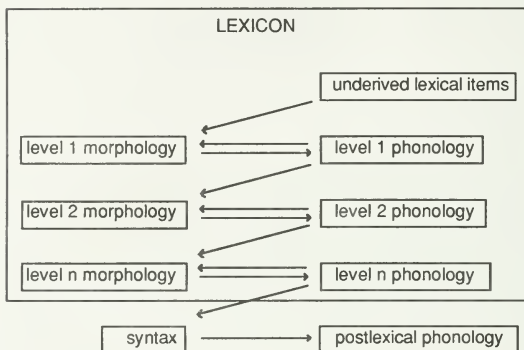
Claims (1a,b) recognize that in morphology and phonology, there are domain restrictions on the application of rules, and (1b) in particular says that the domain restrictions in morphology have the same basis as those in phono-logy; that is, rules in morphology and phonology are assigned to levels, and in so far as levels are properly a property of the whole lexicon (which includes morphology and phonology), level ordering is supposedly uniform between these components.

Claim (1c), that there is a distinction between lexical and postlexical phonology, recognizes, and tries to make more systematic, the observation that there seem to be two distinct kinds of phonological rules. A partial list of proper-ties often cited as distinguishing the two kinds of rules is given in (3).

(3) Lexical Rules
May be sensitive to morphological or lexical properties
May apply word-internal cyclically
Obey the Strict Cycle condition
Cannot see the output of syntax
Are structure preserving
Precede all postlexical rules

Postlexical Rules
>   Follow all lexical rules
>   Have access to the output of syntax
>   Are insensitive to morphological or lexical properties
>   Do not apply cyclically
>   Violate the Strict Cycle condition

Problems with these criteria for component assignment are not hard to find. External sandhi rules can have exceptions or morphological conditions, be structure preserving, and apply in a phrasal-cyclic manner; lexical rules can violate structure preservation. I adopt the distinction between lexical and postlexical rules here, with no further commitment to the distinction. Claim (1d), that cyclic behavior can be derived from a phonology ~ morphology interaction, is a theory-internal claim, and other models can derive cyclicity without interaction.

Two other claims are implicit in the model (2), especially in the way that components are placed in nested boxes connected by single or double headed arrows. These claims, (1e) and (1f) are the claims to be focused on, since they represent the Lexical Phonology theory of component organization. The literature of Lexical Phonology has never given an explicit formal interpretation to displays like (2), so it is difficult to know how they can be tested.

Consider the fact that in (2), the boxes called 'level 1 phonology' through 'level n phonology', and the boxes called 'level 1 morphology' through 'level n morphology' are contained in a larger box called 'lexicon'. One interpretation of such structures is that subcomponents contained in the same box have shared characteristics, which those outside the box do not have. It is quite unclear what the shared formal properties of morphology and lexical phonology are, except that in the theory of Lexical Phonology, these components define the lexicon. In fact, taking displays like (2) to be a claim about similarity in formal properties, we would conclude that lexical phonology and morphology are more similar than lexical and postlexical phonology. We might even conclude that lexical and postlexical phonology have no shared properties, since they share no box. This is clearly absurd, and other arrangements of the boxes have been proposed, for instance in Kaisse & Shaw 1985, where boxes overlap, or Mohanan 1986, where phonology and morphology do not even share a box; cf. (4) below. If display (2) has a meaning, it cannot be a claim about similarity of components.

The only plausible interpretation of these structures is as a claim about ordering. Thus, lexical phonology precedes syntax, and postlexical phonology follows syntax. What does it mean for one component to 'precede' another? Empirically, we have no evidence for the real-time interpretation in milliseconds of component ordering, so claims about ordering can only be tested if seen as claims about the information available to a given module. If module M 'follows' module L and 'precedes' module N, then M has access to the results of operations defined in L, but not to the results of operations defined in N. If lexical

(4) Kaisse and Shaw 1985
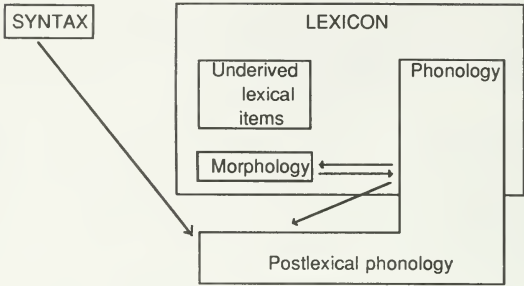
Mohanan 1986
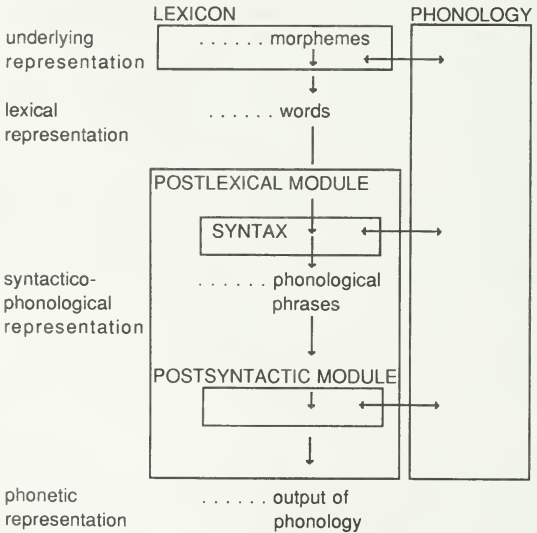
phonology precedes syntax, information provided by syntax should not be available to lexical phonology. No rule of lexical phonology should have access to properties of other words in the sentence, or to any fact about the syntactic structure of the sentence which the word appears in. Assuming some criterion for deciding whether a rule is lexical, this might entail that certain types of languages will never exist. If these predictions are correct, and providing that the predictions follow from the theory, we would have a reason to assume the Lexical Phonology model. Similarly, interaction between phonology and morphology predicts that we might find rules in the morphology which are sensitive to a phonological property that results by applying an earlier phonological rule. It is surprising for such a fundamental prediction that little evidence for such interactions between phonology and morphology has been brought forth. I consider such examples later.

(5)
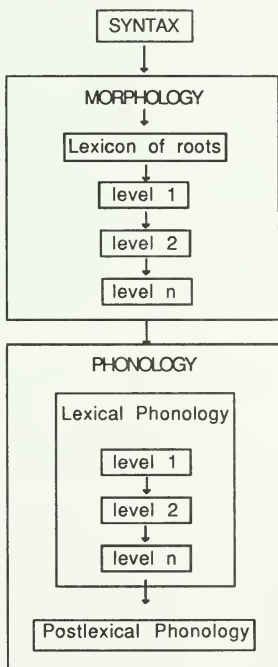
To bring into sharper focus the predictions of Lexical Phonology, an alternative organization of components is defended here, which can also be represented by a graphic metaphor, the one in (5) above.

What is most important in this theory, especially for distinguishing it from Lexical Phonology, is the relative ordering and noninteraction of components. The level-related claims (1a,b,c) have simply been retained from Lexical Phonology,[1] though the mechanisms for generating the behavior are not the same. The noninteractive theory also assumes, as does Lexical Phonology, the primitive notion of levels, L1 to Ln. The putative identity of morphological and phonological levels results from an assumption within this theory about how levels in phonology are defined.

Each morphological rule is encoded for the level where it applies. Word construction starts by selecting a root, and morphological rules apply to this structure, concatenating material with it. Morphological rules provide labeled bracketing as well as the segmental content of its affix, hence take the form (6).

(6) $[_x Y] \rightarrow [_z [_x Y] W]$ $[_x Y] \rightarrow [_z W [_x Y]]$

The labels attached to these structures indicate the level on which the operation applies. In (7) we see the structure of Maltese Arabic *ḥatfitkúm š* 'she didn't snatch you', composed of the Level 1 root *ḥataf* and the subject marker *it*, and the Level 2 object suffix *kum* and the negative *š*.

(7)   L1   Insertion of root
      |
      ḥataf

      L1   Suffixation of subject marker
     / \
    /   \
   L1   \
   | \
   ḥataf   it

      L2   Suffixation of object marker
     / \
    /   \
   L1   \
  / \   \
 /   \   \
L1   \   \
| \   \
ḥataf   it   kum

```
                    L2                    Suffixation of negative
                  /  \
                /      \
        L2            \
       /  \            \
     /      \           \
   L1        \           \
  /  \        \           \
 /    \        \           \
L1     \        \           \
|       \        \           \
hataf    it       kum        š       'she didn't snatch you'
```
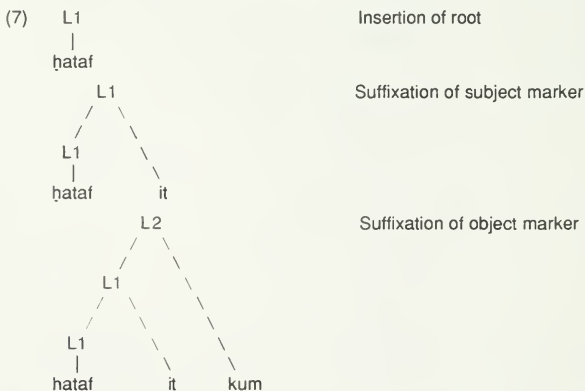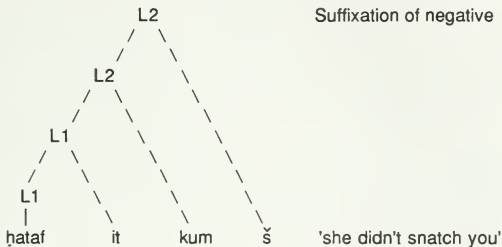
The only difference between this and standard lexical phonology is the inclusion of labels on the brackets which indicate distinctions of level.

In the phonological component, rules are encoded for their domain of application, specifically the lowest and highest-numbered level where the rule may apply. This is the same as specifying, for instance, that such and such a rule is 'in' Level 1 phonology. The highest constituent dominated by L1 becomes the initial input to the phonology, and phonological rules encoded for application at L1 apply to this string. Thus the boxed constituent in the first step of (8) is the domain where Level 1 rules apply. After the last rule defined at L1 applies, in this case Apocope, the highest constituent dominated by L2 becomes the string subject to phonological rules, and rules encoded for application at L2 apply to this string. This continues to the last lexical level and into postlexical phonology. In this way, we keep cyclicity and level ordering, and do so with essentially the same stipulations as are required for the Lexical Phonology derivation of the cycle, without interleaving phonology and morphology.

(8)

```
                    L2
                  /  \
                /      \
        L2            \
       /  \            \
     /      \           \
  ┌─L1 phonology─┐        \
  │   L1    \    │         \
  │  /  \    \   │          \
  │ /    \    \  │           \
  │L1     \    \ │            \
  │|       \    \│             \
  │hátaf    it   │  kum         š
  └──────────────┘
```

Stress
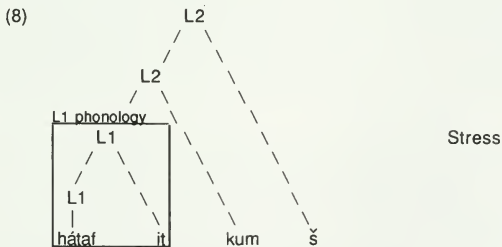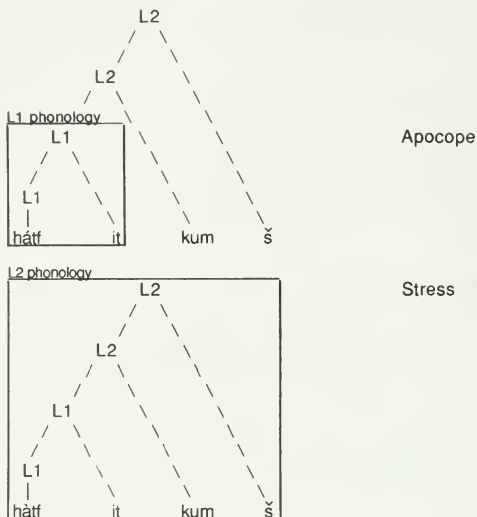
With two competing models, we can now look to see where they make different predictions and check which predictions best match the facts. First, consider syntax ~ phonology interaction. Lexical Phonology predicts that we will never find a rule of the lexical phonology which can see the output of syntax, whereas the noninteractive model claims that we should find such rules. Deciding between these two models should be simple: We look to see if rules of lexical phonology ever can see the output of syntax. Now, suppose that after a search for such rules, we fail to find such counterexamples. One could take this as a refutation of the noninteractive theory, or we could fix the theory up a bit, by stipulating that lexical rules cannot refer to material outside the word.

A proponent of Lexical Phonology could rightly object that one should not handle with stipulation a fact that is explained in Lexical Phonology by the architecture of the theory. This supposed gap in the set of attested rules, then, seems to be the argument for ordering syntax after phonology. However, the component ordering of (2) also predicts that information from lexical phonology could be available to syntax, and such interactions are simply never found. The architecture of the noninteractive model correctly makes this prediction, whereas Lexical Phonology has to stipulate this as an independent principle. The box model of Kaisse & Shaw 1985 happens to avoid this unfortunate conclusion by

running syntax in parallel with phonology and merging their outputs in the postlexical phonology. What is interesting is that nobody, including Kaisse and Shaw, seems to have noticed this bizarre prediction of Lexical Phonology, and to the best of my knowledge, the Kaisse & Shaw model has not been explicitly adopted by any researcher in Lexical Phonology in the past five years.

The models in (5) on the one hand, and (2) or the Kaisse & Shaw alternative on the other, thus part company over issues of access to information. The noninteractive model claims that the rules of lexical phonology do have access to information from syntax, and it also disallows morphology access to information made available by phonological rules. These two issues are separable — one COULD have an interactive model of phonology and morphology, and reorder syntax relative to lexical phonology. Or one could retain the ordering of phonology and morphology relative to syntax, but reject the interactive aspect of Lexical Phonology. We will thus consider these claims separately.

In this paper, I will argue for two conclusions regarding what languages DO. First, I show that systems exist with the properties which Lexical Phonology predicts should not exist, namely lexical rules accessing the output of syntax. Second, I argue that there are NO compelling cases of rules of morphology applying after phonology, so there remains a conspicuous lacuna in the evidence for Lexical Phonology. Taken together, this argues for a noninteractive model over model (2).

2.   SYNTAX AND PHONOLOGY

The first problem I will look into is the ordering between lexical phonology and syntax. The empirical problem is that some rules of Kimatuumbi phonology must be lexical, but they also have access to syntactic structure and phonological properties of surrounding words. The data and issues involved here are also discussed in Odden 1990 and Hayes 1990. A few rules of Kimatuumbi show the nature of the paradox. The first rule is the phrase-level rule Shortening, which shortens a long vowel if it is the head of a phrase and is followed by material within its phrase.

(9)   kịkóloombe   'cleaning shell'
       kịkólombe chaángu   'my cleaning shell'
       kịtúumbili   'monkey'
       kịtúmbili ywáawịịlé   'monkey who died'
       naakị-twéetị   'I took it'
       naakị-twétị kịkóloombe   'I took a cleaning shell'

Since this rule involves multiple words and syntactic structures, in Lexical Phonology the rule has to be postlexical.

(10)   SHORTENING
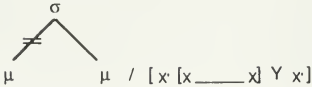
(Y contains phonetic material)

$$\mu \qquad \mu \ / \ [\ _{x^.} \ [_x \underline{\qquad} \ _x] \ Y \ _{x^.}]$$

The second rule is Glide Formation, a lexical rule which desyllabifies a prevocalic high vowel and compensatorily lengthens the following vowel.

(11)   ki̱-kálaango   'frying pan'
       ky-u̱ú̱lá   'frog'   (cf. kau̱lá 'little frog')
       i̱-kálaango   'frying pans'
       y-u̱ú̱lá   'frogs'
       mu̱-ki̱kálaango   'in the frying pan'
       mu̱-yu̱ú̱lá   'in the frogs'
       mw-i̱i̱kálaango   'in the frying pans'
       tu̱-téli̱i̱ke   'we cooked'
       tw-eéki̱te   'we laughed'   (cf. éka 'to laugh')

We must restrict GF so that a prevocalic long vowel does not desyllabify, to account for (12). Vowel length which blocks GF may arise from applying GF, as *mwi̱i̱-u̱té* shows, indicating that the rule iterates from left to right.

(12)   mu̱u̱-até   'in the banana hands'
       (cf. mwaanjú̱   'in the firewood', from /mu̱-aanjú̱/)
       mwi̱i̱-u̱té   'you should pull them (Cl. 9)'
       (cf. bayu̱u̱té   'they pulled them', from /ba-i̱-u̱té/)

We will see that GF is a lexical rule, but paradoxically, applies after the sandhi rule Shortening. The next step is to show that GF is lexical: The problem is that there is only one iron-clad principle that forces a rule into the lexical component, as opposed to being postlexical, and that is a demonstration that the rule is cyclic. The supposed correlation between lexicality and reference to morphological or lexical features does not follow from the architecture of Lexical Phonology, so a demonstration that it fails to hold does not refute the theory. The only thing that follows from the nature of Lexical Phonology is the correlation between cyclicity and lexicality, since the cycle itself is assumed to derive from the phonology ~ morphology interaction in the lexicon. The Glide Formation rule can be shown to apply cyclically, and in particular the domain of cycling is the word-internal lexical level. Therefore GF must be a lexical rule.

One demonstration of the cyclicity of GF consists in the contrasting derivations of *mwi̱i̱-u̱té* in (13a) with the Level 2 prefixes *mu̱* and *i̱* vs. *mu̱yu̱ú̱lá* in (13b), with the Level 3 prefix *mu̱* and the Level 2 prefix *i̱.* We find the same sequence of vocalic phonemes in both cases, but determining which vowel

becomes a glide requires knowing the level at which the morpheme is made available.

(13) a. [mʉ-į-ʉté]
          mʉ-į-ʉté   Input to L2
          mwįįuté   Glide Formation
          'you should pull it'

     b. [mʉ [į-ʉ́lá]]
          į-ʉ́lá   Input to L2
          yʉʉ́lá   Glide Formation
          mʉyʉʉ́lá   Input to L3
          NA   Glide Formation
          'in the frogs'

In *mwįį-ʉté*, the vowel sequence *ʉ+ į* appears entirely in Level 2, so the first of the prevocalic high vowels undergoes GF, giving the phonetic form. In *mʉ-yʉʉ́lá*, *mʉ* becomes available at Level 3, but *į* is available at Level 2, so *į* undergoes GF since it is the only vowel encountered at this stage. Therefore GF must be lexical.

Now we consider the ordering of Shortening and GF. The supposedly postlexical rule Shortening precedes GF, since Shortening does not apply to the long vowel which arises as a result of applying GF, at least at Level 2.

(14) mʉ-aké lį́   →   mwaaké lį́   'you should not hunt'
      (*mwaké lį̀)
      kį-ʉ́la chaángu →   kyʉʉ́la chaángu   'my frog'

The vowel combination undergoes GF, which lengthens the stem vowel, but the derived long vowel is not shortened in the presence of a modifier. This requires counterfeeding between GF and Shortening, which means that a postlexical rule applies before a lexical rule.

This causes a serious problem for Lexical Phonology, but is allowed in the theory proposed here, since there is no theoretical impediment to making Shortening a lexical rule. It is important to bear in mind that the previous data provide examples of GF at Levels 2 and 3. GF also applies at Level 1, the stem level, as seen in (15), where the short vowel of the reciprocal suffix *-an-* lengthens as a result of desyllabifying the suffix *-į-*.

(15) ák-a   'to net-hunt'
      ák-an-a   'to net-hunt each other'
      ák-y-aan-a 'to net-hunt for each other' (/ak-į-an-a/)

Interestingly, long vowels which arise by GF at Level 1 do undergo Short-
ening, in contrast to long vowels so derived at Levels 2 and 3. As can be seen
in (16), GF is applicable on two levels, namely in Level 1 to $i + a$, and in Level 2
to $u + a$. As shown by the surface form *twaakyana itúumbili*, the long vowel
derived by GF at Level 1 shortens, but the long vowel derived at Level 2 does
not.

(16)   [tu̧-[ak-i̧-an-a]] i̧túumbili
     →   twaakyana i̧túumbili   'we net-hunt monkeys for each other'

This compounds the paradox for Lexical Phonology. On the one hand, Level 1
GF has to feed Shortening, and on the other hand Level 2 GF has to counter-
feed Shortening. The solution is simple if Shortening is in the lexical phono-
logy: As spelled out in (17), Shortening follows GF, and only applies at Level 1.

(17)   ak-i̧-an-a i̧túumbili   Input to Level 1
          akyaana i̧túumbili   Glide Formation
          akyana i̧túumbili   Shortening
          tu̧-akyana i̧túumbili   Input to Level 2
          twaakyana i̧túumbili   Glide Formation

For this to be possible, Shortening must be lexical, which means that rules of
the lexical component must have access to the output of syntax.

Other rules exhibit similar properties. One of these, Initial Tone Insertion
(ITI), will be considered since it is relevant to section 3. This rule, illustrated in
(18), assigns a H tone to the initial vowel of a lexical class of morphemes, as
long as the morpheme is preceded by a word bearing no stem H.

(18)   ki̧ndoló **cha** Mambóondo   'sweet potato of Mamboondo'
          mpu̧nga **wá** Mambóondo   'rice of Mamboondo'
          mabígi i̧ **ga**-bíli   'two beer-brewing areas'
          mi̧tomondo **yi̧**-bili   'two ntomoondo trees'
          aati̧belekwá **ku̧**-Ki̧poói̧   'he was BORN in Kipooi'
          abeleki̧lwe **kú̧**-Ki̧poói̧   'he was born in Kipooi'

An important condition on the triggering element seen in (19) is that, while
a stem H in the preceding noun blocks the rule, a prefixal H does not.

(19)   ki̧wikilyo **gáni̧**   'what type of cover?'
          ki̧túmbili **gani̧**   'what type of monkey?'
          ki̧ng'ombe **gáni̧**   'what type of cows?'

Thus the stem H in *ki̧túmbili* blocks assignment of H to *gani̧*, but the prefix H in
ki̧ng'oombe does not.

The fact that the rule is lexically conditioned and is sensitive to the stem ~ prefix distinction suggests (though it does not prove) that it should be lexical. An ordering argument cinches this conclusion. There is a restriction on GF in Kimatuumbi, which is that a H-toned vowel cannot glide before a long vowel, although a L-toned vowel can. Word-internal examples of this condition are seen in (20), where the prevocalic vowels i and $\acute{u}$ do not glide before a long vowel.

(20)   chatýoóndité   'what we peeled'
         paniaándiiké   'when I wrote'

Now consider the data in (21), with the prefix $k\psi$ before a long vowel.

(21)   ytilí kyaanjý   →   ytilí kwaanjý 'you should run to the firewood'
         utili, kyaanjý →   utili, kýaanjý 'you ran to the firewood'

A H can be assigned to $k\psi$- by ITI, which affects whether GF can apply before a long vowel: If the prefix has a derived H (the second example), it cannot undergo GF. This shows that ITI applies before GF. Since GF is lexical, ITI must also be lexical, which creates another paradox for Lexical Phonology.

The noninteractive model has no problem with this, since in that theory, the output of the syntax is fully available to lexical phonology, and therefore ITI CAN be lexical. While Lexical Phonology is not equipped to handle this problem, we might consider whether the data could be handled in a theory that retains the supposed ordering between syntax and lexical phonology. Hayes (1990), discussing similar problems, including this Shortening ~ Glide Formation paradox, proposes a modification of phonology, namely precompilation theory. In precompilation theory, a word may have multiple derivations in the lexical phonology, hence multiple outputs will emerge from the lexicon for each word. Each of these derivations is tagged for a diacritic referred to as a lexical instantiation frame. Languages may define sets of instantiation frames which serve as context for lexical phonological rules. Upon entering the postlexical phonology, the frame definitions of the language are consulted, and the syntactic, morphological, and phonological properties of the word in its sentence are checked. Out of the various derivations generated in the lexicon, the correct form is then inserted into the sentence and the string is submitted to the postlexical phonology. Precompiled Shortening is formulated as in (22).

(22) $VV \to V$ / [... _____ ...] [Frame 1]

The definition of Frame 1 is given as (23):

(23)   Frame 1: $[_{x'} ... [_{x} \text{_____}] Y]$ $Y \neq \emptyset$

The two derivations in (24) are then generated. The derivation where Frame 1 rules apply generates the Frame 1 allomorph, and the other one, where these rules do not apply, generates the elsewhere form.

(24)   [kyaandangyo chaángu] 'my forest farm'
                    /andaangyo/

      [+F1]   [-F1]

    andangyo   NA   Shortening
    ki̱-andangyo   ki̱andaangyo   Level 2 prefixing
    kyaandangyo   kyaandaangyo   Output of lexical phonology

Later, the appropriate allomorph is selected. If the word in question appears in the context defined in (23), the Frame 1 allomorph is inserted; otherwise the 'elsewhere' allomorph is inserted.

Frame definitions may include phonological information form neighboring words. Kimatuumbi ITI could be stated to apply in the context Frame 2:

(25) Initial Tone Insertion

$$V \rightarrow V \ / \ [\underline{\hspace{1.5cm}} \ [\text{Frame 2}]$$
$$| \qquad [+D]$$
$$H$$

Frame 2 will then be defined as in (26).

(26) Frame 2: [$_{stem}$ ~ H] X $\underline{\hspace{1.5cm}}$ (X does not contain $_S$])

Precompilation thus allows lexical rules to INDIRECTLY see into surrounding words, without DIRECTLY looking at surrounding words, since the rule itself only refers to the mediating Frame diacritic. In other words, the rules freely generate all sorts of forms, then later filter out the incorrect ones.

Although standard Lexical Phonology does not include precompilation, this new machinery is not grossly inconsistent with the architecture of Lexical Phonology, and since Lexical Phonology alone cannot handle Kimatuumbi, it must adopt a subtheory of precompilation to achieve observational adequacy. Both Extended Lexical Phonology and the noninteractive theory can generate the correct forms, and since precompilation may include any information about the syntax, morphology, and phonology of surrounding words, precompilation generates the same forms as are generated by the theory which allows lexical phonology direct reference to structures outside the word. Precompilation is thus a virtual notational variant of the direct-access theory.

If the theories are weakly equivalent, we must turn to secondary considerations such as computational complexity to evaluate the theories, where we find an advantage to allowing lexical rules to directly see the output of syntax. In precompilation theory, there can be multiple frames, and frames can overlap, so each frame definition doubles the number of derivations necessary for a form. For instance, if there are two frames defined in a language, then four derivations are required for a word, one for Frame 1, one for Frame 2, one for Frames 1 and 2, and one for the elsewhere form. In general, when there are n frames, we need 2^n derivations. On the other hand, in the theory ordering lexical phonology after syntax, only a single derivation is required since the rules simply inspect the word-external context to determine whether their conditions for application are satisfied. Precompilation theory thus entails more complex computations.

3. MORPHOLOGY AND PHONOLOGY

We now turn to the second issue of component interaction, namely the fundamental question in morphology ~ phonology interaction. This is the question whether, as predicted by the interactive theory, morphology can ever take as its input the output of the phonological component. I will argue that morphology exclusively precedes phonology, but to illustrate the kind of evidence we would look for to decide this issue, I begin by investigating a new case where morphology SEEMS to follow phonology.

3.1 ARABIC *YA*

The problem involves the phonology of glides in Classical Arabic (Brame 1970), and an allomorph of the first singular possessive suffix. A basic fact about glides in Classical Arabic is that they are phonologically 'weak' and often elide. The important generalization for our purposes is that intervocalic glides delete, and the resulting vowel cluster fuses into a single long vowel. Since Classical Arabic does not allow long vowels in closed syllables, this long vowel may then shorten. The left column of (27) gives a verb which suffers no alternations. The other two columns illustrate stems with final *y* and *w* which delete intervocalically.

(27)	Sound verb	Final *y*	Final *w*	
	qatalnā	ramaynā	daʕawnā	1p.
	qatala	ramā	daʕā	3 s.m.
	qatalat	ramat	daʕat	3 s.f.
	'kill'	'throw'	'call'	

Three rules are responsible for these alternations, namely Glide Elision which deletes intervocalic glides, Vowel Fusion which fuses vowel clusters into one long vowel, and Closed Syllable Shortening.

(28) Glide Elision

$$\begin{bmatrix} C \\ \text{-con} \\ \text{+son} \end{bmatrix} \rightarrow \emptyset \ / \ V \underline{\hspace{1em}} V$$
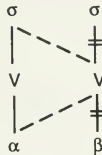
Vowel Fusion

Closed Syllable Shortening

The form [ramā] derives from /ramay-a/ via Glide Elision and Vowel Fusion, and [ramat] derives from /ramayat/ by the further step of Shortening. The rules Glide Elision and Vowel Fusion are the two crucial rules involved in this case of phonology supposedly preceding morphology.

The relevant allomorphy is that of the first singular possessive suffix on nouns. As we see in (29), nouns are composed of a stem plus a case ending, *u*, *i*, or *a*:

(29)	?al-kitāb-u	'the book (nominative)'
	?al-kitāb-i	'the book (genitive)'
	?al-kitāb-a	'the book (accusative)'

A possessive suffix such as *hā*, *ka*, or *nā* may be added and stands after the case ending, as (30) shows.

(30)	kitāb-u-hā	'her book (nom.)'
	kitāb-u-ka	'your (s.m.) book (nom.)'
	kitāb-i-ka	'your (s.m.) book (gen.)'
	kitāb-a-nā	'our (s.m.) book (acc.)'

In (31) are nouns with the first singular suffix -*ī*-. This suffix combines with the case marker in such a way that the case marker is completely lost.

(31) kitāb-ī   'my book (nom)'   /kitāb-u-ī/
      kitāb-ī   'my book (gen)'   /kitāb-i-ī/
      kitāb-ī   'my book (acc)'   /kitāb-a-ī/

The first singular suffix is subject to phonologically conditioned allomorphy; if it stands immediately after a long vowel or diphthong, it becomes *ya*.

(32) Noun   Noun + 1 s. poss.
      ɣulām-ā-ni   'slaves (n. dual)'   ɣulām-ā-ya
      ɣulām-ay-ni   'slaves (a./g. dual)'   ɣulām-ay-ya
      muʕallim-ū-na   'teachers (n. pl.)'   muʕallim-ū-ya
      muʕallim-ī-na   'teachers (a./g. pl.)'   muʕallim-ī-ya

In these examples, the long vowel or diphthong which conditions *ya* is present in underlying representation. Other examples, seen in (33), show that long vowels which derive by phonological rule, in particular Glide Elision and Vowel Fusion, also trigger the *ya* allomorph of the first singular (1 s.) suffix.

(33) ʔal-qahw-at-u   'the coffee (nom.)'
      ma-qha-n   'a coffee house (nom.)'   /ma-qhaw-un/
      ʔal-ma-qhā   'the coffee house (nom.)' /ʔal-ma-qhaw-u/
      ma-qhā-ya   'my coffee house (nom.)'   /ma-qhaw-u-1 s./

      ʔal-hawāy-at-u   'the hobby (nom.)'
      ʔal-hawā   'the desire (nom.)'   /ʔal-haway-u/
      hawā-ya   'my desire (nom.)'   /haway-u-1 s./

      qaḍay-tu   'I settled'
      qāḍin   'a judge (nom.)'   /qāḍiy-un/
      ʔal-qāḍī   'the judge (nom.)'   /ʔal-qāḍiy-u/
      qāḍī-ya   'my judge'   /qāḍiy-u-1 s./

The stem for 'coffee' ends in the glide *w*, as shown by *ʔal-qáhw-at-u*. Intervocalically, in *ʔalmáqhā*, the glide deletes before the case ending and the vowel sequence fuses into a long vowel. This derived long vowel then conditions the *ya* allomorph. As the derivation in (34) indicates, this seems to show that the first singular allomorph is determined after Glide Elision and Syllable Fusion.

(34) /maqhaw-u/   Underlying
      maqhau   Glide Elision
      maqhā   Vowel Fusion
      maqhāya   Affixation of 1 s.

We must apparently first apply phonological rules, which gives us an intermediate base for affixing a pronoun, and then the morphology selects the appropriate allomorph for affixation to this phonologically derived form. Such a

derivation would seem to be a problem for the noninteractive model, which requires all morphemes to be concatenated before any phonological rules apply. However, I will show that this case can be handled in the noninteractive theory.

3.2 DISTINGUISHING PHONOLOGY AND MORPHOLOGY

It is appropriate to reconsider this and similar cases where morphology supposedly follows phonology. A search of the literature reveals various examples which have been cited as cases of phonological rules applying before morphology. The largest class is represented in (35).

(35)   Overapplication of phonological rules under reduplication (Kihehe, Tagalog, Javanese). In Kihehe, the stem reduplicates (*kútele-kateléka*), excluding the prefixes. Rules of syllable fusion draw prefix material into the stem, causing it to be reduplicated (*kwíita-kwiíta*).

Ⅰ The imperative in Danish is formed by deleting a *-ə* suffix. Deletion follows a vowel lengthening rule, so /bæðə/ becomes *bæːðə* (which is the infinitive), then the *-ə* suffix is deleted in the imperative, giving [bæːð]. Similar rules, deleting the agreement morpheme *y* in Abkhaz, and the verb suffix *a* in Icelandic, have been found.

The largest subclass includes overapplication of phonological rules under reduplication, as in Kihehe. The second largest subclass is typified by imperative formation in Danish, which deletes the *-ə* suffix of the infinitive. Imperative Deletion has to be ordered after a phonological rule of open syllable vowel lengthening. This case has been cited in Hargus 1985 as exemplification of the predicted feeding from phonology into morphology.

There is little doubt that the phonological rules which supposedly precede morphology in these cases are indeed phonological rules. What is not clear is that the supposedly morphological operations are part of morphology. Many of these cases are post-phonological subtractions, as in Danish Imperatives. In light of the rule ordering facts, the only possible analysis in the noninteractive model is phonological deletion.

(36)   Danish Imperative Truncation

$$\text{ə} \rightarrow \emptyset / \underline{\hspace{1cm}} \text{w]}$$
$$\text{[IMPER]}$$

I will adopt the analysis of Anderson (1975) that the imperative is based on a form identical to the infinitive.

Nothing in the generally accepted and motivated theory of phonology, be it Lexical Phonology or non-lexical theories, precludes (36) from the phonology. Thus Danish Imperative Truncation could be a phonological rule, with a morphological condition, as in (36). Or, it could be expressed as a morpheme-deletion rule and be part of the morphological component, as in (37).

(37)   [INFIN] → ∅   / _____ w]
                            [IMPER]

If one allows deletion of phonological units in the morphology, not just deletion of morphemes, one could even assume a rule with the formal statement (36), but place the rule in the morphological component. With no further conditions on phonology or morphology, three analyses are possible in Lexical Phonology, and they cannot be distinguished empirically or on the basis of rule elegance. If such rules are phonological rules with morphological conditions, and not rules of morphology, then they do NOT show that phonology feeds into morphology.

A basic stumbling block in resolving the relation between phonology and morphology is this analytic ambiguity, and in particular the fact that many theories allow one to consign phonological processes to the phonology or the morphology rather willy-nilly. We must make clear what we mean by 'rule of morphology'. My claim, and the claim which must be made in Lexical Phonology if there is content to the claim for interleaving of phonology and morphology, is that a 'rule of morphology' is a rule IN the morphological component. Putting Danish Imperative Truncation in the phonology but calling it a 'rule of morphology' simply because it applies in a morphologically defined context trivializes the difference between phonology and morphology. By analogous reasoning, we should call the Kimatuumbi rule Shortening a rule of syntax because it applies in a syntactically-defined context.

The systematic uncertainty about what constitutes a possible morphological rule surely needs a principled resolution; so to attack the problem from the side of morphology, principle (38) is proposed.

(38)   PRINCIPLE OF MORPHOLOGY ~ PHONOLOGY SEGREGATION
          The only operation allowed in morphology is concatenation

This segregation of morphological and phonological operations makes strong claims about morphology. From the standpoint of 'pure' morphology, we disallow operations such as deletion, movement, or fusion — in short, we deny morphology the power of unrestricted rewrite rules. A further consequence of this principle is to rule out on theoretical grounds supposed cases of 'process morphology' (Matthews 1974, etc.), where morphology performs phonological changes. Examples of process morphology must generally be reanalyzed as two steps, namely purely morphological concatenation, plus a phonological

rule. For instance, the morphology of German Umlaut is affixation. It happens that the phonological content of certain affixes contains a floating vowel feature [−back], which the phonology is responsible for linking to the appropriate vowel. Other processes such as 'subtractive morphology' are to be formalized as phonological deletion rules, constrained to apply in specified morphological contexts.

Anderson (1988:150) argues that allomorphy cannot be reduced to operations in phonology, in opposition to the view set forth here. Three putative differences are claimed to exist between 'phonological' and 'morpholexical' rules, which might be taken as evidence for assigning process morphology and purely concatenative morphology to one component, and strictly phonologically conditioned rules to another. First, rules of feature exchange ($\alpha F \rightarrow -\alpha F$) are claimed to be morpholexical. Second, variables in rules are supposedly interpreted disjunctively if the rule is phonological, but conjunctively if the rule is morpholexical. Finally, disjunctive ordering in phonological rules is claimed to be governed by the Elsewhere Condition, but disjunctive ordering among morphological rules is governed by separate principles. These three arguments dissolve on closer scrutiny.

Neither Anderson 1988 nor Anderson 1975 provide any evidence that variables in phonology receive different interpretations depending on whether rules are morphologically conditioned or purely phonological, and the literature on variables (Odden 1980, Jensen & Stong-Jensen 1979, inter alia) gives no support to the claim. More to the point, there is no evidence that variables are needed in phonological rules. The complete elimination of variables has certainly been one of the primary goals, and most satisfying successes, of nonlinear phonological theories.

Similarly, there is little direct evidence that disjunctive application is needed for phonological rules, whether governed by the Elsewhere Condition (EC) or any other condition. The most compelling examples originally cited for the EC are those found in Diola Fogny and Finnish, which have place-assimilation rules that seem to precede but not feed consonant weakening processes. So, in Diola Fogny, /bajum tɔ/ surfaces as [bajuntɔ], and does not undergo a rule deleting preconsonantal nasals. However, multilinear phonological representations render the EC explanation of failure of nasal deletion otiose, since the nasal segment shares places features with the following stop, and, as a partial geminate, cannot undergo nasal deletion. Most of the remaining evidence involves rules of stress placement. As pointed out in Howard 1975, even in the linear framework within which EC was offered, the facts of stress have an independent explanation. Certainly, metrical accounts of stress render the EC irrelevant.[2]

Finally, the evidence that exchange rules even exist, much less have a correlation with morphological conditioning, is extremely weak. Anderson and

Browne (1973) mention four exchange processes. One is the interchange of *a* and *o* between perfective and imperfective in 'some forms of Arabic.'[3] (457-8) A second is voicing exchange to pluralize nouns in Luo. The remaining three involve exchange of vowel length in certain morphological categories in Dinka, Diegueño, and Czech. The latter three examples are irrelevant in the light of the current understanding of vowel length as not being a feature, but a structural relation. The fundamental failure in the argument is that there is no reason to believe that the changes come about by phonological rules (of any variety), or that a single rule is involved. A plausible reanalysis of such cases would combine elements of the well-known autosegmental analysis of mutations in Fula, where floating features are affixed, and the templatic approach to Arabic plurals, where alternative prosodic templates are affixed.

Anderson and Browne (1973) admit there are many ways to form plurals in Dinka: They state that 'There is a substantial class of nouns with long vowels in the singular, which form their plurals by shortening this vowel,' and that 'there is another class of nouns with short stem vowels which form their plurals by lengthening the vowel,' so 'there is a rule which is involved in plural formation which exchanges long and short vowels.' (459-60) It is a total non sequitur to leap from the fact that some nouns shorten vowels and some lengthen vowels to the conclusion that there is a length-exchange rule. The Dinka facts are vastly more complex: Denning (1987) shows that pluralization in Dinka can be accomplished by seven different processes, including total suppletion (*wěŋ* 'cow' : *ɣɔk* 'cows'), voice quality[4] (*kàl* 'fence' : *ka̤l* 'fences'), vowel lengthening (*gɔ́l* 'clan' : *gɔ́ɔ́l* 'clans'), shortening (*bóók* 'animal skin' : *bók* 'animal skins'), vowel height change (*dɔk* 'boy' : *da̤k*), diphthongization (*dit* 'bird' : *diɛt* 'birds'), tone (*lwet* 'lie' : *lwét* 'lies'), etc. More commonly, plurals are formed by rather random combinations of these processes, as in *diir* 'cricket' : *dír* 'crickets', *ñáŋ* 'crocodile' : *ñ̤ɛ̤ŋ* 'crocodiles', *alwèèt* 'liar' : *àlwet* 'liars', *àŋaw* 'cat' : *aŋɛɛt* 'cats'. There can be variation in which different processes are selected to signal the plural, hence *pwɔ̀r* 'waterbuck' : plurals *piar* or *pwoor*. By selecting a subset of the entire data, one might think that exchange of length is involved, but a complete account of Dinka plurals does not support any exchange rules.

The evidence for an exchange rule in Dholuo is also weak. It is not possible to give a complete analysis of Dholuo here, but enough of a sketch can be provided to show that a voicing exchange rule is unnecessary. The voicing-exchange rule is supposedly motivated by the alternations *got* 'mountain' : *gode* 'mountains, and *lwedo* 'hand' : *lwete* 'hands'. Okoth-Okombo (1982) describes Dholuo pluralization as involving, inter alia, deletion of any stem-final vowel, change in the final consonant, and suffixation of *e* or *i*; cf. *kidi* 'stone' : plural *kite*, and *koti* 'coat'[5] : plural *kode*. We assume that the final vowel is a 'theme vowel', and the stem is *kid*. Both pluralization and the 'construct' case formation are said to involve consonant changes and dropping of the final vowel, but only the plural adds a suffix, so the construct form of *kidi* is *kit*, and the construct form of *koti* is *kod*. Therefore, the consonant change is associated more generally with

'inflected' nouns, and the plural is further marked with a suffix. Inflected nouns such as /kot/ with final voiceless consonants add a floating feature, [+voice], after the root, which docks to the final consonant, giving the base *kod*. In the case of [kid], I apply a rule of (syllable)-final devoicing which is independently needed in the verbal system (Okoth-Okombo 1982:38-41), giving *kit*. The reason that the floating feature [+voice] is not subject to devoicing in [kod] is that devoicing affects syllable-final [+voice], and a floating feature is not linked to any segment, so is not syllable-final.

We conclude that, pace Anderson (1988), there is no evidence that phonology should only contain 'purely phonological' rules. There is a very basic reason to reject this view, namely that it entails a more powerful theory than the one argued for here, since it allows uncontroversially morphological rules, namely concatenations, to be ordered AFTER phonological operations, which is impossible in the noninteractive theory.

3.3 REANALYSES

The division of process morphology into concatenation plus a phonological rule removes reduplication from the pool of support for the interactive model. The problem as exemplified in Kihehe is that the entity which reduplicates is the stem, which is the output of Level 1 morphology, and thus generally excludes the object prefix or the infinitive prefix, which are at Level 2. However, if a prefix segment fuses syllabically with the initial stem syllable, the prefix segments are copied.

(39)	ku-teleka	'to cook'	ku-teleka-teleka
	ku-lu-teleka	'to cook it'	ku-lu-teleka-teleka
	kw-iita	'to spill'	kw-iita-kw-iita (/ku-ita/)
	ku-lw-iita	'to spill it'	ku-lw-iita-lw-iita (/ku-lu-ita/)

As numerous researchers have observed, reduplication is not a single operation, but arises from multiple subparts. The morphology is affixation: A degenerate element is added. I assume that the root plus following suffixes form a higher prosodic unit such as 'word', so the empty affix is a word node. The input to the phonological copy operation is thus (40).

(40)

Adding this prosodic affix constitutes the entire morphology of reduplication. The ability to affix or the shape of the affix is not affected by phonological rules in Kihehe, nor in any other language. The characteristic work of reduplication is largely done by the phonology, which receives this degenerate representation and fills in that template. In Kihehe and cases like it, this takes place after certain phonological rules. Thus reduplication falls out of the picture entirely.

Returning to cases like Danish, Kiparsky (1984:157) cites a supposed word-formation process in Icelandic which forms nouns from verbs by truncating -a; e.g. *klifr* from *klifra* and *sōtr* from *sōtra*. This process follows the allophonic, presumably postlexical, rule lengthening vowels in open syllables, and does not feed into the lexical rules *u*-epenthesis and *j*-deletion. Kiparsky observes 'that the morphological derivation that provides its input structure is also postlexical', and that 'we seem to have a prima facie case here of a word-formation rule which applies lexically in one sets of words... and postlexically in another'. (157) The supposed rule of word formation is indistinguishable from a morphologically conditioned phonological rule (156):

(41) $a \rightarrow \emptyset / \underline{\hspace{2cm}}]_V]_N$

Since this rule is ordered after a very general and exceptionless postlexical rule of allophony, by calling the process an operation in the morphological component, the entire distinction between lexical and postlexical rules, and the very integrity of the lexical component, are called into serious question.

Other cases of subtractive morphology have been brought out. Martin (1988) shows that pluralization in Koasati may delete the stem-final rime.

(42) | Singular | Plural | Gloss |
|---|---|---|
| pitáf-fi-n | pít-li-n | 'to slice up the middle' |
| tiwáp-li-n | tíw-wi-n | 'to open something' |
| ataká:-li-n | aták-li-n | 'to hang something' |
| koyóf-fi-n | kóy-li-n | 'to cut something' |

In the theory given here, this process must be the result of a morphologically conditioned phonological rule, something like (43), since in general all deletions must be part of phonology.

(43)   Koasati Rime Deletion

$R \rightarrow \emptyset / \underline{\hspace{2cm}} \text{stem}]$
$ \text{[+PLURAL]}$

This case is similar to Danish, except that deletion affects a higher-level prosodic unit, namely a rime, and therefore indirectly affects multiple segments.

There is a similar deletion process in Kimatuumbi which deletes the segmental material of one of the locative prefixes, kʊ-, after a vowel. This rule, illustrated in (44) is optional, so there are two variants for each sentence.

(44)   niyenda kúkịpoóị   'I am going to Kipooi'
        niyendaá kịpoóị   (id.)
        eendábụtụká kụKịpátịmụ   'he is running to Kipatimu'
        eendábụtụkáa Kịpátịmụ   (id.)

It is apparent that the locative prefix kʊ- is present in underlying representations, but is in part deleted. The evidence for its underlying presence even when deleted is that its tone and mora are preserved. The rule deletes the segmental material of the syllable kʊ-, but preserves tone and moraic structure.

(45)   Locative Truncation (optional)
        σ   [w σ → ∅   {prosodic structure preserved}
               [kʊ]

The syllable preceding kʊ- takes the tone and mora that are originally part of the syllable of kʊ-, so for this reason the rule affects only the segmental representation. As seen in (46), the H tone on kʊ- comes from Initial Tone Insertion.

(46)   niyenda kʊ-kịpoóị   Underlying
        niyenda kú-kịpoóị   ITI
        niyenda μ kịpoóị   Locative Truncation
        niyendaá kịpoóị   Reaffiliation of stranded mora

Finally, kʊ-deletion is possible only if the prefix is monomoraic. Regular syllable fusions can make the prefix bimoraic, thus blocking deletion.

(47)   niyenda kwịịsịwá   'I am going to the islands'
        niyenda kúʊnkóongo   'I am going to Mkongo'

        niyenda kʊ-mʊ-kóongo   Underlying
        niyenda ku-m-kóongo   U-deletion
        niyenda kú-m̥-kóongo   ITI
        niyenda kúʊ-nkóongo   Nasal desyllabification
               NA   Locative Truncation

The second example shows lengthening of the locative prefix syllable as a consequence of postlexical desyllabification of the syllabic nasal in nkóongo, so Locative Truncation must be postlexical. Locative Truncation clearly applies after phonological rules, so it must itself be a phonological rule, specifically the dissociation of the segments of this morpheme, with retention of prosodic structure.[6]

These deletions and prosodic restructurings bring us closer to the apparent case of post-phonological allomorphy in Arabic which we started with. Before getting to that case, consider another example which is often treated as phonologically conditioned allomorphy, but which has another interpretation, as a morphologically conditioned phonological rule, now with a similarity to Kimatuumbi Locative Truncation. This is the case of Korean *i ~ ka* allomorphy. Given that we want to prohibit rules of *-oses* deletion and *-iddletown* insertion in the phonology, how can we treat the *i ~ ka* alternation as phonological?

Case markers in Korean vary according to whether they follow a consonant-final base or a vowel-final base.

(48)   Korean
        citation   param   pori
        nominative   param-i   pori-ka
        accusative   param-ɨl   pori-rɨl
        topic   param-ɨm   pori-nɨn
                        'wind'   'barley'

Writing rules to delete *l* or *n* after a consonant is simple, and handling the *ɨl ~ rɨl* alternation with suppletion-style allomorphy fails to capture the phonological similarity between the allomorphs. The problem really is in the nominative: Can we handle THIS alternation by a phonological rule? The present allomorphy can be handled by an operation entirely analogous to the Kimatuumbi Locative Truncation and Koasati Rime Deletion rules. Specifically, I assume the underlying affix *ka*, and involve a rule to delete the segmental content of this syllable after a consonant.

(49)   Korean Nominative Destructuring
        σ   σ → ∅   {prosodic structure preserved}
        | [+NOM]
        C

This will leave behind a segmentless mora. Default rules then assign the necessary features, and we will end up with *i*; cf. (50).[7]

As it happens, no phonological rules feed into (49), so Korean is not crucial for distinguishing the theories. Nevertheless, it suggests a direction for reanalysis of other supposed cases of phonologically conditioned allomorphy: Such rules might be slightly bizarre, morphologically conditioned rules in the phonology.

(50)

```
        p a r a m - k a          Underlying
        | | | | |   | |
        C V C V C   C V
         \ |  \ |    |
          μ    μ     μ
           \    \     \
            σ    σ    (σ)
```

```
        p a r a m                Nominative
        | | | | |                Destructuring
        C V C V C
         \ |  \ |
          μ    μ       μ
           \    \      |
            σ    σ    (σ)
```
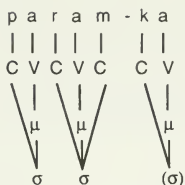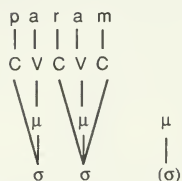
```
        p a r a  m i             Defaults,
        | | | |  | |             Resyllabification
        C V C V  C V
         \ |  \ |  \ |
          μ    μ    μ
           \    \    \
            σ    σ    σ
```

This then brings us back to Arabic. How might we handle this problem with a phonological rule? We can treat this as a kind of diphthongization arising from prosodic restructuring. The syllable structure of underlying /i:/ is reduced to a simple CV core syllable, with *i* assigned to the onset by rule (51).

(51)   Classical Arabic First Singular Diphthongization

```
        σ                   σ          σ
       / \                 / \         |
      V   V      →        C   V   /   V _____
       \ /                |
        i                 i
```

The syllable peak lacks segmental material, so default rules result in *a*.

(52)   maqha   i   Output of Glide Elision, Vowel Fusion
        /\   /\
       V V   V V

```
maqha      i              Diphthongization
  /\       |
 V V      C V
maqha      i  a           Defaults
  /\       |  |
 V V      C V
```
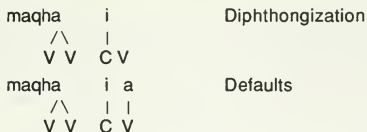
Another case, cited by Hargus (1990) as an example of feeding from phonology into morphology, is Elative Formation in spoken informal Javanese (Dudas 1976), which changes the final vowel of a primary adjective to a high tense vowel, in order to create the intensive form of the adjective.

(53)	Primary	Elative	Gloss
	alUs	alus	'smooth'
	rəsI?	rəsi?	'clean'
	adɔh	aduh	'far'
	rame	rami	'noisy'

This process seems to interact crucially with two phonological rules in the language. First, there is a rule laxing high vowels before a tautosyllabic consonant, a rule which has applied to the first two non-Elative forms *alUs* and *rəsI?*:

(54)   High Vowel Laxing

```
        σ
      /  \
    /      \
   V       C
   |
[+ hi ] → [− tense]
```
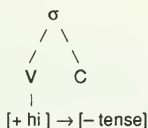
In (53), the Elative has a tense vowel, not a lax vowel, and therefore Elative Formation counterfeeds High Vowel Laxing.

Another interaction between Elative Formation and the phonology of Javanese involves stem-final /a/.

(55)	Primary	Elative	Gloss
	gampang	gamping	'easy'
	kəras	kəris	'hard'
	rosɔ (/rosa/)	rosu	'strong'

In case the vowel *a* is followed by a consonant, as in the first two examples, the Elative has the front vowel *i*. In case *a* is word-final, as in the last example, it shows up in the Elative with the back round vowel *u*. How do we explain this? First, there is a rule in Javanese which rounds word final *a* to ɔ:

(56)   Low-Vowel Rounding

a → ɔ / _____]

This rule has applied in the non-Elative form *rosɔ*. The features [back] and [round] are interdependent for high vowels, so all back vowels are round and all front vowels are nonround. When Elative Formation raises the nonround vowel *a*, its backness is determined on the basis of its roundness, resulting in a front vowel. In *rosɔ*, the vowel has rounded by (56), so we find a back vowel. However, we must first apply (56), and THEN do Elative Formation.

As with the truncation examples, the real issue is precisely what Elative Formation is. The Elative can, in fact, be explained without feeding from phonology into morphology, using simple affixation. The Elative morpheme is a partial feature specification containing only the vocalic features [+hi, +tense], hence is analogous to floating tone suffixes as one finds in autosegmental analyses of tone. Thus the underlying forms of [rami] and [rosu] are those given in (57).

(57)   rame - $\begin{bmatrix} +hi \\ +tns \end{bmatrix}$ rosa - $\begin{bmatrix} +hi \\ +tns \end{bmatrix}$

The floating features of the Elative are mapped to the final vowel by a rule analogous to the kinds of docking rules we find in tone languages with floating tone affixes.

(58)   Elative Docking

        V
         \
          \
           \
        [V HEIGHT]´

As it happens, this Docking rule applies after Low-Vowel Rounding and High Vowel Laxing. Consider the derivation in (59) for [rosu]. Here, underlying /a/ is followed by the floating features [+tense, +high], but these features do not interfere with Low Vowel Rounding, which operates on the feature [round], a feature lacking from the Elative morpheme. After rounding has applied, however, the

(59)   [r   o   s   a]   Underlying
         C   V   C   V
             /\   /\
            / \   / \
         [+rd] \ [−rd] \
            $\begin{bmatrix} + tns \\ − hi \\ − lo \end{bmatrix}$ $\begin{bmatrix} − tns \\ − hi \\ + lo \end{bmatrix}$ $\begin{bmatrix} + tns \\ + hi \end{bmatrix}$

        [r   o   s   ɔ]   Low Vowel Rounding
         C   V   C   V
             /\   /\
            / \   / \
         [+rd] \ [+rd] \
            $\begin{bmatrix} + tns \\ − hi \\ − lo \end{bmatrix}$ $\begin{bmatrix} − tns \\ − hi \\ + lo \end{bmatrix}$ $\begin{bmatrix} + tns \\ + hi \end{bmatrix}$
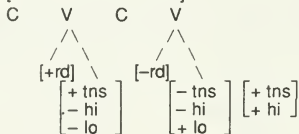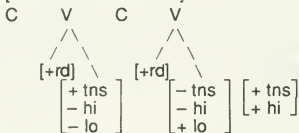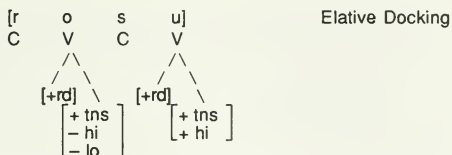
Elative Docking

Elative features dock to the final vowel, raising it, and as noted earlier, the feature [+back] then is assigned to the vowel on the basis of the feature [+round].

The derivation of [alus], where docking the Elative features counterfeeds High Vowel Laxing, proceeds similarly; cf. (60). The underlying high vowel is followed by a consonant in its syllable, and therefore High Vowel Laxing applies. The presence of floating vowel height features does not affect the laxing rule, since the rule is only concerned with whether there is a consonant in the syllable, and floating features play no part in syllabification. Then Elative Docking applies and wipes out the effect of the High Vowel Laxing rule. In other words, Javanese Elative Formation does not provide any support for the claim that phonology can feed into morphology.

(60)
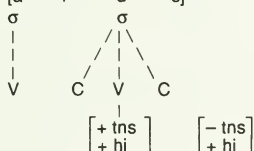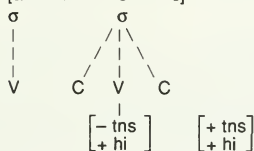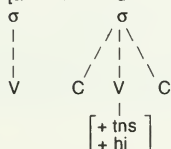
Lack of space prevents actually reanalyzing all cases of feeding from phonology to morphology, but one further example can be considered. Hyman (1990) cites an assibilation rule in Shi and Luganda which could be interpreted as a phonological rule applying before morphology. Certain suffixes with the vowel *i*, notably the causative, trigger assibilation of a stem-final consonant, hence the Shi causative form /sunik-i/ surfaces as [sunisi] 'cause to push'; similarly, Luganda /lamuk-i/ surfaces as [lamusi] 'greet'. In Shi, we encounter the problem that this assibilation applies across the imperfective morpheme -*ag*- (which itself does not undergo assibilation), viz. [sunisagi]. In Luganda, assibilation applies to each morpheme-final consonant in a polymorphemic stem, but not to morpheme-medial consonants, viz. [lamus-iriz-i] 'greet without ceasing' from /lamuk-irir-i/. Hyman proposes an analysis of these data with interleaving of phonology and morphology. In Shi, the assibilation applies to the form /sunik-i/ giving /sunis-i/, and then the imperfective morpheme -*ag*- is infixed to give [sunis-ag-i]. In Luganda, assibilation applies to the underlying form /lamuk-i/ giving [lamusi], then -*irir*- is infixed in the morphology, and the form is resubmitted to the phonology, giving [lamusirizi].

The motivation for the interleaving analysis is that it allows the segment which undergoes assibilation to stand right before the triggering suffix. While it is natural for the triggering element to stand immediately next to the element undergoing the rule, phonological rules applying at a considerable distance are not unheard of. Neutral vowels in vowel harmony systems are legendary, and Odden (1989) discusses a considerable number of rules applying across unbounded strings. It is possible to construe the rule as spreading the relevant feature — it is not trivially obvious under any view of morphology ~ phonology interaction what feature IS spreading — in an unbounded fashion to any morpheme-final nonlabial consonant. No principles of phonological theory have been violated by construing the rule as unbounded spreading, therefore we have no warrant to reject the noninteractive model on the basis of assibilation in Shi and Luganda.

These examples show that deletion is needed in phonology, which is hardly surprising, and that deletion can affect multiple segments, as long as they form a higher-level constituent. Unsurprisingly, too, nodes in the feature hierarchy may constitute morphemes, which explains away the Javanese Elative. In this enterprise of reanalyzing feeding from phonology into morphology, it would be useful to know what limits are to be imposed. The limits are, of course, the limits imposed on phonological analysis: I do not propose that ANY well-motivated constraints on phonology be relaxed for the sake of reanalyzing supposed morphological operations. Consistent with the constraint that phonological operations apply to prosodic or (sub-)segmental constituents, I predict that there is no so-called subtractive morphology affecting morphemes which are not phonological constituents. A specific case of this constraint arises in Chimwiini.

Kisseberth and Abasheikh (1974) note that the passive suffix in Chimwiini is generally *-o:w*, as we see in (61).

(61) ku-lum-o:w-a   'to be bitten'
      na-kimb-il-o:w-a   'she is being sung to'
      ku-dar-o:w-a   'to be touched'

Before the passive suffix, dental *l* becomes alveolar, as the forms of (62) show.

(62) ku-ya:l-a   'to sow'   ku-yal-o:w-a   'to be sown'
      k-i:ngil-a   'to enter'   k-ingil-o:w-a   'to be entered'

Kissseberth and Abasheikh suggest rule (63).

(63)   l → l / _____ + o:w

The perfective tense passive is somewhat problematic, since the passive suffix *o:w* is not found on the surface. Furthermore, the perfective passive irregularly selects the final vowel *a* rather than *e*, as (64) shows.

(64) lum-i:l-e   'he bit'   lum-i:l-a   'he was bitten'
      som-e:l-e   'he read'   chi-som-e:l-a   'it was read'

These examples show that the rule changing dental *l* to alveolar applies, even though the supposed conditioning factor, the passive morpheme, is lacking.

In an interactive model with morpheme deletions, we could handle this by applying the dental-to-alveolar rule first, then deleting *-o:w*.

(65) lum-i:l-o:w-a   Underlying
      lum-i:l-o:w-a   *l → l*
      lum-i:l-a   *o:w*-deletion

This is not allowed in the model proposed here, since morpheme deletion is barred. The rule cannot be phonological, since *-o:w* is not a constituent. If it is unsyllabified, it is not a rime; if it IS syllabified, it straddles syllables.

Therefore, the only solution is to directly restrict the insertion of the passive affix, so that it is not insertable in [+PERFECTIVE] verbs. Then how about the dental-to-alveolar change? As Kisseberth and Abasheikh point out, this change need not be triggered by the phoneme sequence *-o:w*, but could equally refer to the feature [+PASSIVE]. Certainly the change from dental to alveolar does not involve feature spreading from one of the suffix segments.[8]

(66)   l → l / _____ + [PASSIVE]

Therefore, the noninteractive theory is FORCED to adopt the solution suggested by Kisseberth and Abasheikh that the mutation of *l* is triggered not by the passive suffix itself, but the morphological feature [PASSIVE].

It should therefore be clear that it will take much stranger allomorphy than is currently available to support the claim that phonology can feed into morphology. Allomorphy like English *go ~ went*, or *be ~ am ~ is ~ were* certainly would qualify, but none of this variation is phonological conditioned, much less conditioned by derived phonological information. Similarly, various examples of phonologically conditioned allomorphy cited in Carstairs 1989:70:1, such as the alternation between preconsonantal *a* and prevocalic *dz* in Fang, appear for the most part to be true cases of phonologicallly conditioned allomorphy, but none of these examples seem to involve derived phonological properties.

There are still a few untouched but well-known cases, where phonological reanalysis is not the obvious solution. The best known case, cited inter alia in Kiparsky 1982:33-34, is the verb-to-noun derivational suffix *-al* in English, which seems to attach only to stems with final stress.

(67)	arrival	disposal	acquittal	refusal	reversal
	survival	bestowal	withdrawal	betrothal	avowal
	renewal	revival	approval	transferral	betrayal
	appraisal	deferral	referral	perusal	upheaval
	burial	denial			

This stands as one of the strongest arguments available for phonology preceding morphology, since the putatively derived phonological condition is one of the factors determining whether the affix can be used at all; that is, we are not dealing with variations in the shape of a morpheme or with phonological deletion. This case is nevertheless not strong enough to unambiguously select the interactive model. Given the nonproductivity of this affix and the small number of forms available, it is impossible to really test any hypothesis regarding this affix. Supposing that position of stress WERE the correct generalization, it is possible that stress in these words is present in underlying representation, so this would not be a case of morphology being sensitive to derived phonological information. Furthermore there is a different generalization which covers the data, namely that *-al* only combines with Latinate bound prefix plus monosyllabic root.

Booij and Rubach (1987) cite two other cases from Dutch, but these submit to reanalysis as well. The first case involves the interaction between a rule of schwa-deletion and a rule of allomorphy. Schwa-deletion supposedly applies to the final vowel of the word 'embassy', which is *ambassade*, when it stands before the suffix *eur* in the word *ambassadeur*.

(68)   ə → Ø / _____ V

The feminine form of *ambassadeur* is *ambassadrice*, which according to Booij and Rubach arises by first generating *ambassadeur* from underlying *ambassade + eur*, and then replacing *eur* with *ris* in the feminine.

(69)   ambasadə - ör   Affixation
        ambasad - ör   Schwa-deletion
        ambasad - ör - isə   Affixation
        ambasad - r - isə   *rice*-allomorphy

Since the feminine allomorph is phonetically consonant-initial, it supposedly could not trigger schwa-deletion, so if the ending *rice* were added directly to *ambassade*, we would generate incorrect *ambassaderice*.

There are a number of possibilities for reanalysis, all of which are consistent with the rest of Dutch phonology. One possibility is that schwa deletes before *rice* by a morphologically conditioned phonological rule, as in the cases we have seen earlier. Another possibility is to derive *ambassadrice* from the stem *ambassad*, not the word *ambassade*. However, the best possibility seems to be to not derive *ambassadrice* from anything, except French.

The second example, in many ways similar to English *-al*, is the case of the suffix *-ief* which only productively attaches to nouns ending in unstressed *i*.

(70)   psychologíe   'psychology'   psychologisch   'psychological'
        hysteríe   'hysteria'   hysterisch   'hysterical'
        agréssie   'aggression'   agressief   'aggressive'
        áctie   'action'   actief   'active'

Dutch stress is not transparent, so it is not obvious that we are dealing with DERIVED phonological information. Gert Booij (p.c.) informs me that regular stress is on the penult, which fits with our hypothesis. Words with irregular stress, especially final stress, will be entered in the lexicon with stress pre-assigned, whereas words with penultimate stress will have no underlying stress. The condition for affixation of *-ief* is then simply, as Booij and Rubach assume, that it only attaches to words ending in unstressed *-i*. Words such as *psychologíe* with final lexical stress do not satisfy this condition, so cannot take the affix *-ief*.

3.4 PRECYCLICITY

So far we have only considered proposals that morphology may follow phonology. One question to consider is whether it is possible to directly refute lexical phonology in terms of phonology ~ morphology interactions. There is a kind of interaction between phonology and morphology which is amenable to

description in the non-interactive theory but which cannot be handled in Lexical Phonology, and that is precyclic rules. I conclude with a look at such a case in Maltese Arabic, where Level 1 phonology needs to access Level 2 information. This should refute the interactive theory, since Level 2 morphology has not even been done at the stage of Level 1 phonology. However, there is a way for Lexical Phonology to wiggle out of this problem, by appeal to precompilation.

The cyclic Stress rule of Maltese is involved, and for this Brame (1974) is useful, who formulates the stress rules as in (71).

(71)   Stress

$V \rightarrow$ [+stress] / ____ C_0 ((VC) VC^1)]

There is an Apocope rule deleting an unstressed vowel in open syllables.

(72)   Apocope

$\breve{V} \rightarrow \emptyset$ / ____ CV

These rules interact to account for the paradigm of *hataf*, in (73).

(73)   ħtáft   'I snatched'   /ħataf-t/
        ħtáfna   'we snatched'   /ħataf-na/
        ħátaf   'he snatched'   /ħataf/
        ħátfu   'they snatched'   /ħataf-u/
        ħátfet   'she snatched'   /ħataf-it/

Stress and Apocope apply to underlying *hataf+u* to yield *hátfu*, and apply to *hataf+na* to yield *htáfna*.

(74)   hataf   hataf-u   hataf-na   Underlying
        hátaf   hátaf-u   hatáf-na   Stress
        NA   hátf-u   htáf-na   Apocope

Other morphemes which are Level 2 suffixes, seen in (75), can be added to the verb after affixation of subject agreement, including the object suffixes *-kum* 'you (pl.)' and *-ik* 'you (sg.)', and the negative suffix *-š*.

(75)   hatáf-š   'he didn't snatch'
        hatf-ít-kom   'she snatched you (pl.)'
        hátf-ek   'he snatched you (sg.)'

The argument that these affixes are at a different level is the cyclic pattern of stress assignment. One fact which cyclic stress explains is the surface contrast in (76) between bistratal [hatáfna] 'he snatched us' and monostratal [htáfna] 'we snatched'. On Level 1, Stress and Apocope apply to the form [hataf] 'he snatched' and to [hataf+na] 'we snatched'. The second form is directly mapped

onto the phonetic output [ḥtáfna]. The first form *ḥataf* contains a Level 2 suffix, so Stress and Apocope reapply on the L2 cycle. The stress is reassigned to the penult, but due to the previously assigned stress on the first syllable, Apocope is blocked and the phonetic form is [ḥatáfna].

(76)	[ḥatáfna]	[ḥtáfna]	
	'he snatched us'	'we snatched'	
	ḥataf	ḥataf-na	Input to L1
	ḥátaf	ḥatáf-na	Stress
	NA	ḥtáf-na	Apocope
	ḥátaf-na		Input to L2
	ḥàtáf-na		Stress
	NA		Apocope

Therefore the object suffixes and negative *š* must only be available on Level 2, and Stress and Apocope are cyclic rules.

Now we turn to the other rule in the paradox. The Level 2 affixes also lengthen an immediately preceding vowel. Thus *ḥtáftu+na* becomes *ḥtaftúuna* and *ḥtáfna+kom* becomes *ḥtafníekom*. The negative suffix *-š* also induces lengthening, so *ma ḥátfu+š* becomes *ma ḥatfúuš*.

(77)	ḥtaftúuna	'you (pl.) snatched us'	(ḥtáftu)
	ḥtafníekom	'we snatched you (pl.)'	(ḥtáfna)
	ma ḥatfúuš	'they didn't snatch'	(ḥátfu)

A straightforward formulation of this lengthening is possible within any theory: Any Level 2 suffix induces Lengthening.

(78)   Boundary Lengthening

$V \rightarrow VV /$ ____] X

Note that this derived length attracts stress, so we get *ḥatfúuš*, not **ḥátfuuš*. Therefore, Boundary Lengthening precedes Stress on Level 2.

Now we come to the paradox in (79). The problems is that verb stems ending with a vowel, such as *ʔára*, lengthen their final vowel before a Level 2 suffix as predicted, but they must do so on Level 1 before stress is assigned.

(79)	ʔára	'he read'	/ʔara-Ø/
	ʔráana	'he read us'	/ʔara-Ø + na/
	jára	'it happened'	/jara-Ø/
	jráa-li	'it happened to me'	/jara-Ø + l-i/

In Lexical Phonology, Lengthening would have to apply to Level 2, since it is triggered only by Level 2 suffixes. Therefore assignment of Stress on Level 1 should precede Lengthening, and should not be sensitive to the output of Lengthening. But this prediction is incorrect, as seen in the derivation (80).

(80)	?ara+Ø	Subject affixing
	?ára+Ø	Stress
	NA	Apocope
	_____	[L2]
	?ára+na	Object affixing
	?áraa+na	Lengthening
	?àráa+na	Stress
	NA	Apocope
	*[?aráana]	

On the Level 1 cycle, stress should be assigned to the first vowel, just as it is in the unsuffixed form. On Level 2, the final vowel is lengthened and that vowel then gets the stress, but the subordinated stress on the initial vowel would incorrectly block Apocope. The correct derivation requires that Lengthening apply prior to Level 1 Stress, giving *?araa+na* as the input to Stress, so that the penultimate vowel is stressed, and the initial vowel is never stressed.

(81)	?ara - na	Output of morphology
	?araa - na	(Precyclic) Boundary Lengthening
	?aráa -	Level 1 Stress
	?ráa -	Level 1 Apocope
	?ráana	Level 2 (nothing applies)

This can be accommodated in any theory where all morphemes are concatenated before phonological rules apply, provided some rules, and in particular, Boundary Lengthening, apply precyclically, so that Level 2 suffixes can be seen and trigger lengthening before Level 1 phonological rules apply.

As noted earlier, there is a way out of this problem for Lexical Phonology, and that is via the theory of rule precompilation. We can treat Lengthening as a precompiled rule, which would be written as (82):

(82) Lengthening (precompiled)

$$V \rightarrow V: / \_\_\_\_] \text{[FRAME 1]}$$

The Level 1 phonology will generate both *?ara* and *?araa*. The former leaves Level 1 as *?ára* and the latter leaves Level 1 as *?ráa*.

(83)   ?ara
        [+F1]   [-F1]

        ?araa   NA   Lengthening
        ?aráa   ?ára   Stress
        ?ráa   NA   Apocope
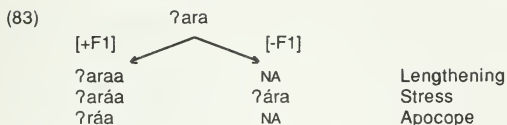
Frame 1 is defined as in (84), so when a negative or object affix appears in Level 2, *?ráa* is selected.

(84)   Frame 1:   [VERB ____]   { Object }
                                     { Negative }
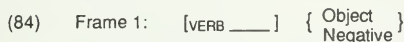
4.   CONCLUSION

I have considered two questions of how phonology interacts with syntax and phonology, and using as my diagnostic the class of information available to each component in the grammar, I have considered how Lexical Phonology and the noninteractive model explain the behavior of linguistic systems. The constrained version of Lexical Phonology cannot explain the behavior of sandhi rules in Kimatuumbi or precyclic Boundary Lengthening in Maltese, but extending the theory with precompilation makes up for these descriptive shortcomings in Lexical Phonology. However, this is accomplished only at the expense of adding machinery to Lexical Phonology which renders it empirically indistinguishable from the non-interactive theory. A very basic prediction of the interactive model, that phonology can feed morphology, has no empirical support. These conclusions do not refute the theory of Lexical Phonology, since model (2) might still be right, even if there is no evidence for it in terms of the kinds of information available to each component. At this stage, it is not obvious where else we COULD derive support for the interactive model.

NOTES

[1] There is little evidence from morphology that the construct 'level' is useful, and some evidence in the form of bracketing paradoxes that it is counterproductive. It is quite possible that levels are purely phonological, and that the structures corresponding to levels in this model are actually constructed at the interface between phonology and morphology. It is also unclear what distinguishes 'postlexical' from 'lexical' rules. Odden (1990) suggests a division where rules refering to nonphonological properties are lexical; however, evidence exists, some of which is discussed here, that purely automatic rules can be ordered before rules with morphological and syntactic conditions. This calls

into question the view that lexical and postlexical phonology form separate components.

2 As originally stated in Kiparsky 1973, the EC requires comparing the set of imput strings which 'fit' rule A to the set of input strings which 'fit' rule B, and testing if the A set is a subset of the B set. Such an extensional characterization of the conditions for disjunction runs into the insurmountable problem that phonological rules may involve multiple words in a sentence. Therefore, the set of input strings to a rule is potentially infinite, so enumerating that set and comparing it to any other set of strings in the language is impossible. Intensional characterizations of EC have been given, such as that in Kiparsky 1982, which is stated in terms of the structural descriptions of rules, not the class of strings undergoing the rules — this is of course just the Proper Inclusion Precedence Principle. The problem with this statement of EC is that it gives tremendous latitude to the theory of disjunction, since a rule can quite often be stated formally in many different ways with no effect on the set of strings which undergo the rule.

3 The source of this example is SPE, which actually cites a height-exchange rule in a different language, Hebrew.

4 Vowels with subscript double dots (or 'umlauts') have breathy voicing, and vowels with subscript tilde have 'hard' voice.

5 Most examples of the change from voiceless to voiced consonant appear in stems which lack a final vowel, viz. *got*. The only two stems with voiceless consonant I have located in Okoth-Okombo 1982 which have a theme vowel are loan words. Similarly, nouns with stem-final voiced consonant all appear to select a theme vowel. This distribution is a consequence of the fact that the voicing alternation arises out of two processes, final devoicing and intervocalic voicing.

6 This rule poses a problem for the claim that lexical and postlexical rules reside in separate components. Locative truncation is clearly not a 'clean' postlexical rule, but it follows nasal-resyllabification rules which are quite exceptionless and purely phonological. One could nevertheless assign the resyllabification rules to the lexical phonology, but this again raises the question whether there is any principle determining whether a rule is lexical or postlexical.

7 It is often assumed that *ɨ* not *i*, is the vowel which arises from default rules in Korean. However, *ɨ* has a restricted distribution in Korean: No morphemes end in *ɨ* except for the demonstratives *kɨ* and *nɨ*. The relevant generalization is that *ɨ* cannot be prepausal — the demonstratives can never be prepausal. A similar constraint on *ɨ* appears in Tigrinya: Epenthesis inserts *ɨ* in word-final position, but the vowel is realized phonetically as *i* in that position.

[8] It is in fact not clear what feature distinguistics the two kinds of / in Chimwiini — Kisseberth and Abasheikh do not voice an opinion about the featural basis for distinguishing these segments.

REFERENCES

AQUILINA, J. 1965. Maltese. London: English Universities Press.

-----, & B. Isserlin. 1981. A survey of contemporary dialectal Maltese. Leeds: B. S. J. Isserlin.

ANDERSON, S. 1975. On the interaction of phonological rules of various types. Journal of Linguistics 11.39-62.

-----. 1988. Morphological theory. Linguistics: the Cambridge survey, vol. I, Linguistic theory: Foundations, ed. by F. J. Newmeyer, 146-191. Cambridge: University Press.

-----, & W. Browne. 1973. On keeping exchange rules in Czech. Papers in Linguistics 6.445-82.

BOOIJ, G., & J. Rubach. 1987. Postcyclic versus postlexical rules in lexical phonology. Linguistic Inquiry 18.1-44.

BRAME, M. 1970. Arabic phonology. MIT Ph.D. dissertation in Linguistics.

-----. 1974. The cycle in phonolgoy: Stress in Palestinian, Maltese, and Spanish. Linguistic Inquiry 5.39-60.

CARSTAIRS, A. 1988. Some implications of phonologically conditioned suppletion. Yearbook of Morphology 1988.67-94.

DENNING, K. 1987. Nominal number and morphological class in Dinka: Diachronic and synchronic views. MS.

DUDAS, K. 1976. The phonology and morphology of modern Javanese. University of Illinois Ph.D. dissertation in Linguistics.

HARGUS, S. 1985. The lexical phonology of Sekani. UCLA Ph.D. dissertation in Linguistics.

-----. 1990. A comparison of theories of phonology-morphology interaction. Lexical Phonology Workshop, June 8, 1990, University of Washington.

HAYES, B. 1990. Precompiled phrasal phonology. The phonology-syntax connection, ed. by S. Inkelas & D. Zec, 85-108. Chicago: University of Chicago Press.

HOWARD, I. 1975. Can the 'elsewhere condition' get anywhere? Language 51. 109-127.

HYMAN, L. 1990. Conceptual issues in the comparative study of the Bantu verb stem. MS. (21st Conference on African Linguistics, April 1990, University of Georgia.)

JENSEN, J., & M. Stong-Jensen. 1979. The relevancy condition and variables in phonology. Linguistic Analysis 5.125-160.

KAISSE, E., & P. SHAW. 1985. On the theory of Lexical Phonology. Phonology Yearbook 2.1-30.

KIPARSKY, P. 1973. 'Elsewhere' in phonology. A Festschrift for Morris Halle, ed. by S. R. Anderson & P. Kiparsky, 93-106. New York: Holt, Rinehart & Winston.

-----. 1982. Lexical phonology and morphology. Linguistics in the Morning Calm, ed. by I. S. Yange, 3-91.

-----. 1984. On the lexical phonology of Icelandic. Nordic Prosody III, ed. by S. S. Elert, I. Johansson, & E. Strangert, 135-164. Stockholm: Almquist & Wiksell.

KISSEBERTH, C., & M. ABASHEIKH. 1976. On the interaction of phonology and morphology: a Chi-mwi:ni example. Studies in African Linguistics 7:1.31-110.

MARTIN, J. 1988. Subtractive morphology as dissociation. WCCFL 8.

MATTHEWS, P. 1974. Morphology: An introduction to the theory of word formation. Cambridge: University Press.

MOHANAN, K.P. 1986. The theory of lexical phonology. Dordrecht: Reidel.

ODDEN, D. 1980. The irrelevancy of the relevancy condition: Evidence for the feature specification constraint. Linguistic Analysis 6.261-304.

-----. 1989. Adjacency parameters in phonology. MS, Ohio State University.

-----. 1990. Syntax, lexical rules, and postlexical rules in Kimatuumbi. The phonology-syntax connection, ed. by S. Inkelas & D. Zec, 259-277. Chicago: University of Chicago Press.

-----, & M. Odden. Ordered reduplication in Kíhehe. Linguistic Inquiry 16.497-503.

OKOTH-OKOMBO, D. 1982. Dholuo morphophonemics in a generative framework. Berlin: Reimer.

APHASIC LANGUAGE UNDER DISCOURSE PRESSURE: FUNCTIONAL SYNTAX VS. PSYCHOLINGUISTIC FUNCTION*

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This paper is a preliminary report on work in progress and should be cited only with that caution in mind. Nevertheless, I feel that this research represents a new departure of potential importance, and that the early results indeed suggest that we are on a promising track. If they are borne out by further data, we will have solved an aphasiological problem of about ten years' standing, and in the process we will have shown how some current and some classical work in functional syntax may bear on the question of on-line sentence production in a-phasic patients and perhaps in normals as well.

The present approach began with contemplation of the false starts made by some Japanese aphasic patients in trying to narrate the events in a simple-looking little cartoon strip (Figure 1).

Here are some samples of their speech from the Japanese 'hat' story and from conversations, with the errors explained. Hesitations are indicated by dots (...). Note the difficulty that patients have in deciding which noun to use as subject of the events in the second panel, and, for Patient F, in getting the right verb voice.

Examples (1) - (2) are from Patient F (fluent aphasia, female, age 54).

(1) otoko-no ko-ga ...   booshi-o ura-ni   ton-de-tta.
    male-of child-SUBJ ... hat-OBJ   back.N-into fly-CONJ-go-PERF
    'The boy ... went flying the hat into the back(yard).'

There is an error in the intransitive verb phrase 'go flying': *tobu* 'fly' + *iru* 'go' should not be used with a direct object 'hat' (marked with -*o*). Second, *ura-ni* does not mean 'backwards' or the like. An animate noun is used in (1) as subject, and an inanimate is marked as object, but is used with an intransitive verb form.
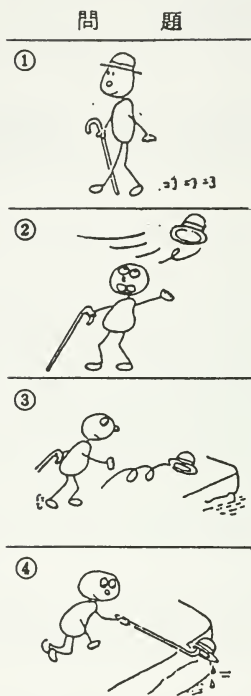
Figure 1: The hat story

(2) otoko-no ko-ga ...   booshi-ga ...   eeto ike-ni
     male-of   child-SUBJ ... hat-SUBJ ...   well pool-into
     koro-n-de-isoo   da-tta.
     fall (onto solid surface)-CONF-seem   AUX.PERF
     'The boy ... The hat ... well, looks like it's hit into the puddle.'

Example (2) contains a semantic error: The verb *korobu* cannot be used for falling into water, only for falling onto a hard surface. (The effect of this error can be compared with that in Engl. *The hat splashed onto the floor.*) A correct verb choice would be *ochiru* 'fall', in the form *ochi-te-isoo*.

Examples (3) - (4) are from Patient M ('mixed' aphasia, male, age 34):

(3) booshi-ga   booshi-ga   ka-kaze-ga   f-fui-te-iru.
     hat-SUBJ   hat-SUBJ   wi-wind-SUBJ   b-blow-CONJ.AUX
     'The hat (2x), the wind is blowing.'

Patient M here starts with 'The hat' (*booshi-ga*), then switches to 'The wind is blowing.' The patient's second attempt at this frame is:

(4) kodomo-o   booshi-ga   booshi-ga   booshi-ga
     child-OBJ   hat-SUBJ   hat-SUBJ   hat-SUBJ
     booshi-ga   kaze-o   n   kaze-no koroga-tte   umi-ni
     hat-SUBJ   wind-OBJ mm   wind-POSS roll-CONJ   ocean-in
     ochiru.
     falls
     'The child, the hat (4x), the wind, mm, the wind's, it rolls and falls into the ocean.'

This starts with 'child' as object (*kodomo-o*), then again with 'hat' (*booshi-ga*) as subject and 'wind' as object (*kaze-o*) — a canonical word order, but semantically impossible. Patient M attempts to correct the particle on 'wind' but only comes up with the possessive marker (*no*) rather than the instrument marker (*kaze-de* 'with the wind'). The final complex verb phrase, including the goal (*umi-ni* 'into the ocean'), is correct.

Various experimental studies of comprehension and production by agrammatic aphasics in different languages have been reaching the consensus that sentences in 'canonical form' were easier for patients than others (Bates, Friederici, Wulfeck & Juarez 1988; Caplan & Hildebrandt 1988; Kudo, Tateishi, Kashiwaga & Segawa 1982; Menn & Obler 1988; Saffran, Schwartz & Marin 1980; Sasanuma, Kamio, & Kubota 1990). However, canonical form is a problematic notion if looked at theoretically. A clause 'in canonical form' is taken to be an active declarative main clause whose grammatical subject is an agent. Therefore, this notion is stated in terms of both syntactic and semantic constraints.

In practice, there is a further unstated restriction. Given that the usual question is 'Can patients process the syntax of (a given) string', experimenters must present them with sentences in which lexical semantics and real-world knowledge are not sufficient to determine the interpretation. Sentences like *The boy ran, The girl has a cold, A woman is eating some sushi* are never

tested, since there is nothing syntactic to test at the comprehension response level of pointing to pictures or acting out a scene with toy figures. Almost the only sentence types that are studied for comprehension are 'reversible' active and passive sentences like *The cat chased the dog* or *The girl was kissed by the boy* — elaborated, perhaps, with indirect objects or relative clauses. For no obvious reason except symmetry, the same types of sentences dominate in syntactic production studies, although many other types have been used when the focus is on the production of grammatical morphemes.

Another result in the literature has been without adequate explanation for a decade. Saffran, Schwartz & Marin (1980) showed that some non-fluent patients had a very difficult time when confronted with the task of describing pictures in which an animate was acted on by an inanimate — say, a child was hit by a ball (no thrower visible) — and also pictures in which two animates or two inanimates were involved. The patients sometimes produced the arguments in the wrong slot, getting the meanings entirely reversed. Saffran et al. suggested that, when these patients were grappling with two-argument clauses, they were relying on an animacy hierarchy rather than on syntax. This finding did not seem to apply to narrative speech, however, and for this and other reasons it remained problematic. (A full discussion of subsequent treatments of their findings is beyond the scope of this paper.)

Given such a background, it seemed to me that the patients' problems with narrating the 'hat' story could be related to the animacy and canonical form findings, but not without some further work. Yes, an inanimate, the wind, is acting on another inanimate, the hat. But why try to start the sentence with the man (or boy)? Why would speakers of Japanese and English, which do not have grammaticized animacy hierarchies, seem to show the influence of animacy considerations when they become aphasic?

To begin to answer this, we must ask why some languages have animacy hierarchies in the first place — in other words, why might a semantic factor become part of the grammar? This takes us on an excursion into functional syntax, and a general consideration of both semantic factors and discourse factors. Semantic factors might include inherent properties of the referent (animacy, humanness, ...), and also objective and psychological aspects of the roles that the referent plays in a particular situation (agency, patiency, volitionality, sentience, ...). Discourse factors are treated by several different schools of thought. DuBois (1987), Hopper & Thompson (1984), Durie (1985), DeLancey (1987), and Fox (1987) emphasize the relations of transitivity and discourse structure as reflected in morphosyntax. They also include information status (given, inferred, new; recency of mention). Kuno (e.g. 1973) has worked on empathic status: Tthis has to do with who we care about, or whose point of view we take, in a given situation. (The definitions of all of these terms are problematic, but that does not mean they are useless; the core notions are readily exemplified, and clear cases are easy to recognize.)

In normal discourse, these factors tend to vary together. We tend to empathize with the prototypical protagonists of narrative, namely volitional given human agents and sentient given human undergoers. Although Du Bois, Durie, and Fox do not work with the empathy variable, they among others suggest that grammatical patterns of semantic factors, such as grammaticized animacy hierarchies, grow out of such probabilistic distributions in language use.

I hypothesized that the problem with non-canonical sentences might be that the patients attempted to start their sentences with the empathic focus — not as a deliberate strategy, but as the effect of an automatic orientation. However, when the empathic focus was on the undergoer, perhaps the patients tended to get into trouble because of being unable to deploy the syntax needed to make the undergoer the first noun phrase in the sentence — for example, in English, they would be unable to access the passive. Topicality might have a parallel (but conceptually distinct) effect. So Barbara Fox and I designed some more pictures and sequences of pictures to test these ideas. First we commissioned a set of pictured narratives loaded with non-volitional actions and animate undergoers (e.g. a ball seen breaking a house window, knocking over a lamp inside, and startling a man sitting next to it). Then, to get tighter control over our variables, we commissioned two types of controlled-picture sets.

The first of these varied only in the ANIMACY AND/OR EMPATHIC ATTRACTIVENESS of the undergoer. Everything else was held constant. The examiner presented the pictures (in quasi-random order, with other type of test items interspersed) with the question 'What is happening?' There were two animacy/empathy series:

(5) Brick falls on parked truck; on wagon pulled by child; on teddy bear in wagon pulled by child; on woman's arm.

(6) Sled being pulled by a child; snowball hits empty sled; hits bag of groceries on sled; hits teddy bear on sled; hits child on sled.

Some examples of these are given in Figures 2a-e.

The second type of controlled-picture set varied the context in which a pictured event was presented, aiming deliberately to build up the EMPATHY/TOPICALITY of the undergoer. The test pictures were each first presented as a single panel (no-context condition) with the undergoer-biased question, 'What is happening to (undergoer)?' Then, in a later test block, each of these pictures was also presented as the last panel of series of two or more pictures which provided a CONTEXT CONDITION for it. In the latter, each series was accompanied by a narrative, until the last panel was reached — when the same question,
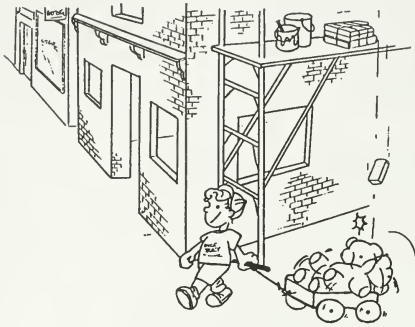
Figure 2a: Brick falling on teddy bear
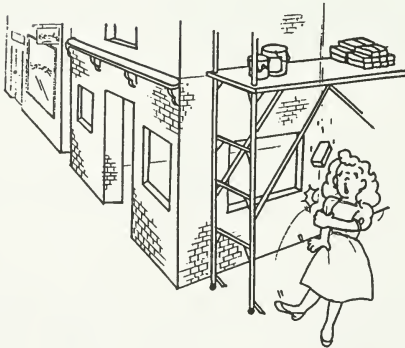
Figure 2b: Brick falling on woman's arm
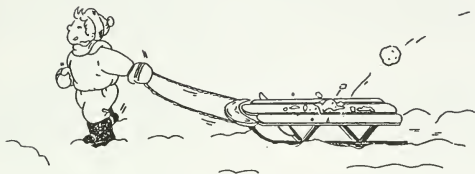
Figure 2c: Snowball hitting empty sled
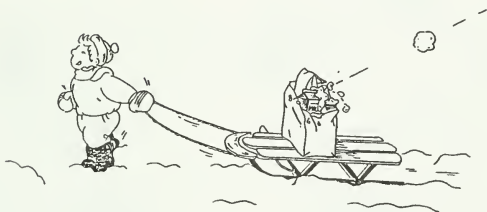
Figure 2d: Snowball hitting grocery bag on sled
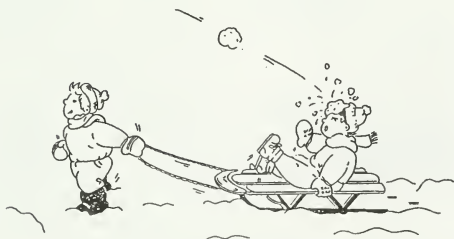
Figure 2e: Snowball hitting child on sled

'What is happening to (undergoer)?', was presented. The events in the test panels may be briefly entitled 'Boy saves dog', 'Dog saves boy', 'Teacher catches kids smoking', 'Girl catches teacher sneaking a drink', 'Boy injured in gangster crossfire', 'Baby hit by fly ball'. Samples of these pictures are given in Figures 3a-b.

The patients were asked to respond to the questions about the test pictures — orally if possible, and also by arranging (previously shuffled) cards with relevant phrases printed on them. Examples of the phrases provided on the cards are:

(7)   falls on — the teddy bear — the brick — hits. (4 cards)

(8)   the girl — the teacher — catches — gets caught — is caught — by. (6 cards).
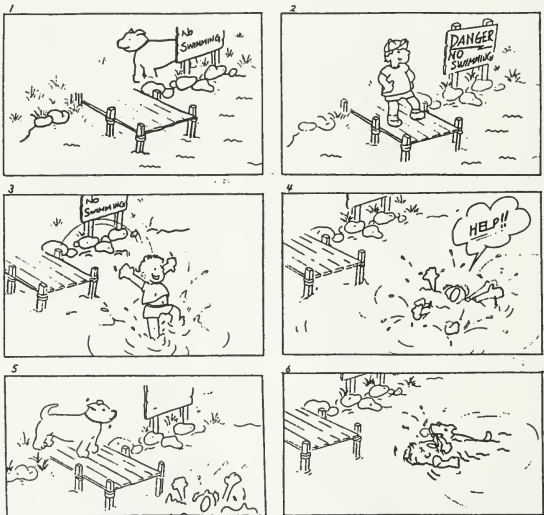
Figure 3a: Dog saves boy
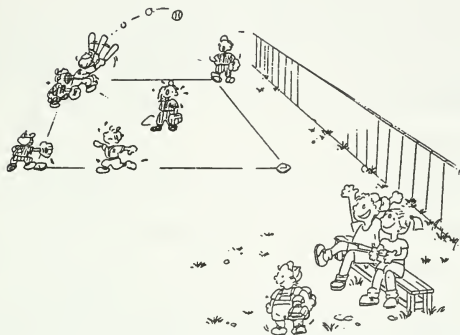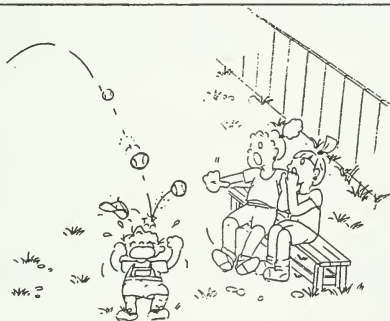
Figure 3b: Baby hit by fly ball.

We also tested to see if the patients could comprehend passive (and active) sentences describing the second controlled set better in the context condition than in conditions without context; but our results so far are insufficient for analysis, as the six patients who have done this task to date mostly performed either at chance or at ceiling.

Data from four patients have been analyzed to date, but two of them were unable to give oral responses, and another one has not yet done the card task.

No normal controls have been taped yet, either, so these results must be considered as VERY PRELIMINARY. However, our predictions about the effects of animacy/empathy and topicality/empathy seem to be borne out.

On the animacy/empathy card arrangement tasks, one patient, Mrs. K, always put the 'brick' card before the card naming the person or object that it fell on, but she showed a clear animacy/empathy effect with the 'snowball' set. Her card-arrangement responses were:

(9) The snowball ... hits ... the sled.

(10) The snowball ... hits ... the bag.

(11) The teddy ... gets hit ... by ... the snowball.

(12) The child ... gets hit ... by ... the snowball.

In the latter two cases, the undergoers are fronted, but in the first two cases they are expressed as grammatical objects.

In her oral responses, Mrs. K showed the animacy/empathy effect in the 'brick' set:

(13) Brick dent truck.

(14) The kid's ... the brick fall down on the (?)box ... lucky.

(15) The bear is dizzy ... the brick fall down and bear get dizzy.

(16) She get hurt.

However, in the 'snowball' set, which we will examine shortly, there was no gradation in her responses.

The predicted effect of varying the amount of context was also found in the card responses of all three patients whose responses have been analyzed so far: For all of them, more undergoers were fronted in context condition than in the no-context condition.

We now have to examine the question of whether the animacy effect is the result of a 'strategy', as Saffran et al. suggested, or of what neuropsychologists call a 'pull'. The data — mostly from Mrs. K at the moment — suggest that both these notions may apply. What, first, is the difference between them? If we call a response pattern an effect of a 'strategy', this implies that the patient had a voluntary choice among responses. If we say that it was due to a 'pull', on the

other hand, we imply that the response was less than fully voluntary. Often we can't tell which was the case, but sometimes the evidence is quite suggestive.

Consider Mrs. K's oral reponses to the 'snowball' set (remember that these pictures were presented in quasi-random order, and with other test items interspersed):

(17) Somebody throw the snowball. (E: And?) The snowball fell on the sled.

(18) Somebody throw the snowball on the sled ... bag ... the snowball hits the carton of milk.

(19) Somebody throw the snowball right in the bear's face.

(20) The snowball is ... Somebody throw a snowball on the girl right (here/head).

It seems very likely that this invocation of the off-stage agent 'somebody' is a strategy. Mrs. K produces a relatively successful sentence, and there is no straightforward way to account for the 'somebody' in terms of empathy or topicality, i.e. in terms of discourse pragmatics.

However, consider these other oral responses:

(21) The kid's ... the brick fall down on the (?)box.

(22) The baby ... no ... the baseball hits the baby.

(23) He ... the boy ... shot ... the bu ... the bullet ... the arm ...

(24) The kiddie ... the girl ... the baseball (gesture) ... the baseball hits the baby.

Here the floundering starts suggest that Mrs. K was 'pulled' to the empathic focus, the undergoer, but was unable to proceed either with a *get* or an *is* passive. She had to switch to an active structure with an inanimate subject — or else, as in 23, fail to produce a well-formed clause at all.

We have plans to develop controlled elicitation materials for other noncanonical structures, since this will be necessary before a psycholinguistic account of the above response patterns can be defined and defended. Here also is where the cross-linguistic approach will become central again. Consider the following generalizations, derived from informal clinical observations and examinations of less-controlled narratives: Dative structures are hard in English, but apparently easy in Japanese; locatives, with the same number of

arguments, have no reported difficulty in either language. Why might this be the case? The instrumental, also basically a three-argument structure, is hard for both languages. If we go back to the 'hat' story, we find, for Mrs. K:

(25) The cane ... the men hook a hat ... o-on the hat ... the men ... the cane ... no ... The men ... pick up ... the hat ... with the cane.

Similar efforts were put forth by the Japanese patients recorded by Dr. Fujita and transcribed by Morishima.

As a speculative conclusion, let me give the 'psycholinguistic account' of the above response patterns to which I am very much attracted. The extensive series of experiments on syntactic priming by Kay Bock (e.g. Bock 1986) has indicated that, whatever else a clause structure is, it is a primable object independent of the lexical items it contains. And of course, lexical items are primable, too. Perhaps the high accessibility of the active clause in English is to be modeled by its having a low threshold of activation. Patients find the active to be available whether or not it is the structure that will fit with their pragmatic preferences; meanwhile the word most highly primed is the empathic focus/topic. (I am assuming, with Bock, a Garrett-type sentence production model; see Garrett 1980 or 1982.) If the empathic focus/topic happens to be undergoer, the resulting sentence will be incorrect: For example, *The baby hits the bal* instead of *The ball hits the baby*. When the patient's self-monitoring is adequate, s/he will reject the incorrect sentences that result. (Even Mrs. K, a superb self-monitor, probably produced one such error, though there are articulation problems which make that particular example uncertain.) If an alternative strategy is found quickly, we may never see any errors; but if the patient is unable to switch to a less-highly-aroused noun phrase which fits the aroused syntax (e.g. the instrument or the agent) and is also unable to access a non-active syntactic structure, then we get ill-formed utterances like Mrs. K's *He ... the boy ... shot ... the bu ... the bullet ... the arm ...*

A final note: I have some hope that these results, if further work sustains them, may have clinical applications. Patients with good self-monitoring might be taught to reject the undergoer as the first word if they can't come up with the right structure, and to try to begin sentences with the agent or instrument, regardless of empathy or topicality. It might not work, but some of my clinician friends and I think that it's worth a try.

NOTES

Figure 1 is from the Japanese Standard Language Test of Aphasia; it was provided by Dr. I. Fujita and is copyrighted. Figures 2 and 3 were drawn by Kuniko Tada, who was awarded the M.A. in linguistics at the University of Colorado in 1990 and is currently a doctoral student in the Applied Linguistics Department at UCLA. Her sophisticated appreciation of the linguistic and psycholinguistic aspects of our project was crucial to her execution of these drawings.

REFERENCES

BATES, Elizabeth, Suzanne Hamby, & Edgar Zurif. 1983. The effects of focal brain damage on pragmatic expression. Canadian Journal of Psychology 37.59-84.
-----, Angela Friederici, Beverly Wulfeck, & L. A. Juarez. 1988. On the preservation of word order in aphasia. Brain and Language 35.323-64.
BOCK, J. Kathryn. 1986. Syntactic persistence in language production. Cognitive Psychology 18.355-87.
CAPLAN, David. 1985. Syntactic and semantic structures in agrammatism. Agrammatism, ed. by M.-L. Kean, 125-52. New York: Academic Press.
-----. 1988. The biological basis for language. Linguistics: The Cambridge Survey, ed. Fr. J. Newmeyer, 3.237-55. Cambridge: University Press.
-----, & Nancy Hildebrandt. 1988. Disorders affecting comprehension of syntactic form: Preliminary results and their implications for theories of syntax and parsing. Canadian Journal of Linguistics 33.1-29.
DELANCEY, Scott. 1987. Transitivity in grammar and cognition. Coherence and grounding in discourse, ed. by R. S. Tomlin, 53-68. Amsterdam: Benjamins.
DU BOIS, John W. 1987. The discourse basis of ergativity. Language 63.805-55.
DURIE, Mark. 1985. A grammar of Acehnese on the basis of a dialect of North Aceh. Dordrecht: Foris.
FOX, Barbara. 1987. The Noun Phrase Accessibility Hierarchy revisited. Language 63.856-70.

GARRETT, Merrill F. 1980. Levels of processing in sentence production. Language production, ed. by B. Butterworth, 1.177-220. New York: Academic Press.

-----. 1982. Production of speech: Observation from normal and pathological language use. Normality and pathology in cognitive functions, ed. by A. Ellis, 19-76. London: Academic Press.

GIVON, Talmy. 1979. On understanding grammar. New York: Academic Press.

HOPPER, Paul, & Sandra A. Thompson. 1980. Transitivity in grammar and discourse. Language 56.251-99.

----- & -----. 1984. The discourse basis for lexical categories in universal grammar. Language 60.702-52.

JAREMA, Gonia, & Eva Kehayia. 1987. Does there exist a hierarchy of difficulty along the active/passive dichotomy? Evidence from two Greek-speaking non-fluent aphasics. (Tapuscrits, CHCN working papers, 13.) Montréal: Centre de Recherche, Centre Hospitalier Côte-des-Neiges.

-----, Danuta Kadzielawa, & J. Waite. 1987. On comprehension of active/ passive sentences and language processing in a Polish agrammatic aphasic. Brain and Language 32.215-32.

KUDO, T., M. Tateishi, T. Kashiwaga, & N. Segawa. 1982. Sensitivity to functors in Japanese aphasics. Neuropsychologia 20.641-51.

KUNO, Susumu. 1973. The structure of the Japanese language. Cambridge, MA: MIT Press.

MENN, Lise, & Loraine K. Obler. 1988. Findings of the Cross-Language Aphasia Study, phase I: Agrammatic narrative. Aphasiology 2.347-50.

OBLER, Loraine K., & Lise Menn. 1988. Agrammatism: The current issues. Journal of Neurolinguistics 3.63-76.

SAFFRAN, Elinor, Myrna F. Schwartz, & Oscar S. M. Marin. 1980. The word order problem in agrammatism, II: Production. Brain and Language 10.263-80.

SASANUMA, Sumiko, Akio Kamio, & Masahito Kubota. 1990. Agrammatism in Japanese. Agrammatic aphasia: A cross-language narrative sourcebook, ed. by L. Menn & L. K. Obler, 1225-307. Amsterdam: Benjamins.

WULFECK, Beverly. 1988. Grammaticality judgements and sentence comprehension in agrammatic aphasia. Journal of Speech and Hearing Research 31.72-81.

STANDARDS AND NORMS FOR WORLD ENGLISHES: ISSUES AND ATTITUDES

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In the by now extensive research on institutionalized nonnative varieties of English, such as Indian English or Nigerian English,[1] a crucial distinguishing characteristic of such varieties has been posited as NATIVIZATION (e.g. Kachru 1986, Sridhar & Sridhar 1986). In this context, nativization refers to systematic changes in the forms and functions of English at all linguistic levels, resulting from the extensive use of the language among nonnative speakers in the absence of native speakers, in non-Western sociocultural contexts, and in constant contact with other languages in multilingual speech communities.[2] Nativized features have sociolinguistic status as stable modifications in the forms and functions of fully elaborated varieties of English that have developed in nonnative sociolinguistic contexts.

Most nativized features would be considered deviant if transplanted to countries where 'native-speaker' varieties of English (e.g. American or British English) are used. However, in the settings of their use, many of these linguistic innovations and modifications of English are so widespread that they have become de facto local norms for usage along the entire style range of English. For example, attitudinal studies reported in Kachru 1976 and Shaw 1981 indicate that in at least two countries, India and Singapore, between forty and fifty per cent of college-educated English users feel that nativized features should be included in local norms for English teaching, that is, in Standard English.[3]

While such studies indicate that nativized features, in general, are becoming accepted as pedagogical standards for nonnative varieties of English, little research to date has focused on determining exactly WHICH innovations are nativized features of Standard English in particular nonnative varieties. This paper, in proposing an approach for beginning to identify these nativized norms, focuses on morphosyntactic deviations from the norms of Standard American English in sample written texts taken from domains of Standard English in several nonnative varieties.[4] Particular attention is devoted to the

nonnative variety of English that has developed in Malaysia. The analysis demonstrates that in many cases, norms for Standard English cannot be identified on linguistic grounds alone. Rather, such a determination frequently depends far more on attitudinal variables, particularly on the relative sociolinguistic status of the sources of an innovation. The paper concludes with a discussion of the significance of these attitudinal factors in assessing the English proficiency of speakers of nonnative varieties.

Extension of productive morphosyntactic processes of Standard English

A major source of nativization in nonnative varieties is the extension of innovative morphosyntactic processes that are also very productive in, and frequently cause differences between, the native-speaker varieties of English. One such process by which British and American English often diverge is the conversion to countability of noncount nouns which semantically include an aggregate of countable units, as in examples (1) and (2) from reputable sources of British English.

(1)   Some small initial fall-off in ATTENDANCES is unavoidable.
       (Times of London, 10/27/86:17, in Algeo 1988:7)

(2)   ... iceberg LETTUCES are down in price and should be selling for
       between 35p and 55p, depending on size.
       (Daily Telegraph, 8/9/85:6, in Algeo 1988:7)

This process, which is restricted to specific lexical items in each variety of English, likewise results in innovations in nonnative varieties, as in (3), from both Singapore and Malaysian English, (4), from Nigerian English, and (5), from Ghanaian English.[5]

(3)   Pick up your CHALKS.
       (Tongue 1974:43)

(4)   I lost all my FURNITURES and many valuable PROPERTIES.
       (Bokamba 1982:82).

(5)   I was in charge of all CORRESPONDENCES.
       (Bokamba 1982:82).

Another process that frequently produces differences between British and American English is the creation of divergent verb-phrase collocations, as in (6), from British English.[6]

(6) This envisaged 16 to 20 'technology schools' in big cities, each
     CATERING FOR 1000 selected pupils...
     (Times of London, 9/15/86:1, in Algeo 1988:25)

Extensions of this process in nonnative varieties are illustrated in (7), from
Indian English, and (8), from the English of both Singapore and Malaysia.

(7) Everyone is DISMISSING OFF my career.
     (Mehrotra 1982:161)

(8) It is a bit difficult to COPE UP WITH all the work they give us.
     (Tongue 1979:56)

A third productive process common to both the native-speaker and non-
native varieties is the coining of neologisms through morphological derivation,
especially prefixation, as in (9), from Indian English, and (10), from the English
of several nonnative varieties that have developed in East Africa.

(9) If a passenger on a PREPONED flight shows up at the time written on
     his ticket and finds the plane has already left, he is not entitled to a
     refund.
     (Coll 1990:A13)

(10) He OVERLISTENED to the boys' conversation.
     (Hancock & Angogo 1982:318)

In (9), *prepone* is 'to decide to do something earlier than expected' (Verma
1982:180); *overlisten* in (10) means 'eavesdrop'.

A fourth productive process frequently leading to innovations in both the
native-speaker and nonnative varieties is expansion of the lexicon through
compounding, as illustrated by (11), from Philippine English, and (12), from
Ghanaian English.

(11) Most of the students here are BED-SPACERS.
     (Gonzalez 1983:158)

(12) You have to be careful with these BEEN-TO BOYS.
     (Bokamba 1982:89).

Bed-spacers in (11) refers to students who rent a bed in a boardinghouse or
dormitory without eating their meals there. In (12), *been-to boys* (and *girls*) are
young Ghanaians who have recently returned from studies and/or employment
in Great Britain and frequently have difficulty readjusting to life in Ghana. In In-
dian English, such people are often called *England-returned* (Kachru 1982:
363).

Identification of nativized features in primary sources

Of course, these very morphosyntactic processes frequently also underlie interlanguage features in the second-language acquisition of English (see, for example, papers in Richards 1974). Relying on secondary sources, as in the above examples from nonnative varieties, provides no way of ascertaining first-hand if these examples do indeed reflect nativized features of Standard English in their respective speech communities, or if they are markers of individual learners' interlanguages.

On the other hand, the researcher wishing to supplement these reports with primary data encounters a methodological problem of determining exactly which linguistic divergences from native-speaker English are nativized features. Since the majority of users of nonnative varieties still do learn English as a second language, and since many nativized features arise from a subset of the linguistic processes which also underlie interlanguage, it is important to distinguish nativized features that create DIFFERENCES between varieties, such as the differences between British and American English, from interlanguage DE-FICIENCIES in the acquisition of nativized Standard English by learners of non-native varieties.

In some cases, making this distinction is quite easy, as in (13) and (14).

(13) Asia's longest bridge and RANK THIRD in the world. The $850 million concrete bridge LINK PENANG ISLAND TO PENINSULA MALAYSIA.

(14) Citizen makes your office calculation MORE EASIER.
(New Straits Times, 9/16/87:12)

(13) is the caption on a Malaysian postcard, while (14) is an advertisement that appeared in a leading Malaysian English-language newspaper. Neither of these deviations from native-speaker Standard English arises from the productive processes underlying (1) through (12) above. Rather, both reflect either aberrant mistakes or some stage in their authors' acquisition of English as a nonnative language.

At the other extreme, certain deviations from native-speaker English can be confidently proposed as being nativized norms in that they have been institutionally codified by the same types of authorities who make such decisions in the native-speaker varieties. Examples of this occur in the highlighted constructions in (15) and (16), from Malaysian ESL textbooks published by Oxford University Press and by the Malaysian Ministry of Education, respectively.

(15) GIVE your book IN.
     (Howe 1974:125)

(16) A CONSIDERATION for others is most important.
     (Koh & Leong 1976:238)

In other cases, newspaper style sheets reveal evidence of stabilized constructions, as in (17) and (18), from the style sheet of The Straits Times, Singapore's leading English-language newspaper.

(17) She lives IN 6TH AVENUE.
     (Straits Times Press 1985:4)

(18) I live in an apartment AT BELMONT ROAD.
     (Straits Times Press 1985:177)

In fact, (17) and (18) may not be nativized at all, but instead reflect British English, as in (19).

(19) Entrance IN SHERWOOD STREET.
     (Algeo 1988:13)

Between these extremes of codification and clear deficiency comes the more problematic area of identifying nativized norms and distinguishing them from interlanguage. In many cases, extensions of productive processes in English may not yet be codified, but their acceptability is enhanced through use by writers whose scholarship is highly regarded. This also occurs in the native-speaker varieties, as illustrated by the construction *knowledges* in (20) and (21), which would be considered unacceptable by many speakers of Standard American English.

(20) Equally certainly, twenty-five authors and two editors do not know enough to write this book, and by virtue of KNOWLEDGES and viewpoints they may not provide as cohesive a book as a single author.

(21) In the cultural and academic spheres, one finds national KNOWLEDGES and discourses coexisting with Continentalist constructs ...

However, upon learning that (20) was written by Charles Ferguson and Shirley Brice Heath (1981:xxxviii) and that (21) appears in a paper by their Stanford colleague Mary Louise Pratt (1986:34), readers familiar with these scholars' work would be slower to reject this plural form as ungrammatical, especially when used in the registers of these writers' domains of expertise. The spread of the form *knowledges* through the writing of other scholars in the language sciences could lead to a change in the norms of this register of Standard American English.

Such acceptance of *knowledges* on the basis of the stature of its authors motivates a similar response to *switchings* in (22) and (23), both of which were written by the prominent Malaysian linguist Asmah Haji Omar (1985:20,22), whose status among Southeast Asian language specialists is equivalent to that of the American authors of (20) and (21).

(22) In this context, there were variations such as (code) SWITCHINGS between English and their own language.

(23) Intrasentential code-switching may take place in a formal or semi-formal situation, like at official meetings, seminars or conferences. Most SWITCHINGS at these levels take place between standard Malay and formal Malaysian English.

As with *knowledges* above, if other Malaysian linguists likewise begin to use *switchings*, this construction could become a nativized feature in this register of Standard Malaysian English.[7]

Even when the sociolinguistic status of the individual authors is unknown, identification of registers within specific domains can be useful in determining the acceptability of particular constructions. For example, (24) appears several times on my children's box of Crayola chalk, manufactured and packaged in the United States.

(24) 12 Crayola colored CHALKS.
(Binney and Smith, Inc., Easton, Pennsylvania)

Notice that *chalks* here is identical to the Singapore/Malaysian nativization in (3) above.

This criterion of domain of use can likewise be applied in distinguishing possible nativized features from acquisitional deficiencies in the nonnative varieties. Examples (25) and (26) are taken from the front news sections in two of Malaysia's leading English-language newspapers.

(25) Complaints of threats and INTIMIDATIONS have surfaced and these could affect the security situation in the State.
(New Straits Times, 5/1/86:1)

(26) That way the forms would be filled and processed within minutes, rather than have the passengers FILL UP all the details while at the checkpoint.
(The Sunday Star, 3/31/85:2)

Appearing where they did in these prestigious newspapers, these passages were probably written, or at least edited, by highly proficient Malaysian users of English. This further suggests that many of the educated Malaysian speakers of English who read these newspapers might not object to the constructions *intimidations* and *fill up*. On this basis, *intimidations* and *fill up* might be considered possible nativized features of Malaysian English.[8]

However, *intimidations* and *fill up* might just as well be mistakes. In the absence of repeated occurrences of an item by an author, as in *switchings* in (22) and (23) above, it is important, when possible, to consult with authors as to whether they intended to produce such innovations. For example, Ferguson and Heath (p.c.) did indeed use *knowledges* intentionally in (20). On the other hand, this was not the case with *correspondences* in the Georgetown University employment advertisement in (26).

> (27) Editor/Writer II - Incumbent will research, write, edit, and supervise the production of direct mail projects to include brochures and CORRESPONDENCES of Alumni Annual Fund, the Hospital Annual Fund, and phone/mail.
> (Chronicle of Higher Education, 10/24/90:B45)

Though *correspondences* appears in a conjoined nominal phrase that is structurally similar to those in (20), (21), and (25), and is identical to the Ghanaian nativization in (5), the author of this advertisement reports (p.c.) that he had no intention of using this plural form, and that it was most likely a typographical error that occurred during the publication process.

Nevertheless, despite such methodological problems in identifying nativized features, from this analysis emerge several heuristics for identifying nativized norms for Standard English in nonnative varieties. First, many nativized features result from a limited number of the productive linguistic processes that also produce differences among the native-speaker varieties of English. Second, in some instances, nativized features have been codified by institutions having authority over domains of Standard English, such as government-authorized textbooks and newspaper style sheets. Third, deviations from native-speaker norms may be considered as possible nativized features when produced by English speakers with high status in the relevant speech community and/or when appearing in texts likely to have been written and edited by speakers who are highly proficient in English.

A fourth heuristic, illustrated by *knowledges* in (21) and (22) and by *switchings* in (23) and (24), is the frequency of use of particular innovations by educated speakers of English. For example, a developing nativized norm in Standard Malaysian English may be *hotting up* in (28), which I've now seen three times in the New Straits Times.

(28) With three days to go before acceptance, the battle for Umno Youth
Exco seats is HOTTING UP.
(New Straits Times 6/14/80:1)

In fact, *hotting up* appears to occur across nonnative varieties, as suggested by
its use in (29), from a major Indian English-language newspaper.

(29) Gujarat scene HOTS UP again.
(Hindustan Times, 7/13/89:1)

Implications for assessing nonnative English proficiency

These heuristics for distinguishing nativized features from errors and mis-
takes have important implications for the assessment of nonnative speakers'
proficiency in English. Most obviously, such analyses suggest limits on how far
it can be assumed that norms of Standard English in any variety extend to other
varieties, native or nonnative.

One practical implication of this observation concerns the international val-
idity of certain items in the Test of English for International Communication
(TOEIC), which the Educational Testing Service (ETS) has been administering
since 1979. In its Bulletin of Information for the TOEIC, the Educational Testing
Service (1987:2) describes the TOEIC as 'designed to test the English lan-
guage as it is used internationally in business, commerce, and industry'.
Further, ETS points out that the TOEIC differs from the Test of English as a
Foreign Language (TOEFL), which 'is designed to determine how well a
candidate can use English in colleges and universities in the United States'
(ETS 1986:3). Thus, whereas the TOEFL is based on the norms of Standard
American English, the TOEIC is implicitly unbiased toward any variety of Stan-
dard English.

ETS publications concerning the TOEIC do not mention whether the
norms considered acceptable for international use are only those from native-
speaker varieties or include those from nonnative varieties as well. However,
through personal correspondence with ETS, I have been advised that only
norms from the native-speaker varieties are accepted.

Apparently working within this bias, a commercially published practice
book for the TOEIC considers item (30) incorrect, though it would be acceptable
in Standard Singapore English, as in (17) and (18), and even in Standard
British English, as in (19) above.

(30) He lives IN MAIN STREET.
(Lougheed 1986:13)

Cross-varietal differences likewise become a factor in (31), a practice problem in the official ETS bulletin for the TOEIC. The student's task here is to identify which underlined item is ungrammatical.

> (31) Please FILL OUT the enclosed form TO TELL us HOW you think ABOUT our service.
> (ETS 1987:18)

The ungrammatical item here is considered to be *how*. However, the construction *fill out* might well also be unacceptable to a candidate accustomed to *filling up* a form, as in (26) above or in Standard British English (see Note 8). For such a candidate, (31) could be a very troublesome problem to answer, as it would contain two errors.

Examples (32) and (33), similar in examinee task to (31), are actual test items from a retired 1980 version of the TOEIC now available from ETS (1980: 27-28).

> (32) HIS proposal met WITH A LOT OF RESISTANCES.

> (33) The new EQUIPMENTS shipped from Hong Kong will be THE ONLY ITEMS ON SALE this week.

Resistances and *equipments,* which result from the same productive process that yield (1) through (5) above, may well be acceptable to educated speakers of particular nonnative varieties of Standard English.

Beyond the realm of standardized tests, educators charged with evaluating the English proficiency of speakers of nonnative varieties can attempt to distinguish DEFICIENCIES in the acquisition of English by these students from varietal DIFFERENCES in the students' usage resulting from their having previously learned nativized English. For example, among such students in the United States, possible nativized features would include systematic deviations from Standard American English which result from morphosyntactic processes which are also productive in native-speaker varieties, such as the ones discussed above, and which highly educated English users in the students' home countries might therefore use in domains of Standard English.

An illustration of how this distinction might be made comes from analysis of (34) through (37), from papers written by Malaysian graduate students in linguistics at Georgetown University.

> (34) For example, WHEN THE FIRST TIME I CAME HERE, I did not have enough VOCABULARIES ...

> (35) In the past, SEVERAL interesting RESEARCH had been conducted ...

(36) Forty college-educated MEBs studying in the Washington, DC, and Northern Virginia area were the subject of A RESEARCH entitled ...

(37) I would like to RECALL BACK the process I went through ...

All of the highlighted items would be considered incorrect by most speakers of Standard American English. In (34) and (35), *when the first time I came here* and *several interesting research* do not result from the productive processes discussed above and are therefore most likely either performance mistakes or interlanguage errors in all varieties of Standard English. However, *vocabularies* in (34), *a research* in (36), and *recall back* in (37) DO result from the productive processes discussed earlier. These constructions could be nativized features that the students were taught in Malaysia, they could be mistakes, or they could be acquisitional deficiencies. Therefore, in assessing the students' English proficiency, *vocabularies, a research,* and *recall back* cannot be evaluated as quickly and clearly as can *when the first time I came here* and *several interesting research.*

Another, deeper implication of becoming sensitive to nativized features arises in (38).

(38) We often exchange our KNOWLEDGES.

The highlighted construction here appears to be identical to (20) and (21) above, from Ferguson & Heath and from Pratt. However, the author of (38) is a Georgetown linguistics graduate student from Japan, where no nonnative variety has yet been identified. Is (38), therefore, a mistake or a marker of interlanguage? If so, do (39) and (40), written by Georgetown linguistics graduate students from the United States, also reflect interlanguage?

(39) As A HOMEWORK, students chose ten words or phrases to write in sentences.

(40) A slash (/) between terms indicates both were present in the data, AN EVIDENCE of variable assimilation ...

Or does (40) seem preferable to (39) once we know that *evidence* has similarly been made countable by the eminent American psycholinguist Jean Berko Gleason in (41).

(41) Parents' eagerness to teach their 6-month-old children the prelinguistic routine 'bye bye' is ONE EVIDENCE of their desire to show that their baby is on its way to being a socialized person.
(Berko Gleason 1988:276)

Apparently, as indicated by many of the data examined above, the basis for distinguishing between DIFFERENCES and INNOVATIONS, on the one hand, and DEFICIENCIES in Standard English, on the other, can be extremely attitudinal as well linguistic.

Conclusion

The present analysis and discussion, though suggesting heuristics for identifying nativized features in nonnative varieties of English, also illustrate how little can actually be determined on the basis of such limited data as are presented here. Research on these varieties has not yet advanced to the point of being able to identify all, or even most, of the nativized features in any variety. Many conceptual and methodological problems remain. For one thing, a much broader data base will be necessary.[9] Equally important for the identification of nativized features in a particular variety will be judgments of the acceptability of specific innovations in that variety by that variety's most highly educated speakers.

In addition, the scope of analysis of nonnative varieties must be extended beyond morphology and syntax to other linguistic levels. For example, research by B. Kachru (1986) and Y. Kachru (1988) has revealed significant register-specific stylistic differences in Standard English between nonnative varieties and the native-speaker varieties.

Nevertheless, even with the great deal that remains to be learned about nonnative varieties of English and the dynamics of nativization, insights from research to date can already have practical applications for improving tests measuring nonnative proficiency in English, and for analyzing nonnative English speakers' deviations from native-speaker norms. On a more theoretical level, such research will be crucial in writing a truly comprehensive grammar of English as a world language, and should yield valuable insights on basic processes of language variation and change.

NOTES

[1] The term 'institutionalized nonnative varieties' originates with Braj Kachru (e.g. 1986). These varieties have developed in countries formerly colonized by Britain or the United States where English continues to be used by substantial numbers of nonnative speakers as a second, often official, language in a broad range of INTRAnational domains. Among these countries are Bangladesh, Botswana, Brunei, Cameroon, Ethiopia, Fiji, The Gambia, Ghana, India, Israel, Kenya, Lesotho, Liberia, Malawi, Malta, Mauritius, Myanmar, Namibia, Nauru, Pakistan, Seychelles, Sierra Leone, Singapore, South Africa, Sri Lanka,

Sudan, Swaziland, Tanzania, Tonga, Uganda, Western Samoa, Zambia, and Zimbabwe (Encyclopedia Britannica 1986:838-41; McCallen 1989:7-9). In many of these countries, English is still used for some of the legislative, administrative, and judicial functions of government and is the principal medium of instruction, especially in secondary and postsecondary education.

[2] A source of confusion in recent discussions of nativization has been the use of the term by other linguists to describe various aspects of language acquisition and use. For Sankoff (1980) nativization refers to the first-language acquisition of a pidgin by children, a development traditionally considered to coincide with creolization. Also related to pidgins is Todd's (1984:15) use of nativization in reference to the 'period of expansion and stabilization' of a pidgin when it is used as a lingua franca, 'a period when the local people [make] the pdigin serve their purposes.' Andersen (1979, 1980, 1981) expands the domains of nativization to include all language acquisition: the 'acquisition towards an internal norm' (1980:273) of any target language — first or second, including, but not restricted to, pidgins and creoles — by individuals or groups.

[3] Following Trudgill (1983) and Tay & Gupta (1983), the standard model of a variety of English — native or nonnative — is here defined as the linguistic forms of that variety that are normally used in formal speaking and writing by speakers who have received the highest level of education available in that variety. Standard English is the accepted model for official, journalistic, and academic writing and for public speaking before an audience or on radio or television.

[4] As in Lowenberg 1989, this analysis is of morphosyntactic features in Standard English because these can be easily identified and classified for cross-varietal comparison; because they have already been well described in native-speaker varieties; because authoritative prescriptive norms are frequently available in school textbooks and newspaper style sheets; and because these forms are addressed in most assessments of English profiency. The focus is on written, as opposed to spoken texts, since regional phonetic and phonological processes can often mask the realization of morphosyntactic standards, and since written language has a greater likelihood of being successfully monitored or edited, making possible a distinction between mistakes and acquisitional errors.

For discussions of nativization processes at other linguistic levels in nonnative varieties, see Platt, Weber, & Ho 1984, Braj Kachru 1986, Lowenberg 1986a, 1986b, 1991, Smith 1987, and Cheshire 1991.

[5] As Henry Widdowson notes (p.c.), many of these noncountable-to-countable conversions are register-specific. For example, the register of real estate in Standard American English includes real estate *properties*, a construction identical to that in (4). Additional examples of count/noncount differences be-

tween British and American English are given in Schur 1987, Algeo 1988, and Lowenberg 1989.

[6] In American English, the more usual collocation would be *catering to*. See Svejcer 1978, Trudgill & Hannah 1985, Schur 1987, Algeo 1988, and Lowenberg 1989 for additional examples of differences between British and American English in verb-phrase collocations.

[7] I am grateful to Chin-W. Kim and Hans Henrich Hock for pointing out that *knowledges* in both (20) and (21) occurs as part of conjoined noun phrases in which the other noun is the plural form of a count noun: *knowledges and viewpoints* in (20) and *knowledges and discourses* in (21). This is not the case with *switchings* in (322) and (23), suggesting that the processes underlying these mass-to-count changes may not be the same in (22) and (23) as they are in (20) and (21). Note however that (25) below, from Malaysia, appears in the same type of construction as do (20) and (21).

[8] *Fill up* also frequently appears in Standard British English (Schur 1987: 135).

[9] Sidney Greenbaum of the University of London is currently compiling such a data base of nonnative varieties of English, a data base which will eventually include data from fifteen such varieites around the world (Braj Kachru, p.c.).

REFERENCES

ALGEO, John. 1988. British and American grammatical differences. International Journal of Lexicography 1:1.1-31.
ANDERSEN, Roger. 1979. Expanding Schumann's pidginization hypothesis. Language Learning 29.105-119.
-----. 1980. Creolization as the acquisition of a second language as a first language. Valdman and Highfield 1980:273-295.
-----. 1981. Two perspectives on pidginization as second language acquisition. New dimensions in second language acquisition research, ed. by R. Anderson, 165-195. Rowley, MA: Newbury House.
ASMAH HAJI OMAR. 1985. Patterns of language communication in Malaysia. Southeast Asian Journal of Social Science 13:1.19-28.
BAILEY, Richard, & Manfred Gorlach (eds.) 1982. English as a world language. Ann Arbor, MI: University of Michigan Press.
BERKO GLEASON, Jean. 1988. Language and socialization. The development of language and language researchers: Essays in honor of Roger Brown, ed. by F. K. Kessel, 269-80. Hillsdale, NJ: Lawrence Erlbaum Associates.

BOKAMBA, Eyamba. 1982. The Africanization of English. The other tongue, ed. by B. B. Kachru, 77-98. Urbana, IL: University of Illinois Press.

CHESHIRE, Jenny (ed.) 1991. English around the world: Sociolinguistic perspectives. Cambridge: Cambridge University Press.

COLL, Steve. 1990. India's terminal frustration. The Washington Post, January 15:A13.

EDUCATIONAL TESTING SERVICE. 1980. Test of English for International Communication [retired version]. Princeton: Educational Testing Service.

-----. 1986. Guide for TOEIC users. Princeton: Educational Testing Service.

-----. 1987. Bulletin of information, Test of English for International Communication. Princeton: Educational Testing Service.

ENCYCLOPEDIA BRITANNICA. 1986. Britannica Book of the Year, 1986. Chicago: Encyclopedia Britannica, Inc.

FERGUSON, Charles A., & Shirley Brice Heath. 1981. Introduction. Language in the USA, ed. by C. A. Ferguson & S. B. Heath, xxv-xxxviii. Cambridge: Cambridge University Press.

GONZALEZ, Andrew. 1983. When does an error become a feature of Philippine English? In Noss 1983:150-172.

HANCOCK, Ian, & Rachel Angogo. 1982. English in East Africa. Bailey & Gorlach 1982:306-323.

HOWE, D.H. 1974. New guided English, Book 1. Kuala Lumpur: Oxford University Press. [Repr., Penerbit Fajar Bakti Sdn. Bhd., Kuala Lumpur, 1986.]

KACHRU, Braj B. 1976. Models of English for the Third World: White man's linguistic burden or language pragmatics? TESOL Quarterly 10:2.221-239.

-----. 1982. South Asian English. Bailey & Gorlach 1982:353-383.

-----. 1986. The alchemy of English. Oxford: Pergamon Press.

KACHRU, Yamuna. 1988. Interpreting Indian English expository prose. IDEAL 3.39-50.

KOH, Judy, & Leong Suat Chin. 1976. Dewan's communicative English, Book 4. Kuala Lumpur: Dewan Bahasa dan Pustaka, Ministry of Education.

LOUGHEED, Lin. 1986. English, the international language. Tokyo: Addison-Wesley.

LOWENBERG, Peter H. 1986 (a). Non-native varieties of English: Nativization, norms, and implications. Studies in Second Language Acquisition 8:1.1-18.

-----. 1986 (b). Sociocultural context and second language acquisition: Acculturation and creativity in Malaysian English. World Englishes 5:1.71-83.

-----. 1989. Testing English as a world language: Issues in assessing nonnative proficiency. Language teaching, testing, and technology: Lessons from the past with a view to the future, ed. by J. A. Alatis, 216-227. Washington, DC: Georgetown University Press.

-----. 1991. The nativization of English in Malaysia: A case study in language pragmatics. Cheshire 1991:364-375.

MCCALLEN, Brian. 1989. English: A world commodity. London: The Economist Intelligence Unit.

MEHROTRA, R R.. 1982. Indian English: A sociolinguistic profile. Pride 1982: 150-173.

NOSS, Richard B. (ed.) 1983. Varieties of English in Southeast Asia. Singapore: SEAMEO Regional Language Centre. [Anthology Series, 11.]

PLATT, John, Heidi Weber, & Ho Mian Lian. 1984. The new Englishes. London: Routledge & Kegan Paul.

PRATT, Mary Louise. 1986. Comparative literature as a cultural practice. Profession 86.33-35. New York: Modern Language Association of America.

PRIDE, John (ed.) 1982. New Englishes. Rowley, MA: Newbury House.

RICHARDS, Jack C. (ed.) 1974. Error analysis: Perspectives on second language acquisition. London: Longman.

SANKOFF, G. 1980. Variation, pidgins, and creoles. Valdman and Highfield 1980:139-164.

SCHUR, Norman W. 1987. British English, A to Zed. New York: Facts on File Publications.

SHAW, Willard. 1981. Asian student attitudes toward English. English for cross-cultural communication, ed. by L. E. Smith, 108-122. New York: St. Martin's Press.

SMITH, Larry E. (ed.) 1987. Discourse across cultures: Strategies in World Englishes. New York: Prentice Hall.

SRIDHAR, Kamal K., & S. N. Sridhar. 1986. Bridging the paradigm gap: Second language acquisition theory and indigenized varieties of English. World Englishes 5:1.3-14.

STRAITS TIMES PRESS. 1985. Our style: The way we use words in The Straits Times. Singapore: Straits Times Press, Ltd.

SVEJCER, Aleksandr D. 1978. Standard English in the United States and England. The Hague: Mouton.

TAY, Mary W. J., & Anthea Fraser Gupta. 1983. Towards a description of Standard Singapore English. Noss 1983:173-189.

TODD, Loreto. 1984. Modern Englishes: Pidgins and creoles. Oxford: Basil Blackwell.

TONGUE, R. K. 1979. The English of Singapore and Malaysia. Singapore: Eastern Universities Press.

TRUDGILL, Peter. 1983. Sociolinguistics (Revised edition). Harmondsmith, England: Penguin Books.

-----, & Jean Hannah. 1985. International English: A guide to varieties of Standard English (Second edition). London: Edward Arnold.

VALDMAN, A., & A. Highfield (eds.) 1980. Theoretical orientations in creole studies. New York: Academic Press.

VERMA, S. 1982. Swadeshi English: Form and function. Pride 1982:174-187.

SYNTACTIC THEORY AND LANGUAGE ACQUISITION:
A CASE AGAINST PARAMETERS*

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1.0 Introduction

Syntactic theory over the last ten years has developed from a theory of rules, filters, and constraints to a theory of principles and parameters. The change from a rule-based to a principles-based theory is a very significant one and has triggered changes in the theory of language acquisition. It has re-shaped the way psychologists and linguists have come to think about the problems facing the child who is acquiring a particular language. While in the rule-based system, the question centered around the issue of how the child selects a rule from a space of infinitely many rules of some rule writing system, in the principles-and-parameters-based approach the task facing the child seems to be simpler. In this model, the principles of grammar are part of the innate knowledge the child is born with, part of a segregated mental language faculty (a language 'organ', to use Chomsky's term) which functions autono-mously, like the liver or any other organ. Why, then, are all languages not the same? In order to account for the variation observed crosslinguistically, we must assume that the principles are slightly under-specified, namely that certain parameters are left open to be filled in by the child, depending on the particular language the child is exposed to. Thus the child's job is to calibrate endo-genous rule schemata (now called 'principles') by fixing parameter values that the innate endowment leaves unspecified.

These universal principles are like templates which limit the choice of wild guesses that children might make and gives them advance specific knowledge of certain properties of language. For example, children are born with the knowledge that the order of head vs. complement has to be fixed and that it is usually the same across all head + complement relations, across categories. Thus, for example, discovering that complements precede heads in the VP will force a child learning Quechua or Japanese to set the head parameter one way, while the English learning child will set it a different way. Setting the head di-rectionality parameter should have a sweeping effect on the whole grammar for

the child since, given the principles of X'-theory, this affects not just the order of verb and object, but also the order of head nouns and their complements, and of adpositions and their complements (i.e. all heads and complements in the X'-schema). This is obviously an oversimplification, but illustrates the 'power' of parameters. A somewhat more complex version of the head-directionality parameter, which subdivides the parameter to take into account the directionality of Case and theta marking, is given in Travis 1987:

(1)   The Headedness parameter (branching direction) (Travis 1987)

						Case	theta	headedness
a.	PP2	V	NP	PP1	Chinese	---	right	final
b.	V	NP	PP1	PP2	English	---	right	initial
c.	NP	V	PP1	PP2	Kpelle	left	---	initial
d.	PP1	PP2	NP	V	Japanese	left	---	final

As mentioned above, as far as the child is concerned, finding the correct setting for a parameter is considered an easy task. Parameter setting is typically viewed as TRIGGERING rather than learning; i.e., particular settings are selected (from a list of possible options) rather than learned. This view is perhaps best summarized in Lightfoot 1989. The general view adopted by Lightfoot and other researchers in this paradigm is that it is not that the environment shapes the grammar (the language organ) but that the organ selects certain options which are specified to begin with (head initial or final in the simple example given above). There is no real learning involved, just selection of relevant stimuli from the environment.

In the last five years, researchers have begun to address a number of problems related to the notion of parameters. This research addresses the issue of identifying the relevant parameters, separating the parameters from one another and from the universal principles of grammar, and, crucially, giving a plausible account of how these parameters are fixed in the course of language acquisition by the child. For an overview of this program of research see the articles in Roeper & Williams 1987 and Frazier & De Villiers 1990.

1.1 P-parameters vs. R-parameters

In this paper I would like to concentrate on one particular type of parameter, and ask the question of whether there is good evidence from syntactic theory and language acquisition for the existence of this type of parameter. Note that the word order example given above is an instance of a so-called 'open' parameter: Head-directionality is fixed by early exposure to the language. This is an example of what Freidin and Quicoli (1989) called r-parameters. R-parameters are the concrete values assigned to category variables in rule schemata (the X' schema, for example). An additional example of an r-parameter is the set of parameters which assign the possible category values to alpha in the rule schema 'move-alpha' (adjunction or substitution).

Another important class are parameters associated with the subsystems of principles (p-parameters). Here the argument goes: No data can fix the values since this would involve negative input, which is unavailable to the child. For example, if one of the values of the definition of Governing category in Binding Theory is 'subject' or 'root clause' (as discussed below), this cannot be left open, since it must be assumed that these settings develop in the absence of linguistic experience. If the value is left open, the child learning English would require negative evidence to set the parameter. Since the absence of negative evidence in child language is a common assumption (see Morgan & Travis 1988 and Lightfoot 1989 for good summaries), it has been claimed that these parameters must come preset to a certain value (actually, the most restrictive value on the list). The child's setting (the preset value) may then differ from the adult setting if the adult language happens to have a different setting from the preset value. The issue here then is: What triggers parameter resetting for the child and how does the child move from one setting to another with only positive data? This is discussed more fully below.

Another example of a p-parameter is the pro-drop parameter suggested in Hyams 1986. Hyams claims, based on evidence from English child language, that child grammar can differ from adult grammar since this particular parameter comes fixed with an initial setting (that is, the value of the parameter assumed in advance of experience with a particular language), which happens (in English) not to be the correct parameter for the adult language. It is important to discuss why this situation could arise. This parameter dictates whether the language in question allows null subjects in tensed clauses, as in Italian, or prohibits them as in English, as illustrated in examples (2-5) below:

(2)　a.　I am going to the movies.
　　　b.　* am going to the movies.
(3)　　　(Io)　vado　　al　　cinema.
　　　　　(I)　am going to　the movies.
(4)　a.　It seems that John loves Mary.
　　　b.　* seems that John loves Mary.
(5)　　　sembra　que Gianni　ama Maria.
　　　　　seems　that G.　　loves M.

The English-speaking child, who has the parameter preset as +pro-drop, has no negative input from English to convince her that she is in the wrong setting. As claimed by Hyams, however, English has other triggers (such as the existence of overt expletives and the placement of modals) to convince the child that the initial setting is wrong. Clearly, then, there are serious issues here of what the triggering data are, of what initial settings should look like, and of what determines initial settings. These have been addressed in the literature to some extent, especially in the works cited above.[1]

I would like to take a different approach here and entertain the hypothesis that the parameters related to principles described in the literature are not desirable and have arisen only as a result of the principles being poorly worked out. I would like to claim that postulating such parameters (namely p-parameters) leads to a number of conceptual problems, such as the question of how to determine the initial setting of a parameter and the related question of what triggers parameter resetting (the issue of triggering experience, discussed in detail in Lightfoot 1989). My claim is that as the principles are better worked out, the need for such preset parameters will vanish, obviating the need for both parameter presetting or resetting.

In what follows I will take a look at the principles and parameters proposed to account for the distribution of anaphors across languages. In section 2, I claim that the parametric approach to binding theory, as developed in Wexler & Manzini 1987, is conceptually undesirable on at least two grounds: (a) It forces us to invent principles such as the Subset Principle, which assist the child in determining the preset value of the parameter; and (b) it leads to atomization by forcing us to have separate parameters for various properties of reflexives crosslinguistically. This is in direct contradiction to the spirit of the principles and parameters model, a model which has as its explicit aim to shift away from individual rules which each describe a certain construction or property, to a system of principles accounting for more than one property.

In 2.2, I propose an alternative approach, which does not involve parameters, and thus avoids some of the problems inherent in the parameterized approach. In this alternative approach, the child comes equipped with general principles with no associated parameters. What the child has to figure out is which lexical items are associated with the principles. What the child is 'learning' is the lexicon and the lexical and morphological structures of the language. The grammar will change as the child acquires particular lexical items and their associated properties. Thus the child may be discovering what properties INFL has in his language (given that he knows what kind of properties INFL could have). This could take some time, and, since the structure of INFL interacts with various principles (as illustrated below), it may be reflected as restructuring of the grammar. The claim is that children do not differ from adults as far as the principles involving binding are concerned. They only differ in having an incomplete knowledge of the lexical and morphological structures of their language, and this in turn affects what their grammars look like. Finally, in section 3, I review the evidence from first language acquisition and conclude that there is no strong support for parameter resetting or for the Subset Principle in the studies conducted so far.

2.0   Binding properties across languages

Let me start by reviewing some of the facts to be accounted for by a theory of binding for reflexives. As described in Cole, Hermon, & Sung 1990, one of

the most striking differences between Chinese and English is the fact that while English reflexives have to obey a clause-mate condition (as illustrated in example (6)), Chinese reflexives (and reflexives in other East Asian languages like Korean) can be indefinitely far away from their antecedents, as shown in (7) below:

(6)   John thinks [Tom knows [**Bill** likes **himself**]].
(7)   **Zhangsan** renwei [**Lisi** zhidao   [**Wangwu**   xihuan **ziji**]].
       Zhangsan thinks   Lisi knows   Wangwu   like   self.
       'Zhangsan thinks that Lisi knows that Wangwu likes himself.'

In (6) the reflexive *himself* can only refer to *Bill* in English. In Chinese, however, the reflexive form *ziji* can refer to any of the bold-faced NPs. Following standard terminology, we will call the Chinese type reflexives long-distance (LD) reflexives.

Other languages, such as Icelandic, allow LD binding of reflexives with certain clause types, but not others. Thus in Icelandic, with subjunctive and infinitival clauses reflexives can be bound from outside, but with indicative clauses only local binding is allowed, as illustrated in (8).

(8)   Icelandic (Hyams & Sigurjónsdóttir 1990)
       a.   Jón$_i$ segir að Pétur$_j$ raki sig$_{i,j}$
             'John says that Peter shaves (SUBJ) himself.'
       b.   Jón$_i$ skipaði Pétri$_j$ að raka sig$_{i,j}$
             'John ordered Peter to shave (INF) himself.'
       c.   Jón$_i$ veit að Pétur$_j$ rakar sig-$_{i,j}$
             'John knows that Peter shaves (IND) himself.'

In Italian, the bare reflexive *sé* and the possessive reflexive *proprio* can refer to a subject outside its clause, as long as the embedded sentence is subjunctive or infinitival. If, however, these reflexive forms occur inside an indicative clause, they must have an antecedent inside that clause. This is described in Giorgi 1984, and illustrated below:

(9)   Clauses in subjunctive mood (Giorgi 1984)
       a.   Credo che [$_{IP}$ Mario$_i$ sostenga (SUB) che [$_{IP}$ tu
             abbia (SUB) parlato di sé$_i$ e della sua famiglia in TV]].
             'I believe that Mario claims that you spoke about
             self and his family on TV.'
       b.   Gianni$_i$ suppone che [$_{IP}$ tu creda (SUB) che [$_{IP}$ io
             sia (SUB) innamorato della propria$_i$ moglie]].
             'Gianni supposes that you believe that I am in love
             with self's wife.'

(10) Clauses in Indicative Mood
   a.   *Credo che [IP Marioᵢ sostenga (SUB) che [IP tu
          hai/IND parlato di séᵢ e della sua famiglia in TV]].
          'I believe that Mario claims that you spoke about
          self and his family on TV.'
   b.   ?*Gianniᵢ mi ha detto che [IP tu sei (IND) innamorato
          della propriaᵢ moglie].
          'Gianni told me that you were in love with self's wife.'

2.1 A parameter-setting account

To account for this variation, Wexler & Manzini 1987 (henceforth W&M)
have proposed a parameter, called the GOVERNING CATEGORY PARAMETER
(GCP):

(11) Governing Category Parameter (Wexler & Manzini 1987)
          γ is a governing category for α, iff
          γ is the minimal category which contains α and
   a.   has a subject, or
   b.   has an INFL, or
   c.   has a TNS, or
   d.   has an indicative TNS, or
   e.   has a root TNS

Note that English corresponds to the first value (subject means Accessible
Subject), Italian and Icelandic assume value (d), and Chinese reflexives are
value (e). Crucially, W&M argue that values are associated not with languages
but with lexical items in given languages. This is stated in W&M as the LEXICAL
PARAMETERIZATION HYPOTHESIS:

(12) Lexical Parameterization Hypothesis:
       Values of a parameter are associated not with particular languages,
       but with particular lexical items in a language.

Thus, in Chinese the reflexive form *ziji* has value (e), but the local reflexive
taziji has value (a).

In Icelandic, the pronoun *hann* has value (c) (since pronouns have to be
free within Tensed S), but the reflexive *sig* has value (d), while the local re-
flexive *sjálfen sig* has value (a). See Hyams & Sigurjónsdóttir 1990 for a dis-
cussion of the Icelandic facts for reflexives.

Note the predictions of this for acquisition: The child has to learn the set-
ting of a given parameter not for a language as a whole but for each lexical
item. There is nothing principled about this, and items with the same setting are
not predicted to be learned at the same time. As noted in Safir 1987 in

response to W&M, this leads to the child being very conservative and setting parameters item by item (the undergeneralization problem).

The question also arises on how a child will eventually determine the correct setting for a certain parameter in her language. W&M note that the values stand in a SUBSET relation to each other and the languages fall into nested, subset relations. Thus a language which chooses value (a) for anaphors will be properly contained in a language choosing value (e). For pronouns, the order is reversed: (e) is the most restrictive and (a) the least restrictive value. W&M then suggest that the relationship among the possible values of a parameter be regulated by the SUBSET CONDITION. Informally, the Subset Condition is a restriction requiring that the languages generated by two values of any given parameter are a subset of one another, for every given parameter and every two values of it. The formal definition is given in (13):

(13) For every parameter p and every two values i, j of p, the languages generated under the two values of the parameter are one a subset of the other, that is, $L(p(i)) \subseteq L(p(j))$, or $L(p(j)) \subseteq L(p(i))$.

W&M then suggest that the theory of learnability includes a restriction to this effect (the Subset Principle), ensuring that a learner selects the value of a parameter which generates the smallest language compatible with the data:

(14) The Subset Principle:
The learning function maps the input data to that value of a parameter which generates a language:
a.   compatible with the input data; and
b.   smallest among the languages compatible with the input data.

The Subset Principle can then be used as a principle of markedness in determining default settings for parameters: The value children should start with regardless of the target language will be the smallest set. If children were to start with a value which is too large, no recovery is possible, given the no-negative evidence hypothesis. W&M's statement is given in (15) below:

(15) A given ordering of the values of a parameter is a markedness hierarchy if and only if the language generated by each value is a subset of the language generated by the immediately following value in the ordering.

Note the implications of this for the acquisition of reflexives in various languages: In actual development the child will pass through a stage in which her grammar allows only local binding of anaphors. Strictly speaking, this stage may be very short if the evidence for resetting is very robust, leading the child to reject the unmarked setting very early. Leaving aside the developmental evid-

ence for this, which I will review shortly, let me point out some basic problems with the parameterized approach to binding domains.

2.2 Problems with the parameter setting approach to Binding Theory

The most important problem with this approach is the atomization issue discussed in Safir 1987. Safir shows that an unwanted consequence of the subset principle is that parameters have been atomized, i.e., limited to one feature per parameter, in complete contradiction to the spirit of the theory which requires parameters to have sweeping effects on various parts of the grammar once they are set. Let me exemplify this with respect to reflexives.

Looking at the languages in question, the binding domain seems to correlate with other properties of anaphors. (I will limit my discussion to anaphors from here on.) As is widely observed in the literature, LD reflexives are subject-oriented; that is, only subjects can be proper antecedents for LD reflexives, as illustrated in the Icelandic example below.

(16) Subject orientation for LD reflexives (Hyams & Sigurjónsdóttir 1990)
    a.   *Ég sagði Jóni$_i$ að María hefði boðið sér$_i$
          'I told John that Maria had (SUBJ) invited himself.'
    b.   *Ég lofaði Haraldi$_i$ að raka sig$_i$
          'I promised Harold to shave (INF) himself.'

Similar facts from Chinese are discussed in Cole, Hermon, & Sung 1990 and Sung 1990.[2]

Another property of LD anaphors (in some but not all languages, see the discussion below) is the so-called BLOCKING EFFECT. In Chinese, the presence of a first or second person subject in a clause intervening between the LD anaphor *ziji* and its antecedent has the effect of blocking the LD interpretation of the reflexive. This is illustrated by (17). In this example, *ziji* can only refer to *Wang-wu*, since the subject of the next clause up, *wo* 'I', prevents *ziji* from referring to *Zhangsan*.

(17) Blocking Effect in Chinese (contrast with (7) above)
    Zhangsan renwei   [wo zhidao   [**Wangwu** xihuan **ziji**]].
    Zhangsan thinks   I know   Wangwu like self.
    'Zhangsan thinks that I know that Wangwu likes himself.'

Crucially, not all languages with LD reflexives exhibit blocking effects. Thus in Italian, LD anaphors are not subject to this effect, as discussed below.

In the parameter-based approach to reflexives there is no way to link any of these properties. W&M therefore propose that subject orientation be captured as a separate parameter, their PROPER ANTECEDENT PARAMETER (**PAP**):

(18) The proper Antecedent Parameter
A Proper Antecedent for α is
a. a subject β; or
b. any element β.

The PAP also obeys the Subset Condition, but note that given the way the Subset Condition is stated, there is no possible connection between these two parameters. If the two parameters are made into a single parameter, the values of the new parameter define languages which are not subsets of each other, thus violating the Subset Condition. For instance, Chinese is value (e) for the GCP (the least restrictive value) and value (a) for Proper Antecedents (the most restrictive value), while English is value (a) for the GCP and (a) for antecedents. It is exactly to avoid any such conflict that W&M introduce the INDEPENDENCE PRINCIPLE:

(19) Independence Principle:
The subset relations between languages generated under different values of a parameter remain constant whatever the values of the other parameters are taken to be.

So, if these two parameters were one single parameter (in the grammar), the new parameter would violate the principles and conditions of the theory of learnability. In effect then, the W&M approach leads to atomization, and parameters are viewed as each addressing one particular feature of the grammar.[3]

To further illustrate this point, note that the restriction on intervening potential antecedents (illustrated in (17) above) will have to be stated as a parameter which some languages (such as Chinese) instantiate as + and others (like Italian) instantiate as –, with the + setting being the unmarked or initial setting for the parameter:

(20) Blocking Effect Parameter
All potential antecedents for α must agree in phi features with α.

Given the Independence Principle, there is no way to draw the connection between these facts. In reality, however, a language cannot choose to have an anaphor which has setting (e) but no subject orientation. Furthermore, the Blocking Effect parameter may have a positive value only in languages which choose a value larger than (b) for the GCP. The parameters stand in an implicational relation with each other, in violation of the Independence Principle: In order to have a positive value for the Blocking Effect parameter, a given language needs to choose settings larger than (b) on the GCP. Moreover, if a lan-

guage chooses the (e) setting for the GCP it must choose the subject orientation setting on the PAP, while either setting on the PAP may be chosen for any other setting but the (e) setting on the GCP. This is very complicated and is exactly the situation W&M want to exclude. In summary, not only does the parameter-setting approach to binding domains lead to atomization, but there is no way to state the fact that the setting of certain parameters depends on the setting of others.

2.3 An alternative proposal

I would like to suggest an alternative analysis, which avoids these problems and is not based on parameters at all. This approach, I claim, is more appealing conceptually than an approach which involves parameters. Moreover, the acquisition data reviewed below does not support the parameterized approach, while it does not contradict the proposed principles-based approach.

The approach adopted here views LD reflexives as a subcase of normal local reflexives, by analyzing LD anaphors as a chain of local relations. In this analysis, it is assumed that all non-local reflexives undergo head-to-head movement at LF (a local rule), in the spirit of Lebeaux 1983 and Chomsky 1986. This is discussed in detail for Chinese and Korean in Cole, Hermon, & Sung 1990, and refined and extended to other languages in Cole & Sung 1991 and Sung 1990. Let us assume then that Chinese LD reflexives move at LF in the manner illustrated in Figure 1 (next page).

Note that no barriers prevent this movement (VP is L-marked by I in each sentence) and that both the Head Movement Constraint and Relativized Minimality are observed. The movement is optional, giving the various options for the antecedent, varying from local (movement to lowest I) to LD (movement to the highest I). Next, the question must be addressed of why this movement is blocked in English. This is due to the fact that Chinese reflexives are X^0 heads, undergoing head to head movement. English *himself* (and the Chinese local reflexive form *taziji* "he-self"), on the other hand, are complex forms (NPs), and are therefore blocked from undergoing head movement, by general principles of the grammar, spelled out in Chomsky 1986:

(21) Only X^0 elements undergo adjunction to X^0, X-max elements can only adjoin to X-max.

The options for LF movement in English are illustrated in Figure 2.
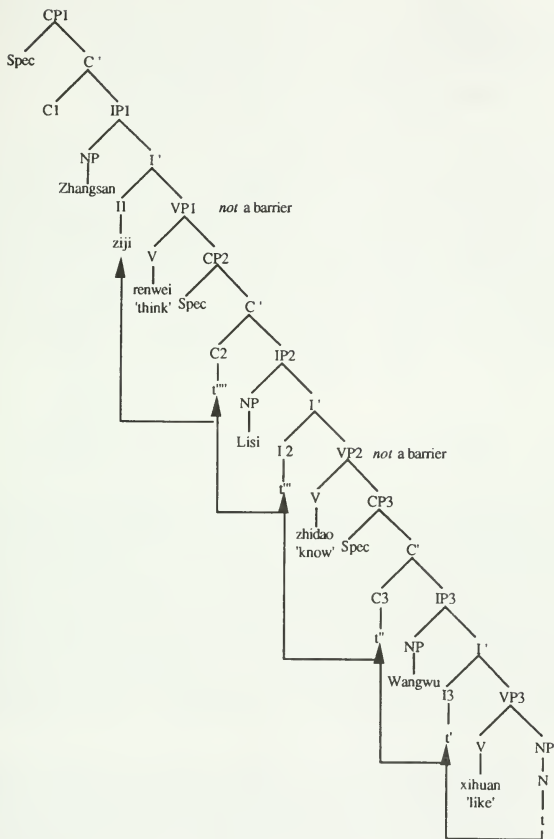
Figure 1: Movement of reflexives at LF (LF of ex. (7) above, from Cole, Hermon, & Sung 1990)
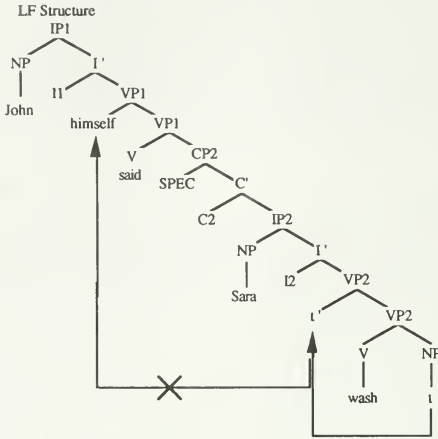
Figure 2: LF structure for English (from Sung 1990)

The question, then, is why X-max movement cannot succeed in moving the English reflexive at LF out of its clause. A phrasal reflexive like *himself* can adjoin to IP, but then no further movement is allowed, just as for QR, adjunction to IP cannot be an escape hatch for further movement. The phrasal form could adjoin to VP, but it cannot move from VP to Spec of CP2, since it is not an operator. There are too many intervening barriers to adjoin to the highest VP directly (CP2 inherits barrierhood from IP in this case).[4] At least for Chinese and English, then, no parameters are needed for governing category. Crucially, this analysis makes the prediction that only X⁰-type reflexives can be LD. Given the constraint on movement cited in (21), X-max reflexives can never be LD. This seems to be universally the case. The question now becomes one of what counts as an X⁰ form versus an X-max form.[5]

In addition, the head-movement analysis for reflexives avoids the problem encountered by the parameter-setting approach of not being able to connect among various features like LD reflexives, Blocking Effects, and Subject Orientation. This follows from the fact, that in this approach we need not view these as separate parameters. By adopting the ideas about feature percolation (developed in Sung & Cole 1990), the Blocking Effect and Subject Orientation for LD anaphors are explained. Thus, assuming the principles stated in (22) (principles which are independently motivated in UG), we can explain the Blocking Effects in Chinese and their lack in equivalent sentences in Italian.

(22) Feature Percolation Principles [FPP] (Cole & Sung 1990)

    a.   The features of all the daughters of a head node will percolate upward to the mother. Thus, the features of the mother will be the union of the features of the daughters.

    b.   In cases of feature conflict among the daughter nodes, the mother node will have the features of the head.

Assuming that Chinese INFL has no phi-features (a common assumption, see Hermon & Yoon 1989), while Italian has INFL with fully specified phi-features, the FPP predicts that in Chinese the features of the reflexive (an adjoined position) will percolate to the mother node. Assuming that phi-features for *ziji* are base-generated randomly (or picked up via spec-head agreement on the first cycle from the local subject), the FPP together with the assumption of spec-head agreement will block sentences in which a reflexive in I disagrees with the features of the NP in spec of IP. Let us see how this happens. In Figure 3, *ziji* (which is arbitrarily marked 3rd person) moves from VP3 to I3. In I3 the [+3] feature is percolated up to the mother node. Since the head I has no features of
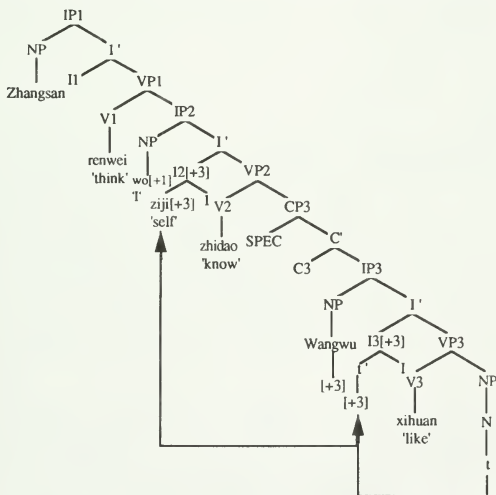
Figure 3: Blocking effects in Chinese (Sung 1990)

its own, no feature conflict can arise. Spec-head agreement applies and the sentence is grammatical, since I3 and the subject agree in features. Next *ziji*

adjoins to I2. Again, the [+3] feature percolates up to I2, since I itself has no features. This time, there is a conflict between the [+1] feature on the subject and the [+3] feature on I, and the sentence is ruled out.

In Italian, unlike in Chinese, INFL has phi-features of its own. Given the FPP, the features of the reflexive are never percolated up to I (the mother node). This is illustrated in (23), whose tree diagram is given in Figure 4.

(23) Lack of Blocking Effects in Italian
     Gianni$_i$ suppone che tu   sia   innamorato della
     Gianni   supposes that you are (SUB) in love   with
     propria$_i$ moglie (Giorgi 1984)
     self's   wife
     'Gianni supposes that you are in love with self's wife.'
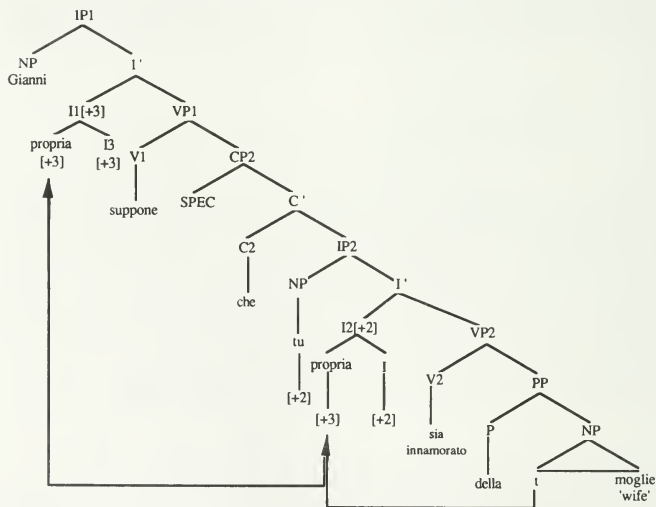
Figure 4: Tree diagram of (23)

In (23), *propria* (base-generated with a [+3] feature) adjoins at LF to I2. In Italian, however, I has phi-features ([+2] in this example). Hence, given (22b), only the features of the head percolate up to the mother node, and Spec-head agreement marks the sentence as grammatical. In (23), *propria* can then adjoin

to I1 (which is marked [+3] in Italian). Since the features of the reflexive are never percolated up, they do not play a role in Italian, and no blocking effects are found. The prediction is that any language in which INFL can be shown to have phi-features will NOT exhibit Blocking Effect. This is not a separate parameter, but follows from the structure of I in a given language and the FPP.

To explain subject orientation, no additional mechanism is needed: Spec-head agreement explains why at LF it is only the subject which is a potential antecedent for LD reflexives: Since at LF the reflexive has been moved to I, only the subject can c-command the reflexive. Note that local (phrasal) reflexives which exhibit subject orientation (such as Chinese *taziji*) will have to adjoin to IP. Once in IP, no further movement is possible, a stipulation necessary in the grammar anyway. In languages in which local reflexives appear as I-clitics (such as Quechua *-ri-* as in *riku-ri-n* 'he see-self-3pr'), the reflexives are base-generated in I and then adjoined to the V by V-to-I movement. Again only subjects are potential antecedents, as discussed in Hermon 1985. Thus nothing special needs to be said about this, and no parameters need to be added to the grammar. All LD reflexives are predicted to be subject oriented. In addition, local reflexives may be subject oriented if, in the particular language, the reflexive form is base generated in I (as in Quechua) or adjoined to IP.[6]

2.4 Major differences between the two approaches

While there is no necessity to state any parameters associated with binding domains, the principles-based approach has a larger number of principles, viz. the FPP, Spec-head agreement, the principles determining X^0 vs. XP movement, the ban on further movement after adjunction to IP, the ban on moving through Spec of CP except for wh-movement. These are general principles, in the sense that no variation across languages is permitted. The claim then is that languages can differ with regard to the morphological structure of anaphors (X^0 or XP) and the structure of INFL. These are differences tied to overt morphological features of the language in question; that is, the child has robust evidence for these differences.[7] Crucially, various features of LD and local reflexives are clustered together and fall out of an interaction between the principles and the choice of lexical items in the language.

In contrast, the parameter-setting approach does not draw the connection between the various properties of LD reflexives. In addition to assuming the parameters discussed in 2.1 (the GCP, the PAP, and the Blocking Effect parameter), this approach may also have to assume all the principles discussed in this section, since some of the principles are general principles, not limited to anaphors. Thus the FPP can be shown to play a role in other parts of the grammar (see Cole & Sung 1991) and Spec-head agreement is independently motivated. However, the task for the child, in this approach, is not just to learn the lexical items, but also to determine for each item an associated parameter setting.

3.0 Evaluation of the two approaches from an acquisition point of view

When evaluating two competing syntactic theories one can look at language acquisition as a guiding principle in choosing between alternative approaches. It is therefore important to describe what acquisition picture is predicted by each approach. Contrary to the claims in the literature, I do not think the parameterized approach is supported by the data.

The parameter-setting approach to reflexives is being used in the literature as the prime example of how theory fits with acquisition. Given the W&M approach, with the Subset Principle as a guiding principle in acquisition, the child is supposed to start out with the most limited setting of each parameter and then, in face of positive evidence, relax the settings. The subset relation defined by the parameter translates into a markedness hierarchy with the smallest language generated as the 'default' or 'unmarked' case, i.e., the value the child should start with. It is then predicted that children in all languages will pass through a stage in which reflexives will be local (the (a) setting). As discussed in Hyams & Sigurjónsdóttir 1990, even though as a learning principle the Subset Principle does not REQUIRE that the child actually pass through a local binding stage (since the evidence for a larger setting may be so overwhelming that he immediately rejects the more limited setting), there has been an implicit (and often explicit) assumption that this stage will be actually evidenced.

In contrast, the principles-based approach makes no such prediction. What the child comes 'equipped' with in this approach is the basic principles of UG, such as the constraints on head movement (the ECP), the FPP, Spec-head agreement (which is another wrinkle on feature percolation, stating that features of heads and Specs cannot disagree), and other more ad-hoc principles (such as no further movement from IP adjunction, no movement from VP to Spec of CP). What the child has to learn from the input is which lexical items belong to which class. For example, children have to learn that in Chinese *ziji* is an X^0 form, and they need to be able to analyze *taziji* and *himself* as XPs. In addition, children need to know whether INFL in the language has phi-features (overt as in Italian, or covert as in Danish, as discussed in Sung 1990). For more complicated cases, children will need to learn that certain COMPs have certain features (such as indicative COMPs in Icelandic and Italian, which block head movement of reflexives out of certain clause types, as discussed in Pica 1987 and Sung 1990). Thus, children are not predicted to go through any discreet stage in which all binding is local. Moreover, once they exhibit LD binding, the Blocking-Effect and Subject-Orientation questions should be resolved too, since these properties depend on the proper application of head movement and its interaction with features of INFL in the language.

I would like to claim that not only is the parameter-setting approach less appealing conceptually, it also is not supported from the acquisition studies

done so far. The parameter-setting approach predicts that children will go through a stage which is unlike the adult language. The principles-based approach does not predict such a stage; i.e., children (once they determine whether forms are simple or phrasal) should have the same options for LD reflexives as adults. Of course, even within this approach there could be possible delays: Children could have a hard time figuring out which items are anaphors vs. pronouns, or what features INFL has, or whether a form marked for third person and accusative is phrasal or X^0.

The acquisition studies done so far for English seem to accommodate either hypothesis. For example, Chien & Wexler (1991) report that by age 3.6 English speaking children prefer a local antecedent for the reflexive.[8] The parameters-based theory claims that this is due to the fact that the GC for anaphors comes preset to domain (a), the smallest domain. The only thing the child needs to learn is what constitutes an anaphor in English. The principles-based theory makes the same prediction for English: Once the child learns that English has a phrasal reflexive, local binding is the only option.

The crucial test, then, comes from languages in which the adult setting is larger than the English subset. Chien & Wexler (1987) and Li & Wexler (1987) make the claim that children go through a distinct stage in which they strongly prefer the local anaphor. Let us review these experiments. I would like to claim that they are inconclusive, since they do not really address the issue of whether young children allow LD reflexives from the very start. First, let's take a look at the data from Chinese. 150 children in Taipei were tested on their knowledge of LD versus local reflexives and pronouns. Note, however, that the test was a preference test: Children were tested using the 'party game' in which the child has a party with two puppets and lots of objects and one puppet tells the child to do something or give something to *ziji*, as in the following example:

(24) The Party Game (Wexler & Chien 1987):
     xiao-huozi suo Xiaohua gei **ziji** yi-zhang tiezi
     'The little monkey says that Xiaohua gives SELF a sticker.'

This experiment induces a forced preference: The child is instructed to perform the action which best interprets the utterance. Chien and Wexler found that children have a strong bias for local binding. This in itself is not conclusive, since it only tests for preference rather than for grammaticality. It could be that children can get the LD interpretation, but that for some reason it is not the preferred interpretation. Crucially, note that Chien and Wexler found the same bias with adults, as illustrated in Figure 5 (next page). The data from Chinese is therefore inconclusive, since it does not show that young children do not have LD reflexives in their grammar. At best, it shows that both children and adults have a preference for the local interpretation of *ziji*. Moreover, we know that adults find LD reflexives grammatical, even if their use is pragmatically marked (see Zubin et al. 1989 for a description of when LD reflexives can be used in

Chinese and Korean). Hence, the above experiments may show something about speakers' preferences rather than grammaticality.
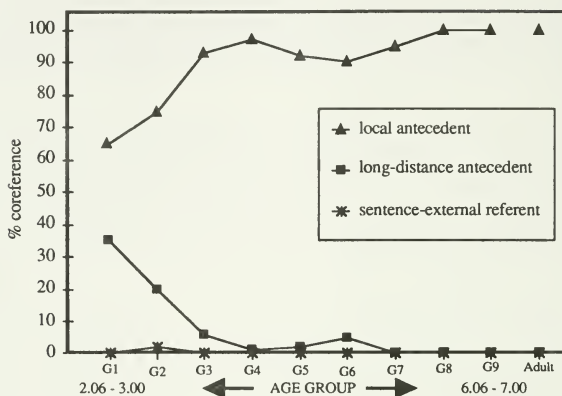
Figure 5: LD Reflexives in Chinese (Chien and Wexler 1987)

The Korean facts suffer from another problem. Here adults choose the local antecedent only about 38% of the time, preferring the LD interpretation. Children go from a 60% preference for local at age 3.06 to 100% preference for local at age 4.06, and stay there up to age 6.06 (the oldest age group in the study). At this late age, Korean children still have not broadened the GC for the reflexive. This is not in line with either the parameter-setting or the principles-based approach. The problem is, I think, that Lee and Wexler are using *caki*, a form which for many speakers is simply a pronoun (with forced disjoint reference, rather than an anaphor). For other speakers *caki* may indeed be both an anaphor and a pronoun (or possibly a pronominal anaphor). The form to be tested is really *casin*, which is a pure anaphor, but not available for some speakers. Again, the test was a forced choice, in the form of an act-out. (The puppet was telling the child to do something to *caki*, which could be the child or the puppet.[9])

In conclusion, neither Chinese nor Korean child language provides support for the Subset Principle, and it remains to be seem what explains children's preferences in these languages. Moreover, in Icelandic, children perform like adults from quite early on; cf. (25) with Figure 6.

(25) Kermit_i segir að Jón_j gefi (SUBJ) sér_{i/j} bíl
'Kermit says that John gives SIG a car'
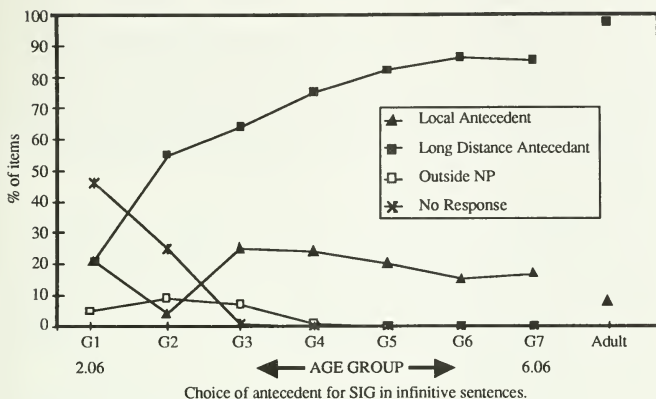
Figure 6: Choice of antecedent for SIG in infinitive sentences
(Hyams & Sigurjónsdóttir 1990)

Thus there is no support for the Subset Principle from these data, and they are also neutral with respect to the principles-based theory.[10] In the principles-based theory, the child needs to decide whether a certain reflexive form in her language is X^0 or XP. It is therefore important to ask the question of what kind of evidence the child might consider in making this decision. Clearly, surface morphology is one criterion. For bi-morphemic reflexives the child can safely assume that this form is an XP (as for *himself* or *taziji*). Moreover, it seems that this is not the only evidence available to the child. In a recent paper, Arild Hestvik has suggested that modification provides evidence in Norwegian for certain forms (pronouns in this case) being heads rather than maximal projections. The idea here is that an NP cannot be modified, whereas an N can. See Hestvik 1990 for details on Norwegian and English. It is striking that similar evidence is available to the child in Chinese, as far as reflexive forms are concerned. Thus, in Chinese, but not in English, it is possible to modify *ziji*, as illustrated in (25) and (26).

(25) Wangwu_i renwei Zhangshan_j bu xihuan zuotian de **ziji**_{i,j}
    Wangwu think Zhangshan not like yesterday poss SELF
    'Wangwu thinks that Zhangshan does not like yesterday's self.'

(26) Wangwu$_i$ renwei   Zhangshan$_j$ bu xihuan   nage   cuenxixi
     Wangwu think   Zhangshan   not like   that   stupid
     de   ziji$_{i,j}$
     poss SELF
     'Wangwu thinks that Zhangshan does not like that stupid self.'

In the above sentences *ziji* is modified by a prenominal modifier, an adverbial in (25) and a determiner+adjective in (26). Note that the reflexive form is LD since it can refer either to Zhangshan or Wangwu in the above sentences. This type of data can show the child that *ziji* is an N rather than an NP in Chinese. In contrast, when complex reflexives are used (like *taziji* 'he-self') modification is not allowed, not even with a local reading for the reflexive:

(27) *Wangwu renwei Zhangshan$_i$ bu xihuan zuotian   de   taziji$_j$
     Wangwu thinks Zhangshan not like   yesterday poss HE-SELF
     ('Wangwu thinks that Zhangshan does not like yesterday's self.')

(28) *Wangwu renwei   Zhangshan$_i$ bu xihuan   nage   cuenxixi
     Wangwu think   Zhangshan   not like   that   stupid
     de   taziji$_i$
     poss HE-SELF
     ('Wangwu thinks that Zhangshan does not like that stupid self.')

Thus, by the time the child has access to such data, it is easy for him to figure out whether a certain reflexive form is N or NP. Note, that it is claimed in the acquisition literature that children in English have access to such information very early. For example, Bloom (1990a) claims that children, even in their very first word combinations, almost never say things like *big Fred* or *big he*, while they freely allow adjectival predicates which follow proper names or pronouns. Bloom claims that this is evidence that children distinguish between N and NP from very early on, properly restricting modification to N. He then proposes a theory as to how children could use semantic information to draw the noun/NP distinction. In discussing crosslinguistic variation, Bloom argues that in languages like Japanese and Korean, in which pronouns and proper names can appear with modifiers, children must start out by encoding proper names and pronouns as NPs. Given robust evidence from input, the child then recategorizes these words as nouns.[11] Given the data from Chinese, it is conceivable that the child has robust evidence (from modification) early on, indicating that certain reflexive forms are Ns while others are NPs (as illustrated in (25) - (28) above).

3.1 Conclusions

I have argued that there may be a way to reduce the number of parameters suggested in the literature by reanalyzing the data and allowing them to fall out from general principles rather than from parameter setting. If one can make a case that parameters like the GCP and Subject Orientation are epi-

phenomena, stemming from the fact that we did not have a sound analysis for the data, we could eliminate some of the problems discussed in the introduction. Specifically, I would like to argue that UG does not consult a learnability module since there is no direct evidence that learners use the Subset Principle in figuring out which setting of a parameter to adopt. A similar point, based on rather different arguments from Binding Theory is made in Kapur et al. 1990. Kapur et al. claim that the Subset Principle does not sufficiently restrict the theory of Binding Domains, while a strong theory of UG does. This leads the authors to argue against the W&M proposal which regards the Subset Principle as constraining both first language acquisition of anaphora and the formal linguistic theory of anaphora.

Clearly, I have not shown that ALL parameters are dispensable. I have said nothing about 'open' parameters such as head directionality. It seems that what the child knows in this case is some principles (such as 'fix the order of head and complement') with a number of possible options. Given positive data, the options are quickly chosen. Other problems, such as figuring out what type of INFL one's language has or what the list of head governors is, can be solved given positive data. This is not parameter setting in the strict sense.

Moreover, I have not attempted to find alternative explanations for all possible p-parameters in this paper. Specifically, one should reconsider the question of the pro-drop parameter and of subjacency.[12] In principle, it would be desirable to investigate what principles could replace all p-parameters. It would make the child's job easier, since there would be no independent measures (such as markedness) to keep in mind. Let me again emphasize that the need for preset parameters and for resetting arise only in a theory in which there is no explanation for a certain set of facts. Take LD reflexives again. What forced W&M to assume the need for a preset unmarked value? Given that all the values were rather arbitrary (not connected to other features of the language) the child would be in an impossible situation if the parameter were not preset the unmarked (most restricted) way. If she were to assume LD reflexives as an option from the beginning, she would need negative evidence to reset in English to the more limited option. Since I have claimed that there is simple positive evidence in all languages (stemming from the categorial status of the reflexive) and that this interacts with general principles governing the behavior of anaphors at LF, there is no need for preset parameters. Each child can determine which language she belongs to by examining the lexicon and the morphology of that language and by letting forms interact with universal principles. The notion of parameter becomes obsolete in these cases. In conclusion, the more explanatory our grammars become, the fewer parameters we will need.

NOTES

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1 I will not discuss the pro-drop facts in this paper. Clearly, if we are trying to dispense with p-parameters altogether, the pro-drop facts in early English need to be reinterpreted. See also note 12 for further discussion.

2 Similar facts are discussed for Italian (in Giorgi 1984) and for Danish (in Vikner 1985) .

3 In Manzini & Wexler 1987, it is argued that there is an additional mechanism of markedness linking the two parameters. They state that a language may choose only one marked setting for either the GCP or the PAP. Thus, languages with LD reflexives (a marked setting for the GCP) will have to choose an unmarked setting for the PAP (+ Subject Orientation). In this way M&W can link parameters in direct contradiction to the Independence Principle. The reasons for linking two parameters this way seem rather arbitrary. Now the child has to compute not just markedness (from using the Subset Principle) but must store the marked/unmarked features (for various parameters) and compare them. For additional criticism of this approach see also Kapur et al. 1990.

4 As far as Icelandic and Italian are concerned, I will follow Pica 1987 in assuming that certain types of Comps (indicative Comp in this case) create an extra barrier, making head movement impossible out of indicative clauses. In what follows, I will limit the discussion to Chinese.

5 It seems intuitively clear that a monomorphemic form like Chinese *ziji* is an X^0 form and that a bimorphemic form like English *himself* should count as an XP. These are the easy cases. It is less clear why Icelandic *sig* (which is marked as third person) should count as X^0. For a discussion of the possible indications in the grammar for whether something is or is not an X^0 element see Hestvik 1990 and the discussion in 3.0 below.

6 Reflexives in Imbabura Quechua appear as verbal clitics and are Subject Oriented (Hermon 1985). In Chinese, according to Sung 1990, local reflexives like *taziji* "he-self" are also subject oriented. We must assume then that the local forms also undergo LF movement (possibly adjunction to IP in Chinese). For the reasons discussed in the text, no further movement (out of the clause) is possible for X-max forms.

[7] See also the discussion below about other evidence the child may use in determining that forms like *ziji* are N[0] heads.

[8] Chien & Wexler (1991) cite the following figures using the Party Game strategy: Children's performance of the locality property of reflexives increases from 56.75% at age 2.6 (chance level) to 80.75% (for *say*-reflexives) by G3 (3.6) goes up to 84.25% by G4 (4.0-4.6), and is almost perfect at 6.6.

[9] Hyams & Sigurjónsdóttir (1990) have suggested that locality restrictions on some LD reflexives in child language may be related to the fact that in some languages, early on pronouns are also restricted to local domains (in violation of disjoint reference). Thus, Korean children may be treating *caki* as a pronominal anaphor, forcing a local interpretation, since they also allow a local interpretation for pure pronominals. Li & Wexler claim that children's tendency to interpret the pronoun with a non-local antecedent is less than chance in the youngest group (35%) and actually decreases slightly as age level increases (to 20% at age 6.07).

[10] This is not to say that one could not attempt to find more evidence for the Subset Principle in Chinese or Korean child language. Thus, one could try to test whether given a certain action or picture, children accept LD reflexives (with a modified grammaticality judgment task). In such a test, even if the number of LD reflexives accepted is smaller than the number of local reflexives, the claim cannot be made that young children do not have LD reflexives in their grammars.

[11] Bloom claims that this is similar to the NP-to-noun shift children make in English when acquiring the syntactic categorization of the word *one*. Children may first encode *one* as an NP, since it is semantically like a pronoun. Only after receiving positive evidence from input like *this one* will children categorize it as a noun. Bloom relies here on the notion that children have innate principles (semantic in nature) which initially lead them to categorize all names of objects and substances as nouns and all pronouns and names for individuals as NPs (a version of the semantic bootstrapping hypothesis). Only given evidence to the contrary will children in a language like Japanese or Chinese analyze pronouns as nouns. The same claim can be made with respect to reflexive anaphors: In English these are NPs (just like pronouns), while in languages like Chinese anaphors could be either Ns or NPs, depending on whether they are simple or complex forms.

[12] Recently, a number of people have argued that there is no grammatical pro-drop in early child English. See Bloom 1990b for arguments that missing subjects in early English are due to performance conditions. Similarly, Valian (1989) argues that early English differs from early Italian in having many more subjects. Crucially, in these analyses missing subjects are not due to a preset parameter which needs to be reset later. As far as subjacency is concerned,

there may be some questions of whether this is an independent phenomenon.
(See the remarks in Rizzi 1989 on this matter.).

REFERENCES

BLOOM, Paul. 1990 (a). Syntactic distinctions in child language. Journal of
    Child Language 17.343-355.
-----. 1990 (b). Subjectless sentences in child language. Linguistic Inquiry
    21.491-504.
CHIEN, Y. C., & Kenneth Wexler. 1987. A comparison between Chinese-speak-
    ing and English-speaking children's acquisition of reflexives and pro-
    nouns. Paper presented at the 12th Annual Boston University Conference
    on Language Development.
-----. 1991. Children's knowledge of locality conditions in binding as evidence
    for the modularity of syntax and pragmatics. To appear in Language Ac-
    quisition.
CHOMSKY, Noam. 1986. Knowledge of language: It's nature, origin, and use.
    New York: Praeger.
COLE, Peter, Gabriella Hermon, & Li-mei Sung. 1990. Principles and para-
    meters of long-distance reflexives. Linguistic Inquiry 21:1.1-22.
-----, & Li-mei Sung. 1991. Feature percolation in government and binding
    theory. Manuscript submitted for publication. Newark, DE: University of
    Delaware.
FRAZIER, Lyn, & Jill DeVilliers. 1990. Language processing and language
    acquisition. Dordrecht: Kluwer Academic Publishers.
FREIDIN, Robert, & Carlos A. Quicoli. 1989. Zero stimulation for parameter
    setting. Commentary on Lightfoot. Behavioral and Brain Sciences 12:2.
GIORGI, Alessandra. 1984. Toward a theory of long distance anaphora: A GB
    approach. The Linguistic Review 3.307-359.
HERMON, Gabriella. 1985. Syntactic modularity. Dordrecht: Foris.
-----, & James Yoon. 1989. On the identification of null subjects. Papers from
    the Twenty-Fifth Regional Meeting. Chicago: Chicago Linguistic Society.
HESTVIK, Arild. 1990. LF-movement of pronouns. Proceedings of NELS 20.
    Amherst, MA: GLSA, University of Massachusetts.
HYAMS, Nina M. 1986. Language acquisition and the theory of parameters.
    Dordrecht: Reidel.
-----, & Sigridur Sigurjónsdóttir. 1990. The development of 'long-distance
    anaphora': A cross-linguistic comparison. Language Acquisition 57-93.
KAPUR, Shyam, B. Lust, W. Harbert, & G. Martohardjono. 1990. Universal
    grammar and learnability theory. MS. Ithaca, New York: Cornell Univer-
    sity.
LEBEAUX, David. 1983. A distributional difference between reciprocals and
    reflexives. Linguistic Inquiry 16.723-730.

LI, Hyeonjin, & Kenneth Wexler. 1987. The acquisition of reflexive and pronoun in Korean. Paper presented at the 12th Annual Boston University Conference on Language Development, Boston, MA.

LIGHTFOOT, David. 1989. The child's trigger experience: Degree 0-learnability. Behavioral and Brain Sciences 12.321-375.

MANZINI, Rita M., & Kenneth Wexler. 1987. Parameters, binding theory, and learnability. Linguistic Inquiry 18.413-444.

MORGAN, James L., & Lisa Travis. 1988. Limits on negative information in language input. To appear in Journal of Child Language.

PICA, Pierre. 1987. On the nature of the reflexivization cycle. NELS 17.483-499.

RIZZI, Luigi. 1989. On the format of parameters. Commentary on Lightfoot. Behavioral and Brain Sciences 12:2.

ROEPER, Thomas, & Edwin Williams. 1987. Parameter Setting. Dordrecht: Reidel.

SAFIR, Ken. 1987. Comments on Wexler and Manzini. Parameter setting, ed. by T. Roeper & E. Williams, 77-90. Dordrecht: Reidel.

SUNG, Li-mey. 1990. Universals of reflexives. University of Illinois at Urbana-Champaign Ph.D. dissertation in Linguistics.

-----, & Peter Cole. 1990. Non-c-commanding antecedents of bound anaphors and feature percolation in government and binding theory. Proceedings of the 9th West Coast Conference on Formal Linguistics.

TRAVIS, Lisa. 1987. Parameters of phrase structure. McGill Working Papers in Linguistics 4.2.

VALIAN, Virginia. 1989. Children's production of subjects: Competence, performance, and the null subject parameter. Papers and Reports on Child Language Development, 28. Stanford, California: Stanford University.

VIKNER, Sten. 1985. Parameters of binder and binding category in Danish. Working Papers on Scandinanvian Syntax, 23.

WEXLER, Kenneth, & Rita M. Manzini. 1987. Parameters and learnability in binding theory. Parameter setting, ed. by T. Roeper and E. Williams, 41-76. Dordrecht: Reidel.

ZUBIN, David A., S. A. Chun, & N. Li. 1989. Misbehaving reflexives in Korean and Mandarin. Manuscript. Buffalo: University of Buffalo.

WHAT ARE APPLIED LINGUISTICS?

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1. Introduction

It's a great honor to be invited to join in celebrating the twenty-fifth anniversary of the Department of Linguistics at the University of Illinois. I had the privilege to be a student in this Department at a period when the research done here was an active contributor to linguistic theory in many ways. To name only a few examples: Chuck Kisseberth had just contributed to the controversy on abstractness in phonology; Relational Grammar was being outlined under Jerry Morgan's supervision; Peter Cole was testing the predictive powers of Relational Grammar; Georgia Green was showing that semantics could account for part of syntactic irregularity; Braj Kachru was writing his influential papers on code-mixing and World Englishes; Hans Henrich Hock's book on historical linguistics was our class handout; Yamuna Kachru's students were the single most active group of students at conferences on South Asian linguistics; Charles Osgood was writing his Outline of Abstract Performance Grammar and inviting everyone around to critique it; Howard Maclay had heralded the coming of the cognitive revolution; and Ladislav Zgusta kept everything in perspective in his tour de force History of Linguistics course. Indeed they were good times, though harassed by overdue term papers, one didn't realize just how good it was to be a student. I got a sound, broad-based education in linguistics in the Department and, I am proud and happy to say, that training has stood me in good stead.

I just said, 'broad-based education in linguistics', and that brings me to the topic of my paper, 'What are applied linguistics?' The plural is not intended merely to be cute, of course, nor is it merely a terminological question, either. As I hope to show, it underscores the coexistence of several different conceptualizations of this diverse field, reflecting substantive differences that go to the very heart of our enterprise, namely the conception of what language is, and therefore, what linguistics is, or ought to be. In addition, the question has far-reaching institutional dimensions. It affects decisions about what courses we should offer and require of our students, what questions shall be criterial in our exams, what kind of faculty we should hire, and what types of research

programs shall be funded. It also has a bearing on the question of the linguist's social responsibility. Whether we explicitly answer it or not, we presuppose a particular conception of applied linguistics in our institutional decision-making.

There is also a more practical urgency to the question. The saturation of the academic linguistics departments in the U.S. has forced graduates to look for jobs in fields other than theoretical syntax and phonology. The majority of new job openings now require additional expertise in non-core areas. This point is proven time and again, including in the job list published in the latest LSA Bulletin. On the one hand, there are pursuits such as the cognitive science enterprise; on the other, there are the more 'practical' areas such as, for example, TESOL, Bilingual Education, rhetoric, and literacy programs, as well as the 'applied linguistics' component of foreign language programs, such as Spanish or Italian.

Yet, there is a serious mismatch between the kinds of jobs that seem to be in demand and the type of training our graduate students receive. As Raskin (1986:xiii) points out,

> The best linguistics programs are having trouble placing even their best graduates in academic positions in linguistics. Problem: the nature of these graduates' training, which was exclusively 'pure linguistics', makes them virtually unemployable in any alternative professional capacity.

While many departments have instituted courses that address the societal demands, many others have chosen a variety of 'creative' responses: The term applied linguistics has been interpreted with a great deal of imagination. In some departments, courses such as Phonetics, Structure of an Uncommonly Taught Language, Theoretical Approaches to Language Acquisition, and even Descriptive Linguistics are put under the rubric of applied linguistics (whether or not they have any 'applied' content). This window-dressing is apparently deemed sufficient to claim social relevance, and more pertinently, to justify program expansion (more faculty lines and resources). We could call this the taxonomic response. And then there is a new generation of linguists who would like to be considered applied linguists because they study the hypotheses of formal linguistic theory with reference to 'real-life' data from, say, second language learners. In this approach, the focus is not necessarily on whether the phenomenon in question is better understood as a result of being studied by a linguist, but on the fact that linguistic theory gets a new testing ground. The problems the linguist chooses to work on, the section of the data that is focused on, and so on, are all determined by the linguist's theoretical preoccupations, rather than the consumer's priorities. On the other side of the coin are some applied linguists who feel that they are mislabeled because what they do is as much linguistic theory as what the formal linguists do.

Additionally, there are some linguists who would like to maintain a distinction between applied linguistics (which they consider largely synonymous with language teaching and regard as basically uninteresting, unworthy of serious scholarly attention) and applications of linguistic theory (understood to refer, basically, to formal linguistics). Finally, the old, unidirectional, cozy relationship between theoreticians and applicationists has given way to a more chaotic state as more and more applied linguists question the relevance of linguistics as it is fashionably practised now and have gone on to invent a parallel, complementary linguistics more responsive to their applied concerns. Clearly, it is time to take a fresh look at the scope and foundations of applied linguistics.

2.0 Two views of applied linguistics

2.1 The showpiece

So, what, then, are applied linguistics? Let me start with a familiar dichotomy: the so-called 'narrow' and 'broad' conceptions of the term. In the narrow conception, applied linguistics is equated with language teaching — mainly second or foreign, but also first language teaching. S. Pit Corder, writing from what was once one of the major centers of applied linguistics in the world, the University of Edinburgh, defined it as follows:

> Applied linguistics refers to a set of related activities or techniques mediating between the various theoretical accounts of human language on the one hand and the practical activites of language teaching on the other (1975:5).

The use of applied linguistics (AL, hereafter) as a synonym for language teaching seems to have come into vogue in the 1940's in the U.S., when some language teaching professionals wished to upgrade their status by association with the more 'scientific' field of linguistics. (I will return to the irony of this wish later.) Of course, that was the heyday of the prestige and influence of linguistics as the most rigorous of the social sciences. Had it not been for this early identification of AL with language teaching, the whole debate on the scope of AL may never have materialized.

This synecdochic use of the term for language teaching is a result of the fact that the most extensive application of linguistics has been in the field of language teaching. As Peter Strevens (1980:32) put it,

> the intellectual support for the massive array of published materials, teaching techniques, and of professional support for the teacher and the learner ... is supplied primarily through applied linguistics.

Although language teaching has long been regarded as AL's showpiece for demonstrating the potential for applications of linguistics, and the con-

tribution of areas like phonetics and grammar are still acknowledged, it is important to note that the claim to the relevance of formal linguistic theory (which is the main thrust of graduate student training and research in many established and aspiring linguistics programs) is not undisputed. For example, in the 1940s through the 1960s, language teaching subscribed to the notion of the 'centrality of grammar' (as defined in the structuralist sense). Much of the intellectual support from linguistics that Strevens refers to in the statement just cited came in the form of descriptions of language (either of the target language or a comparison of the target and native languages, see Sridhar 1980). Halliday et al. (1964), Corder (1975), and others have claimed that this is the main contribution linguists can make to language teaching. However, language description long ceased to be the central activity in linguistics.

In the '70s, the centrality of grammar was challenged in language teaching as it was in, e.g., first language acquisition and psycholinguistics. The linguist's preoccupation with the most elegant formal characterization of the structural regularities of the language was felt to be (i) too limiting (in so far as it ignored contextual, communicative parameters), and (ii) too arcane (too abstract to be psychologically real). This parting of ways was characterized, in kinder and gentler formulations, as the difference between competence and performance orientations. While the move toward a theoretically motivated approach to language needs no defense, it has brought in its wake an altered approach, a new conceptualization of what language is: The focus is on discovering the most general, abstract formal patterns, and the prized criterion is internal consistency and compatibility of assumptions and arguments, even if that leads the models ever further from ordinary language. This is because the goals of the theoretical linguist and the applied linguist are different: The applied linguist finds that the most general, rigorous, formally elegant models are often not the most useful ones in field applications. This situation is succinctly outlined in the following remarks by Henry Widdowson (1980:74-75), one of the major advocates of AL:

> The relevance of linguistics cannot be taken for granted because it is not obvious that the way linguists conceive of language is the most appropriate for language teaching purposes ...

> It is possible — even likely — that linguistics, as customarily conceived, may NOT be the most suitable source for a practical teaching model of language ...

> The main business of applied linguistics should be the establishment of appropriate concepts or models of language in the pedagogical domain, without prejudicing the issue by supposing that a relevant model must inevitably derive from a model of linguistic description in the technical sense.

Instead of grammar, language teaching professionals have over the last decade or more, come to regard notions such as communicative competence and pragmatics as the most useful contribution of 'linguistics' to language teaching and testing. The irony of this situation is that neither approach originated within the field of linguistics — the honor goes to anthropological linguists in one case (Dell Hymes, Gumperz, and others), and to philosophers of language, in the other (Austin, Searle, and others). More important, neither area has been integrated into the so-called mainstream of linguistic theory. We therefore have a situation in which the most important and influential application of linguistics, language teaching, involves, in part, application of notions disowned or at least ignored by linguistic theory.

2.2 A basket of many goodies

As opposed to the 'narrow' view, which identifies AL with language teaching, there is the 'broad' view, in which the term refers to a wide range of areas outside of phonology, morphology, syntax, and semantics.

In this view, the term includes, in its various uses, two broad categories of subjects. One category includes sub-fields such as the following: sociolinguistics, pragmatics, discourse analysis, bilingualism, diglossia, psycholinguistics, first and second language acquisition, sociology of language and ethnography of communication, lexicography, historical linguistics, and dialectology, among others. The second category includes fields such as language teaching, translation, literary sylistics, language for special purposes, poetics, language planning, lexicography, speech pathology, reading research, contrastive rhetoric, neurolinguistics, computational linguistics, and so on, ranging all the way to such industrial, 'very, very applied' uses as speaking dolls, voice typewriters, and sophisticated editing and printing devices.

A moment's reflection reveals that, however flattering, there is something strange about this laundry list (a sort of everything you always wanted to know about language but were denied by theoretical linguists). The problem comes into focus when we ask: What exactly is being applied?

One might suppose that the fields listed above follow from the commonsense definition of applied linguistics (cf. Kaplan 1980, Ferguson 1987, and many others), cited here in Bjarkman and Raskin's formulation (1986:xiv):

> By linguistic applications we will mean here the use of data, methods and/or theories accumulated or developed in linguistics to solve the problem from a different field of study which might need linguistic expertise.

In the case of fields in the second category above, such as contrastive analysis, neurolinguistics, or speech pathology, the definition seems ap-

propriate: Phonetics, phonology, morphology, syntax, or semantics is used to describe, diagnose, or predict situations involving language use or acquisition.

The only problem with this characterization is that it doesn't apply to most of the fields listed in the first category above, and that includes much of what passes for, and what theoretical linguists consider, applied linguistics. Let me elaborate this point. Linguistic theory, as it is conceived and practised in certain influential journals (e.g., Linguistic Inquiry, Natural Language and Linguistic Theory) and major textbooks, etc., has little to say about matters such as bilingualism, speech acts, social meaning of language, or functional motivations for grammatical and lexical choices, to name but a few examples. This is because linguistic theory has come to be too closely identified with grammatical theory in the formal sense. These fields seek to go beyond grammar — without denying the wonderful intricacy and regularity of grammar — to achieve an understanding of language in a broad sense, that is, as it is situated in time, place, society, and culture, and interacting with other cognitive processes, and used for communication, rather than only as a formal object. Fields such as pragmatics, interactional and variational sociolinguistics, psycholinguistics, and so on, are therefore not applications of linguistics as much as they are extensions of linguistics. I will, therefore, call them examples of 'extended linguistics' or 'complementary linguistics', since they complement the study of the formal aspects of language focused on by what is now regarded as theoretical linguistics. They contribute toward a broader theoretical model that would address significant aspects of language use in real-life situations. We thus have a situation where many examples of applied linguistics are really not 'applied' at all, but just linguistics.

3. Better still: What is linguistics?

Much of what is commonly understood to be AL is, thus, merely an alternative paradigm of doing linguistics. In this conceptualization, applied linguistics is what linguistics should have been all along. It is in this sense that the dichotomy between theoretical and applied linguistics is spurious and untenable. A better distinction might be between linguistics (of language in the broad sense) and formal linguistics (or grammar). These two types of language study have gone their separate routes because formal linguistics is perceived as working within a paradigm that leaves much of what is ordinarily understood to be language out of account.

The study of the formal properties of language has, no doubt, registered many impressive gains. However, these gains have depended upon a number of self-imposed limitations or exclusions. While formal linguists consider these limitations necessary or unavoidable, extended linguists consider them crippling, if not almost fatal. These include:

a. an exclusion of function;
b. an exclusion of performance;
c. an exclusion of context.

The extended linguists' primary complaint against formal linguistics is that it identifies language with grammar, and linguistic theory with grammatical theory, leading to an exclusive preoccupation with form and disregard of or scepticism toward language use or function. If linguistics is defined as the scientific study of language, why should it be limited to the study of (basically) syntax, semantics, morphology, and phonology? Recall Wittgenstein's observation, 'We must plough over the whole of language.' Although the scope of linguistics began to expand in the 1960's with Chomsky's challenge to American Structuralism, and extended quite a bit in the hands of the Generative Semanticists, it shrunk again with the introduction of Extended Standard Theory and its subsequent revisions. And Chomsky has steadfastly asserted the autonomy of grammar and its independence from considerations of language use and functions. He has even stated that 'language is not a task-oriented device' (1980: 53).

The attempt to provide functional explanations of linguistic structures is very old. It is found in Pāṇini's work itself, and it has continued through the ages, in traditional grammar's explanations of structures such the Passive, the Prague School's Functional Sentence Perspective, Firth's model of a 'socially realistic linguistics' (see Kachru 1981) and it is witnessing a revival in recent years (in the works of Dik, Givón, Halliday, Hopper, MacWhinney, Slobin, and others). It is true that the functionalist approach has as yet achieved only limited and sporadic success. It is, however, necessary to keep in mind that (i) not too many linguists are working in this paradigm, and (ii) much of the criticism of functionalism stems from specialized and by no means uncontroversial assumptions (e.g. grammar as given) and caricatures of the positions being criticized (e.g. that all structures can or must be explained functionally, or that the inability to functionally explain a single structure will doom the whole enterprise to failure). As Hopper (1988:132) has pointed out,

> The supposed dispute over functionalism is held to consist in the choice between two positions: either grammar is redundant, being wholly derivative of function, or function is irrelevant, being a separate system only partly isomorphic with structure. But the terms of the debate are skewed ...

The precise formulation of the form-function correspondence, its possibilities and limits, are central to the issue. There have been a number of promising hypotheses put forward in this area in recent years (see, e.g., Hopper's Emergence-of-Grammar model (1988), Bates & Macwhinney's (1986) Competition Model, among others). The relationship between form and function is too cen-

tral to the understanding of language to be dismissed on the basis of very preliminary results.

The exclusion of performance — and the concomitant abstraction and idealization of data — has engendered considerable scepticism regarding the relevance of the theory to 'real-life' language. The exclusion of context is bound up with the exclusion of performance. On the one hand, the claim that grammar is independent of context is disingenuous: As Gumperz (1981) and many, many others have pointed out, many empirical findings of formal linguistics, e.g. the grammatical judgments which furnish the data for syntactic analysis, depend on speakers' ability to imagine a context in which the sentence could occur. On the other hand, it leaves linguistic theory tongue-tied in the face of some of the most pervasive and profound linguistic phenomena, such as bilingual code-switching and code-mixing, intra-linguistic style shifting, language variation in general, or even conditions for the successful performance of speech acts. As Leech has correctly observed (1983:3), 'one result of this limitation of generative grammar to a strict formalism has been that, since about 1970, it has been progressively losing its position as the dominant paradigm in linguistics.' A number of alternate paradigms have arisen to deal with linguistic phenomena that linguistic theory would not consider. Leech goes on to list the challengers: sociolinguistics (with its rejection of Chomsky's construct of 'the ideal native speaker/hearer in a completely homogeneous speech community'), psycho-linguistics (with its process orientation), conversational analysis (with its stress on the primacy of the social dimension of language study), and pragmatics (with its attention to meaning in use, rather than meaning in the abstract), to name only some of the more influential ones. Cumulatively, these approaches have led to a remarkable shift of direction away from 'competence' and toward 'performance' (Leech 1983:4).

Thus, while the successes of formal linguistics in discovering structural regularities are impressive, they have come at a price: It is arguable that linguistic theory may have become a science at the expense of its subject matter, namely language as an instrument of communication in real-life situations. The emergence of the alternate paradigms represents an attempt to fill the void left by linguistic theory, but 'no comprehensive paradigm has yet emerged as a successor to generative grammar. A unified account of what language is has been lost.' (Leech 1983:4)

4. Applied linguistics as complementary linguistics

One point that becomes clear from this discussion is that the current use of the terms theoretical and applied linguistics is thoroughly misleading. Currently, the label theoretical linguistics is used to refer to syntax, phonology (and morphology), and semantics, and everything else is relegated to the domain of AL. However, as noted above, the other areas (especially the ones discussed under the category of extended linguistics) are not 'applied' areas, because

what is currently considered theoretical linguistics has nothing to say about them. Areas such as sociolinguistics, psycholinguistics, and pragmatics are, therefore, best regarded as complementary linguistics, because they complement the partial account of language currently provided by formal linguistics. As Dell Hymes (1984) has observed, areas such as sociolinguistics are in fact basic research. 'As linguists concerned with communication in human groups we need to go beyond mere description of language usage patterns to concentrate on aspects of shared knowledge and cognitive abilities which are every bit as abstract and general as the knowledge glossed by Chomsky's more narrowly defined notion of linguistic competence.'

One can go further and point out that the 'applied linguistics' orientation ought to be the central concern of all linguistics. AL is not a single, unified concept, but there is a common thread that runs through the various applications: a commitment to empirical data, a contextualized view of language, a functionalist emphasis, and an interdisciplinary openness. AL is concerned with 'language in its total human and environmental context'. This context-sensitive, problem-oriented, performance-friendly approach characteristic of the so-called applied linguistics has already proved its worth and calls into question the limiting assumptions of formal linguistics. As Gumperz has noted, sociolinguistic research [of the 1970s] has demonstrated not only that all existing human communities are diverse at all levels of linguistic structure, but also that grammatical diversity, multifocality of linguistic symbols, and context dependence are essential components of the signalling resources that members rely on to accomplish their goals in everyday life (1981:324).

Gumperz also points out that the theoretical linguists' insistence on maintaining a strict separation between linguistic and extralinguistic phenomena has ... become untenable in many key areas of linguistic research (ibid.325). This suggests that the boundary between linguistics and other allied disciplines, e.g., sociology, anthropology, and psychology may not be clear-cut. A unified account of language calls for an interdisciplinary approach. This is only to be expected, for, as Schegloff (1988:155) puts it,

> The fabric of the social world does not seem to be woven with seams at the disciplinary boundaries ... The use of language as a vehicle for social action binds the features of language and the features of action and interaction together, at least in part. This requires a theoretical stance toward language different from some others which are current. It implies certain forms of inquiry.

The famous neurologist Oliver Sacks's characterization of an analogous situation in medicine applies to linguistics with equal force. He notes (1987:40-41) that advances in modern medicine resulted in 'real gains in knowledge but a real loss in understanding' because of compartmentalization into motor, intellectual, and affective domains and excessive abstraction associated with 'nar-

row formulations of theories.' A unified, interdisciplinary, account of language would lead, in contrast, to William James's 'the light of the world's concrete fulness.'

In this paradigm, the relation between theory and data is different. Languages would not simply be used as sources of data (isolated sentences, decontextualized) for testing theoretical notions, but they would be studied in all their complexity and uniqueness. Saville-Troike (1988:249) puts it this way

> I am firmly in the camp of those who believe that theory should be 'grounded' in data. I believe collecting data only to confirm or disprove a priori hypotheses is likely to exclude crucial evidence for phenomena which occur in the process of [language acquisition] which are merely not salient to the investigator.

Labov (1988) makes the same point, but he goes further, and because of his point's centrality to the issue of the goals of applied linguistics, I give below some extended excerpts:

> When we contrast linguistic theory with linguistic practice, we usually conjure up a theory that builds models out of introspective judgments, extracting principles that are remote from observation and experiment. This is not the sort of theory I have in mind when I search for a way to establish the facts of a matter I am involved in. It is hard to imagine that a concept like subjacency or ECP would be used in court to decide a question of fact ...

> Do we gather facts to serve the theory, or do we create theories to resolve questions about the real world? I would challenge the common understanding of our academic linguistics that we are in the business of producing theories, that linguistic theories are our major product. I find such a notion utterly wrong. (182)

> General theory is useful, and the more general the theory the more useful it is ... But it is still the application of the theory that determines its value. (182)

5. Conclusions

In this paper, I have tried to outline and analyze a number of different conceptualizations of applied linguistics and their relation to linguistic theory. I have also tried to show that many of the instances of so-called applied linguistics do not really involve applications of notions developed in linguistic theory. In fact, linguistic theory has not had as much impact in the solution of practical language problems as it could be expected to. I have tried to analyse the reasons for this lack of impact. Specifically, the identification of linguistic

theory with formal linguistics, and the exclusion of considerations of function, performance, and context may be regarded as factors responsible for the alienation of linguistics from real-life language concerns. The result has been the development of parallel disciplines that perform the applied-linguistics functions, though they are not really applications of linguistic theory at all. I have tried to show that a number of fields are now included under the applied category because of the rather restrictive notion of language adopted in current theoretical work. These are really alternative paradigms for conducting basic research on language, and are best regarded extensions of linguistic theory interpreted in a suitably broad sense.

Finally, I have suggested that, if linguistics is to become anything more than an esoteric footnote to the real study of language, linguists would do well to adopt some features of the 'applied' orientation: It offers a more realistic and insightful approach to the study of language as a communicative device.

Until then, the term 'applied linguistics' will remain a misnomer. After all, as the redoubtable Dwight Bolinger remarked in his Aspects of Language (1975:550), in his usual solidly common-sensical way, 'the practical work of describing languages goes forward — to make dictionaries, assimilate minorities, provide bilingual instruction, train translators — with or without linguistic theory.'

REFERENCES

BATES, Elizabeth, & Brian MacWhinney. 1982. Functionalist approaches to grammar. Language acquisition: The state of the art, ed. by E. Wanner & L. Gleitman. Cambridge: Cambridge University Press.

BJARKMAN, Peter C., & Victor Raskin (eds.) 1986. The real-world linguist: Linguistic applications in the 1980s. Norwood, NJ: Ablex.

BOLINGER, Dwight. 1975. Aspects of language. Second edition. New York: Harcourt, Brace, Jovanovich.

CORDER, S. P. 1975. Applied linguistics and language teaching. Readings for Applied Linguistics, vol. 1, ed. by J. P. B. Allen & S. P. Corder. London: Oxford University Press.

FERGUSON, Charles A. 1987. Applied Linguistics. Linguistic Society of America Annual Meeting (MS).

GUMPERZ, John J. 1981. The linguistic bases of communicative competence. Analyzing discourse: Text and talk, ed. by D. Tannen, 323-334. Washington, DC: Georgetown University Press.

HALLIDAY, Michael A. K., et al. 1964. The linguistic sciences and language teaching. London: Longmans.

HOPPER, Paul. 1988. Emergent grammar and the a priori grammar postulate. Tannen 1988.

HYMES, Dell. 1984. Sociolinguistics: Stability and consolidation. International Journal of the Sociology of Language 45.

JAKOBSON, Roman. 1990. Linguistics in relation to other sciences. On language, ed. by Linda Waugh & Monville-Burston. Cambridge: Harvard University Press.

KACHRU, Braj B. 1981. Socially-realistic linguistics; The Firthian tradition. Sociolinguistic theory. (= Special issue of International Journal of the Sociology of Language.) [An earlier version in Studies in the Linguistic Sciences 10:1.85-111 (1980).]

KAPLAN, Robert (ed.) 1980. On the scope of applied linguistics. Rowley, MA: Newbury House.

LABOV, William. 1988. The judicial testing of linguistic theory. Tannen 1988:159-182.

LEECH, Geoffrey N. 1983. Principles of pragmatics. London: Longmans.

RASKIN, Victor. 1986. Preface: Linguistic applications in the 1980s. Bjarkman & Raskin 1986:xiii-xix.

SACKS, Oliver. 1987. The man who mistook his wife for a hat and other clinical tales. New York: Summit Books.

SAVILLE-TROIKE, Muriel. 1988. From context to communication: Paths to second language acquisition. Tannen 1988:249-268.

SCHEGLOFF, Emanuel A. 1988. Discourse as an interactional achievement. Tannen 1988:135-158.

SRIDHAR, S. N. 1980. Contrastive analysis, error analysis, and interlanguage: Three phases of one goal. Readings on English as a Second Language for teachers and teacher trainers, ed. by K. Croft, 91-119. Boston: Winthrop.

STREVENS, Peter. 1980. Who are applied linguists and what do they do? A British point of view. Kaplan 1980:28-36.

TANNEN, Deborah (ed.) 1988. Linguistics in context: Connecting observation and understanding. Norwood, NJ: Ablex.

WIDDOWSON, Henry G. 1980. Applied linguistics: The pursuit of relevance. Kaplan 1980:74-87.

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Studies in
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MEETING HANDBOOK

THIRTEENTH SOUTH ASIAN LANGUAGES ANALYSIS
ROUNDTABLE
25 - 27 May 1991
University of Illinois at Urbana-Champaign

Department of Linguistics
University of Illinois

SALA XIII

25 - 27 May 1991
University of Illinois
at Urbana-Champaign

THIRTEENTH SOUTH ASIAN LANGUAGES ANALYSIS ROUNDTABLE

25 - 27 May 1991

Sponsored by
The Department of Linguistics
University of Illinois at Urbana-Champaign
in cooperation with
The Programs in Comparative Literature,
Religious Studies,
and South and West Asian Studies,
International Programs and Studies,
and the Division of English as an International Language

Meeting Handbook

EDITOR
Hans Henrich Hock

EDITORIAL ASSISTANT
Lynne Murphy

The Thirteenth South Asian Languages Analysis Roundtable

is part of the

Twenty-Fifth Anniversary Celebrations of the Department of Linguistics, University of Illinois at Urbana-Champaign

and honors

Professors Bh. Krishnamurti and Ladislav Zgusta

for their outstanding contributions to South Asian linguistics

CONTENTS

PREFACE

The present volume contains the program and abstracts for the Thirteenth South Asian Languages Analysis (SALA) Roundtable, 25 - 27 May 1991, University of Illinois at Urbana-Champaign. Just as the SALA Roundtable, it celebrates the twenty-fifth anniversary of the Department of Linguistics and honors Professors Bh. Krishna-murti and Ladislav Zgusta for their outstanding contributions to South Asian linguistics. In addition, jointly with the other parts of Volume 20 of *Studies in the Linguistic Sciences*, it celebrates the twentieth anniversary of the Department's journal.

1965/66 to 1990/91:
Twenty-five years of Linguistics at Illinois

Just as at many other American universities, Linguistics at Illinois had a 'prehistory', preceding its official institutionalization as a Department. As early as 1910-1921, Leonard Bloomfield taught at the University of Illinois. Although a member of the German Depart-ment, Bloomfield offered general linguistics courses (Introduction to the Study of Language, and Comparative Philology of the Indo-Euro-pean Languages), as well as a topic of specific interest to South Asianists, Sanskrit. (Although justly famous for later becoming the founder of Structuralism, Bloomfield had an excellent background in Indo-European and Sanskrit studies, was thoroughly familiar with the Sanskrit grammarians, and applied that familiarity to the des-cription of Indigenous American languages.)

By the forties, the University had acquired a number of faculty members, coming from Psychology, Speech, and the language de-partments, who had an active interest in linguistics. Among these were Lee Hultzén, Henry Kahane, and Charles Osgood. These were joined in the early sixties by John Casagrande and Kenneth L. Hale in Anthropology, Robert B. Lees in English and Communications, and Mary Sleator Temperly in English.

By 1961, the number of faculty members interested in linguis-tics had reached a 'critical mass', and a Program in Linguistics was established, directed by Henry Kahane. By 1963, the Program em-braced eleven core faculty members plus six associate members. A Linguistics Committee was established under the leadership of Robert B. Lees, with the task of preparing for the establishment of a

Department of Linguistics. The task of this Department was to be instruction and research not only in linguistics, but also in non-western languages, a fact which turned out to be highly significant for the development of South Asian linguistics at the University of Illinois.

South Asian linguistics received more specific — and special — attention in 1963-64, when Robert B. Lees offered courses on Gujarati, and especially in 1964 when Braj B. Kachru, joining the University as the first full-time faculty member in Linguistics, initiated a program in Hindi and Kashmiri, assisted by Tara Singhwi.

When established in 1965, the Department of Linguistics made several additional faculty appointments with South Asian interest: Gargi Guha-Thakurta, who taught Sanskrit and Hindi, and Arnold Zwicky, who took a research interest inSanskrit. Moreover, Yamuna Kachru was associated with the Department, becoming a regular faculty member in 1967. After Guha-Thakurta's departure, the Sanskrit program received further attention when Hans Henrich Hock was hired in 1967. In 1968, the arrival of Giri Tikku at the University of Illinois added another component, the study of South Asian literature from a comparative perspective.

Beside the Kachrus, Hock, and Tikku, who have remained at the University of Illinois to the present, other faculty members temporarily helped in the instruction and development of the South Asian language, linguistics, and literature programs. These include Karine Schomer for Hindi literature, and Stefan Anacker and Daniel Bisgaard for Sanskrit. In addition, Alice Davison was associated with our Department for several years during the seventies and eighties.

The Hindi program further benefited from some excellent teaching assistants, including Ahmad H. Siddiqui and especially K. V. Subbarao and Tej K. Bhatia, both of whom received Ph.D.s in Linguistics from the University of Illinois and have since made names for themselves in South Asian linguistics. The Department is pleased and honored that both of them are planning to participate in this year's SALA.

Another former assistant in Hindi-Urdu, Rajeshwari Pandharipande, an excellent teacher just like her colleagues Subbarao and Bhatia and like them receiving a Ph.D. in Linguistics from the University of Illinois, became a member of the Illinois faculty in 1984. Although her major appointment is in the Religious Studies Program, where she teaches enormously popular courses on Asian Mythology and Hinduism, she has maintained a foothold in Hindi instruction and

is currently offering a linguistics course on the Language of Religion. Her major research area continues to be South Asian linguistics. Moreover, having received an earlier Ph.D. in Sanskrit, she is able to provide support in supervising dissertations in Sanskrit, together with Ladislav Zgusta, who joined us in 1970.

The most recent addition to our faculty with South Asian interest is Jennifer Cole, a phonologist who has done work on Sindhi, and who is currently at the University of Illionis on a visiting appointment.

The founding of the Department coincided with the initiation of two significant research projects, both of them funded by the US Office of Education. One of these, a joint project by Yamuna Kachru and Robert B. Lees, was concerned with Hindi syntax and resulted in Y. Kachru 1966. (For this and the following publications, see the list below.) The other, undertaken by Braj B. Kachru, dealt with Kashmiri and resulted in B. B. Kachru 1969. A further (1970) grant from the same agency funded work toward B. B. Kachru 1973. These grants, and the publications produced under them, set the pattern for a long tradition of research and publication by the faculty. An incomplete list of the major publications dealing with South Asia is presented below. (See also the list of special issues of *Studies in the Linguistic Sciences* p. xii below.)

Hans Henrich Hock, ed. 1991. Studies in Sanskrit syntax. Delhi: Motilal Banarsidass.

Braj B. Kachru. 1969. A reference grammar of Kashmiri. Urbana: University of Illinois.

-----. 1973. An introduction to spoken Kashmiri, two parts. Urbana: University of Illinois.

-----. 1981. Kashmiri literature. Wiesbaden: Harrassowitz.

-----. 1983. The Indianization of English: The English language in India. Delhi: Oxford University Press.

-----, & Yamuna Kachru. 1968. Studies in Hindi linguistics. New Delhi: American Institute of Indian Studies.

Yamuna Kachru. 1966. An introduction to Hindi syntax. Urbana: University of Illinois.

-----. 1968. Studies in a transformational grammar of Hindi. Dhanbad: East West Books.

-----. 1974. Topics in a transformational grammar of Hindi. Agra: Central Hindi Institute.

-----. 1980. Aspects of Hindi grammar. New Delhi: Manohar.

-----, & D. P. Pattanayak. 1982. Relational Grammar: An introduction. Mysore: Central Institute of Indian Languages.

-----, & Rajeshwari Pandharipande. 1983. Intermediate Hindi. Delhi: Motilal Banarsidass. (Third edition 1990.)

Rajeshwari Pandharipande. 1990. The eternal self and the cycle of saṁsāra: Introduction to Asian mythology and religion. Needham Heights: Ginn Press.

During the Department's twenty-five years of existence, fifteen Ph.D. dissertations dealing with South Asian linguistic issues have been produced. These are (in chronological order):

Robert P. Fox. 1968. A transformational treatment of Indian English syntax.

Margie O'Bryan. 1973. The history and development of the verbal system of early Middle Indic.

K. V. Subbarao. 1974. NP complementation in Hindi.

Geoffrey Hackman. 1976. An integrated analysis of the Hindi tense and aspect system.

Habibullah Tegey. 1977. The grammar of clitics: Evidence from Pashto (Afghani) and other languages.

Tej K. Bhatia. 1978. A syntactic and semantic description of negation in South Asian languages.

S. N. Sridhar. 1980. Cognitive determinants of linguistic struc-tures: A cross-linguistc experimental study of sentence pro-duction.

Rajeshwari V. Pandharipande. 1981. Syntax and semantics of the passive construction in selected South Asian languages.

Cecil L. Nelson. 1984. Intelligibility: The case of non-native vari-eties of English.

William D. Wallace. 1985. Subjects and subjecthood in Nepali: An analysis of Nepali clause structure and its challenges to Relational Grammar and Government and Binding.

Richard D. Lutz. 1985. The effect of pronoun type on first and second language perceptual strategies in Hindi.

Tamara M. Valentine. 1986. Linguistic interaction and women: A South Asian case study.

Jean D'Souza. 1987. South Asia as a sociolinguistic area.

Baber S. A. Khan. 1989. The Urdu case system.

Steven W. Schäufele. 1991. Free word-order syntax: The chall-enge from Vedic Sanskrit to contemporary formal syntactic theory.

In addition to providing instruction and research in — and about — South Asian languages, the Department of Linguistics has hosted several institutes concerned totally or in part with South Asian languages and linguistics. The first among these and the one which established a model for everything that followed was the Summer

1967 CIC South Asian Languages Institute (Academic Director: Braj B. Kachru; Administrative Director: Solomon Levine). Visiting faculty included Ashok Aklujkar, Ronald Asher, George Cardona, Gordon Fairbanks, J. F. Staal, and Girdhari Tikku. Among a number of special events, the Institute featured a South Asian Language Conference.

South Asian languages and linguistics received further attention at the 1968, 1969, and 1978 Linguistic Institutes of the Linguistic Society of America, hosted by the Department of Linguistics.

South Asian Languages Analysis Roundtables

The 1978 Linguistic Institute, directed by Braj B. Kachru, featured a Conference on South Asian Languages and Linguistics. The conference, organized by Hans Henrich Hock and Braj B. Kachru, was to become the 'Mother of all SALAs': It was so successful in bringing together South Asian linguists and language pedagogues that the Department followed up this Conference with the first South Asian Languages Analysis Roundtable in 1979, as a forum for South Asian linguists, language teachers, and scholars of literature. The success of this undertaking can be measured by the fact that since then, SALA Roundtables have been taking place every year. The 'vaṁśa' is as follows:

SALA I: University of Illinois at Urbana-Champaign (1979)
SALA II: University of Texas at Austin (1980)
SALA III: State University of New York at Stony Brook (1981)
SALA IV: University of Syracuse (1982)
SALA V: University of Illinois at Urbana-Champaign (1983)
SALA VI: University of Illinois at Urbana-Champaign (1984)
SALA VII: University of Michigan (1985)
SALA VIII: University of Illinois at Urbana-Champaign (1986)
SALA IX: Cornell University and University of Syracuse (1987)
SALA X: University of Washington at Seattle (1988)
SALA XI: University of Wisconsin at Madison (1989)
SALA XII: University of California at Berkeley (1990)

The present Rountable, then, is the thirteenth. But those who consider the number thirteen unlucky may look at this year's SALA as the fourteenth North American conference on South Asian languages, linguistics, and literatures, counting the 1978 'Mother of all SALAs' as number one.

Members of the Department of Linguistics at Stanford University have expressed their interest and willingness to organize next year's SALA.

A second offspring of the 1978 Conference was an intended series of International Conferences on South Asian Languages and Linguistics, to be held in India. Two very successful conferences of this type were organized, one in Hyderabad (1980) by Bh. Krishnamurti, the other in Mysore (1982) by D. P. Pattanayak. Unfortunately, later installments of this tradition did not materialize. SALA, originally intended as a North American forum, therefore has increasingly drawn participants from other parts of the world. This year is no exception, although the number of Indian participants has been severely reduced by the devastating effects of the recent Gulf Crisis on India's economy.

Studies in the Linguistic Sciences

This year also marks the twentieth anniversary of *Studies in the Linguistic Sciences*, the Department's journal established in 1971 at the instigation Braj B. Kachru who had just taken over as Head of Linguistics. Several special issues of the journal have been dedicated to, or dominated by, South Asian linguistics:

Papers on Hindi syntax, ed. by Yamuna Kachru. (SLS 1:2, 1971)
Papers on South Asian linguistics, ed. by Braj B. Kachru. (SLS 3:2, 1973)
Dimensions of South Asian linguistics, ed. by Yamuna Kachru. (SLS 11:2, 1981)
Papers on diachronic syntax: Six case studies, ed. by Hans Henrich Hock. (SLS 12:2, 1982)
Studies in language variation: Nonwestern case studies, ed. by Braj B. Kachru. (SLS 13:2, 1983)
Papers from the 1986 South Asian Languages Analysis Roundtable, ed. by Hans Henrich Hock. (SLS 17:1, 1987)

Volume 20 of *Studies in the Linguistic Sciences* celebrates itself by coming out in three numbers. Number 1, edited by Eyamba G. Bokamba, constitutes the second of two proceedings volumes from the Twentieth Annual Conference on African Linguistics. (The tradition of African linguistics conferences, just like SALA, was started by our Department, during the time of Braj B. Kachru's Headship and with his instigation and strong support. And like SALA, the Conference has been hosted in turn by a large number of universities.) Number 2, edited by Hans Henrich Hock, is entitled *Linguistics for the Nineties* and contains papers presented in a special lecture series, fall 1990, by former students of the Department who have made a name for themselves in the field. In addition, the volume contains a

cumulative index of *SLS*. The present SALA Meeting Handbook constitutes the third part of this special celebratory volume.

Bh. Krishnamurti and Ladislav Zgusta

Last, but certainly not least, this year's SALA honors two scholars for their outstanding contributions to South Asian languages and linguistics. The following presents only a few highlights of their careers. More will be said during the course of the Roundtable.

Bh. Krishnamurti is without any doubt the major, most productive linguist in India. His areas of specialization cover comparative and historical linguistics with special reference to Dravidian, lexicography, language typology, sociolinguistics, literacy, and language planning. His publications include *Telugu verbal bases: A comparative and descriptive study* (1961), *Studies in Indian linguistics*, a volume edited in honor of M. B. Emeneau's sixtieth birthday (1968), *A basic course in modern Telugu* (1968), *A grammar of modern Telugu* (1985), and *South Asian languages: Structure, convergence, and diglossia*, a co-edited proceedings volume from the International Conference on South Asian Languages and Linguistics held 1980 at Hyderabad (1985). In spite of being Vice-Chancellor of the University of Hyderabad, he is keeping up a steady stream of publications. One of the most recent among these, 'The emergence of the syllable types of stems (C)VCC(V) and (C)V̄C(V) in Indo-Aryan and Dravidian: Conspiracy or convergence?' is to appear in a volume *Studies in the phonologies of Asian languages*, edited by Michael C. Shapiro et al.

Ladislav Zgusta holds two doctor's degrees from Prague University, one in classical philology and Indology, the other in philology of Asia Minor. He has been at the University of Illinois since 1970, permanent member of the University's Center for Advanced Study since 1974, and Director of the same center since 1988. Much of his work has centered around Asia Minor, Iranian languages, lexicography, and onomastics. But he has retained an active interest in Indology as well, especially in the indigenous Indian tradition of grammar and linguistic philosphy. (See e.g. his 1969 article on 'Pāṇini: descriptivist or transformationalist?') Under a 1975 Ford Foundation grant, he offered a seminar for Indian scholars in his major area of specialization, lexicography. For the past several years he has undertaken lexicographical research on Sanskrit, examining both Sanskrit dictionaries produced by westerners (or in the western tradition) and the traditional thesauruses (kośas) of the indigenous Indian tradition.

Program Overview

Saturday, 25 May	Sunday, 26 May	Monday, 27 May
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9:15 - 10:00 Illini Union **Inaugural Session** 10:00 - 12:00 Illini Union **Session I** Syntax & Semantics I Language of Religion	9: 15 - 12:00 Illini Union **Session III** Phonology Sanskrit Syntax Literary Responses to India	9:15 - 12:00 Illini Union **Session V** Syntax & Semantics II General Session II Conventions of Politeness
12:00 - 2:00 **Lunch Break**	12:00 - 2:00 **Lunch Break**	12:00 - 1:45 **Lunch Break**
2:00 - 4:45 Illini Union **Session II** Dravidian Linguistics I Historical Perspectives Discourse in the Other Tongue	2:00 - 4:45 Illini Union **Session IV** Dravidian Linguistics II Language Identity & Conflict General Session I	1:45 - 5:00 Illini Union **Session VI** Hindi-Urdu Syntax/ Semantics Sociolinguistics Sanskrit Indigenous Grammar
5:00 - 8:00 **Dinner Break**	5:00 - 8:00 **Dinner Break**	
8:00 - 9:30 Levis Center **Plenary Session** Bh. Krishnamurti *Shift of authority in written and oral texts in India with special reference to Telugu*	8:00 - 9:30 Levis Center **Plenary Session** Ladislav Zgusta *Dvaikośyam: The controversy over the Sanskrit-English dictionary of Monier- Williams*	

Program

Saturday, 25 May 1991

REGISTRATION (8:30 - 9:15 am, 4th floor Illini Union)

INAUGURAL SESSION (9:15 - 10:00 am, 405 Illini Union)

Welcoming remarks:
> Professor Larry R. Faulkner, Dean, College of Liberal Arts and Sciences
> Professor Elmer H. Antonsen, Acting Head, Department of Linguistics

Vandanā

Ceremony to honor Professors Bh. Krishnamurti and Ladislav Zgusta

SESSION I (10:00 am - 12:00 noon)

Syntax/Semantics I   405 Illini Union

Chair: James Yoon (University of Illinois at Urbana-Champaign)

10:00 - 10:30:	*Finiteness and case in Hindi-Urdu complements* (Alice Davison, University of Iowa)
10:30 - 11:00:	*Kashmiri causals: Evidence for a transformational approach* (Peter E. Hook, University of Michigan & Omkar Nath Koul, National Academy of Administration)
11:00 - 11:30:	*The INFL nodes in non-finite clauses in Dravidian and Tibeto-Burman languages* (K. V. Subbarao & Lalitha M., Delhi University)
11:30 - 12:00:	*New dimensions of word-order freedom in verb-final languages* (Asha Tickoo, University of Pennsylvania)

Language of Religion   404 Illini Union

Organizer and Chair: Rajeshwari Pandharipande
(University of Illinois atUrbana-Champaign)

10:00 - 10:30:	*The question of defining the language of religion* (Rajeshwari Pandharipande, University of Illinois at Urbana-Champaign)
10:30 - 11:00:	*Vaṣat, śrauṣat, and other Vedic ritual particles: Their origin and use in Vedic ritualistic literature* (Hans Henrich Hock, Univerisity of Illinois at Urbana-Champaign)
11:00 - 11:30:	*The role of deixis in defining ordinary vs. religious language* (Mithilesh K. Mishra, University of Illinois at Urbana-Champaign)
11:30 - 12:00:	DISCUSSION

SESSION II (2:00 - 4:45 pm)

Dravidian Linguistics I 405 Illini Union

Chair: Bh. Krishnamurti (University of Hyderabad)

2:00 - 2:30:	*Case particles and postpositions in Kannada* (S. Chandrashekar & S. N. Sridhar, SUNY at Stony Brook)
2:30 - 3:00:	*Tamil verb stem formation* (A. G. Menon, University of Leiden)
3:00 - 3:15:	COFFEE BREAK
3:15 - 3:45:	*Pronouns in Kannada: Sociolinguistic implications* (Jayashree Nadahalli, New York University)
3:45 - 4:15:	*Malayalam syllabification* (Suchitra Sadanandan, University of Southern California)
4:15 - 4:45:	*On change and variation of [ļ] in Kannada* (T. S. Satyanath, University of Delhi)

Historical Perspectives 404 Illini Union

Chair: Elmer H. Antonsen (University of Illinois at Urbana-Champaign)

2:00 - 2:30:	*Some observations on the development of West Indo-Aryan pronominal systems from Apabhraṁśa* (Vit M. Bubenik & C. Paranjape, Memorial University of Newfoundland)
2:30 - 3:00:	*The sources of a passive* (Eric P. Hamp, University of Chicago)
3:00 - 3:15:	COFFEE BREAK
3:15 - 3:45:	*Sibilant confusion in Early Indic: Sanskrit prādúr* (Brian Joseph, Ohio State University)
3:45 - 4:15:	*Meet me in the Bazaar: A historical perspective on the origin of a North Indian Koiné* (Patrick E. Marlow, University of Illinois at Urbana-Champaign)
4:15 - 4:45:	*Convergence and syntactic change: The case of the negative participles in Dakkhini* (K. V. Subbarao & Harbir Arora, Delhi University)

Discourse in the Other Tongue 402 Illini Union

Organizer and Chair: Yamuna Kachru (University of Illinois at Urbana-Champaign)

2:00 - 2:30:	*Recreating South Asian speech acts in English: A study in linguistic transfer* (Jean D'Souza, National University of Singapore)
2:30 - 3:00:	*Speech acts in the mother tongue and the other tongue* (Yamuna Kachru, University of Illinois at Urbana-Champaign)
3:00 - 3:15:	COFFEE BREAK
3:15 - 3:45:	*On creating speech acts: The creativity of Indian English writers* (Cecil Nelson, Indiana State University)
3:45 - 4:15:	*Language and female identity in India* (Tamara Valentine, University of South Carolina at Spartanburg)
4:15 - 4:45:	DISCUSSION

KEYNOTE LECTURE

(8:00 - 9:30pm, Levis Faculty Center, third floor)

Bh. Krishnamurti
(Vice Chancellor, University of Hyderabad)

*Shift of authority in written and oral texts in India,
with special reference to Telugu*

(Chair: Hans Henrich Hock, University of Illinois at Urbana-Champaign)

(The talk is followed by a reception in the Levis Faculty Center)

Sunday, 26 May 1991

SESSION III (9:15 am - 12:00 noon)

Phonology 405 Illini Union

Chair: S. N. Sridhar (State University of New York at Stony Brook)

9:15 - 9:45:	*An essay on Kashmiri stress* (Rakesh M. Bhatt, University of Illinois at Urbana-Champaign)
9:45 - 10:15:	*Alliteration in Sindhi poetry: Evidence for phonological structure* (Jennifer Cole, University of Illinois at Urbana-Champaign)
10:15 - 10:30:	COFFEE BREAK
10:30 - 11:00:	*Sanskrit reduplication: A templatic approach* (Gyanam Mahajan, Brandeis University)
11:00 - 11:30:	*Articulatory and acoustic characteristics of apical and laminal stop consonants: A cross-language study* (Paroo Nihalani, National University of Singapore)
11:30 - 12:00:	*The pure vowels of Punjabi* (Kamlesh Sadanand, University of Hyderabad)

Sanskrit Syntax Symposium 404 Illini Union

Chair: Madhav Deshpande (University of Michigan)

9:15 - 9:45:	*Demonstratives with non-third persons in Vedic Sanskrit* (Stephanie W. Jamison, Harvard University)
9:45 - 10:15:	*Reflexive pronouns in Vedic* (Madelyn J. Kissock, Harvard University)
10:15 - 10:30:	COFFEE BREAK
10:30 - 11:00:	*The Vedic clause-initial string and Universal Grammar* (Steven Schäufele, University of Illinois at Urbana-Champaign)
11:00 - 11:30:	*Clausal vs. non-clausal subordination in Sanskrit narratives* (Sarah Tsiang, University of Illinois at Urbana-Champaign)
11:30 - 12:00:	*Syntax or phonological form? Reconsidering some allegedly syntactic phenomena of Vedic Sanskrit* (Hans Henrich Hock, University of Illinois at Urbana-Champaign)

Literary Responses to India 402 Illini Union

Organizer and Chair: Girdhari Tikku (University of Illinois at Urbana-Champaign)

9:15 - 9:45:	*Rabindranath Tagore's Nobel Prize: What does it mean?* (Ali Anushiravani, University of Illinois at Urbana-Champaign)
9:45 - 10:15:	*Chinese response to Tagore: Pin Hsin's poetry* (Yongan Wu, University of Illinois at Urbana-Champaign)
10:15 - 10:30:	COFFEE BREAK
10:30 - 11:00:	*Aldous Huxley's* The Island (Girdhari Tikku, University of Illinois at Urbana-Champaign)
11:00 - 11:30:	*Coleridge and Bashō: The legacy of Indian monism* (Hiroko Harada, University of Illinois at Urbana-Champaign)
11:30 - 12:00:	DISCUSSION

SESSION IV (2:00 - 4:45 pm)

Dravidian Linguistics II 405 Illini Union

Chair: Alice Davison (University of Iowa)

2:00 - 2:30: *A lexicalist analysis of participle compounds in Kannada* (S. N. Sridhar and Mark Aronoff, SUNY at Stony Brook)

2:30 - 3:00: *Verbal compounds in Malayalam* (Shûichi Yatabe, Stanford University)

3:00 - 3:15: COFFEE BREAK

3:15 - 3:45: *From aspect to tense in Old Tamil: Evidence from narrative discourse* (Susan Herring, California State University at San Bernadino)

3:45 - 4:15: *Coordination and word order* (Nalini Rau, University of Illinois at Urbana-Champaign)

4:15 - 4:45: *The associative case in Malayalam: Making sense of a catch-all category* (Rodney Moag, University of Texas at Austin)

General Session I 404 Illini Union

Chair: Norman Zide (University of Chicago)

2:00 - 2:30: *Drastic modernization of the curricula of the teacher training courses* (M. V. Sreedhar, Institute for Socially Disadvantaged Groups)

2:30 - 3:00: *The aesthetics of play in Punjabi folkloric tradition* (Atamjit Singh, Guru Nanak Dev University)

3:00 - 3:15: COFFEE BREAK

3:00 - 3:30: *The web of the spider: Language and politics in Sri Lanka* (Wilfrid Jayasuriya, Southern Illinois University)

3:45 - 4:15: *A socio-cognitive approach to designing a self-instructional multi-media course in English communicative skills* (P. N. Pandit, Indira Gandhi National Open University)

4:15 - 4:45: *Script Manager software for Indic scripts on the Macintosh* (Lloyd B. Anderson, Ecological Linguistics)

Language Identity and Conflict in South Asia 402 Illini Union

Organizer and Chair: Rakesh M. Bhatt, University of Illinois at Urbana-Champaign

2:00 - 2:30: *A house divided: Conflict and rivalry in two varieties of a language* (Mariam Ahmed, University of Illinois at Urbana-Champaign)

2:30 - 3:00: *Transplanted languages and ethnic minorities* (Tej K. Bhatia, Syracuse University)

3:00 - 3:15: COFFEE BREAK

3:15 - 3:45: *Language minorities: Issues of identity in a global perspective* (Kamal K. Sridhar, SUNY at Stony Brook)

3:45 - 4:15: *Identity, conflict, and convergence: South Asia as a sociolinguistic area* (Rakesh M. Bhatt, University of Illinois at Urbana-Champaign)

4:15 - 4:45: *Discussion* (Eyamba Bokamba, University of Illinois at Urbana-Champaign)

KEYNOTE LECTURE

(8:00 - 9:30pm, Levis Faculty Center, third floor)

Ladislav Zgusta
(Director, Center for Advanced Study, University of Illinois at Urbana-Champaign)

Dvaikośyam:
The controversy over the Sanskrit-English dictionary of Monier-Williams

(Chair: Braj B. Kachru, University of Illinois at Urbana-Champaign)

(The talk is followed by a reception in the Levis Faculty Center)

Monday, 27 May 1991

SESSION V (9:15 am - 12:00 noon)

Syntax/Semantics II 405 Illini Union

Chair: Mangesh Nadkarni (National University of Singapore)

9:15 - 9:45:	*Conditionals and emphasizers in Bangla: Some effects of their interaction* (Tista Bagchi, University of Chicago)
9:45 - 10:15:	*Advancement in some Asian and African languages* (Nkonko M. Kamwangamalu, National University of Singapore)
10:15 - 10:30:	COFFEE BREAK
10:30 - 11:00:	*Compound verbs in Oriya* (Gopabandhu Mohanty, Deccan College)
11:00 - 11:30:	*Telugu negatives and non-capabilitatives: Morphological structure and syntactic structure* (Rosanne Pelletier, Yale University)
11:30 - 12:00:	*The category of nominals in Bangla* (Gillian Ramchand, Stanford University)

General Session II 404 Illini Union

Chair: Jennifer Cole (University of Illinois at Urbana-Champaign)

9:15 - 9:45:	*Issues in translating Tamil Puranas* (John A. Loud, University of Wisconsin at Madison)
9:45 - 10:15:	*The mental dictionary: Its role in linguistic theory* (K. G. Vijaya-krishnan, University of Hyderabad)
10:15 - 10:30:	COFFEE BREAK
10:30 - 11:00:	*The Harappan Script: The most ancient form of Dravidian* (Clyde A. Winters, Uthman Dan Fodio Institute)
11:00 - 11:30:	*A sketchy history of cliticization and verb stem noun incorporation in Munda* (Norman Zide, University of Chicago)

Conventions of Politeness in South Asian Languages 406 Illini Union

Organizer and Chair: Manindra K. Verma (University of Wisconsin at Madison)

9:15 - 9:45:	*A grammar of politeness in Marathi* (Rajeshwari Pandharipande, University of Illinois at Urbana-Champaign)
9:45 - 10:15:	*Towards an ethnography of politeness in Maithili* (Mithilesh K. Mishra, University of Illinois at Urbana-Champaign)
10:15 - 10:30:	COFFEE BREAK
10:30 - 11:00:	*Directives in Punjabi and Lahanda* (Tej K. Bhatia, Syracuse University)
11:00 - 11:30:	*Linguistic strategies of politeness in Bhopuri and Magahi* (Manindra K. Verma, University of Wisconsin at Madison)
11:30 - 12:00:	DISCUSSION

SESSION VI (1:45 - 5:00 pm)

Hindi-Urdu Syntax and Semantics   405 Illini Union

Chair: K. V. Subbarao (University of Delhi)

1:45 - 2:15:   *Focus movement in Hindi-Urdu* (Gurprit Bains, Long Island University)
2:15 - 2:45:   *Semantic case in Urdu* (Miriam J. Butt and Tracy Holloway King, Stanford University)
2:45 - 3:00:   COFFEE BREAK
3:00 - 3:30:   *Perfectivity and the resultative state in Hindi* (Jayshree Chakraborty, Agra University)
3:30 - 4:00:   *Against wh-movement in Hindi* (Anoop Mahajan, University of Wisconsin at Madison)

Sanskrit Indigenous Grammar and Philosophy   404 Illini Union

Chair: Tej K. Bhatia (University of Syracuse)

1:45 - 2:15:   *Sociolinguistic parameters of Pāṇini's Sanskrit* (Madhav Deshpande, University of Michigan)
2:15 - 2:45:   *Assessing Śabara's arguments for the conclusion that a generic term denotes just a class property* (Peter M. Scharf, University of Pennsylvania)
2:45 - 3:00:   COFFEE BREAK
3:00 - 3:30:   *Semio-linguistic aspect of Dhvani Siddhānta* (Krishna K. Sharma, University of Hyderabad)
3:30 - 4:00:   *Naming and expressing objects in Pāṇini* (Rama Natha Sharma, University of Hawaii at Manoa)

Sociolinguistics   406 Illini Union

Chair: Rodney Moag (University of Texas at Austin)

1:45 - 2:15:   *Convent English: Structure and attitudes* (Mariam Ahmed, University of Illinois at Urbana-Champaign)
2:15 - 2:45:   *Multilingualism and social identity: The case of Singapore* (Nkonko M. Kamwangamalu, National University of Singapore)
2:45 - 3:00:   COFFEE BREAK
3:00 - 3:30:   *On liberating English to be a world language: An Indian perspective* (Mangesh V. Nadkarni, National University of Singapore)
3:30 - 4:00:   *Functional articulation: Analyzing diglossic variation* (John C. Paolillo, Stanford University)
4:00 - 4:30:   *Sammelani Hindi and Malviya Hindi: Language and politics in India between 1875 and 1930* (Alok Rai, University of Allahabad)
4:30 - 5:00:   *Aspects of the syntax of spoken Indian English* (S. N. Sridhar & Indira Ayyar, SUNY at Stony Brook)

Read by Title

Analogy as argument in Ādi Saṁkara (Kapil Kapoor, Jawaharlal Nehru University)

On binding of reflexives in Sindhi (Pushpa Boolchandani, Kendriya Hindi Sansthan)

The development of ergativity in Indo-European languages of Western India in the 15th to 20th centuries (Boris A. Zakharin & L. V. Khokhlova, Moscow State University)

The historical roots and development of ergativity in Indo-Aryan and Dardic (Boris A. Zakharyin, Moscow State University)

On the loss of gender distinctions in Nepali (Carol Genetti, University of California at Santa Barbara)

Pair-list answers in Hindi indirect questions (Veneeta Srivastav, Rutgers University)

Religious cum linguistic problems in modern India (M. Gnanam, Central Institute of Hindi)

A situation-type analysis of compound verbs (Mona Singh, University of Texas at Austin)

Sociolinguistics of verbal abuse in Hindi (Raja Ram Mehrotra, Banaras Hindu University)

PART I: GENERAL ABSTRACTS

CONVENT ENGLISH:
STRUCTURE AND ATTITUDES

Mariam   Ahmed
(University of Illinois at Urbana-Champaign)

In South Asia, the term 'Convent English' has been used for a variety of English which has developed in India and Pakistan in schools originally initiated by British and American missionaries.   It is claimed that this variety of English has features which mark it as distinct from the other varieties of South Asian English.

This paper focuses on three aspects of this variety: (a) linguistic features at various levels; (b) the sociolinguistic context of Convent English; (c) attitudes toward Convent English and its users and attitudes of Convent English users toward other varieties of South Asian English.   This paper also presents a critical discussion of earlier observations on Convent English.

SCRIPT MANAGER SOFTWARE FOR INDIC SCRIPTS ON THE MACINTOSH

Lloyd B. Anderson
(Ecological Linguistics)

Script Manager software for Indic scripts can handle the automatic choices of virama-marked consonants, half-consonants, subscripts, and conjuncts when these are available in the fonts, as well as irregular consonant-plus-vowel combinations such as /ru, ruu/. These context-determined choices should not burden the user. In the current version of the software, it is possible to have screen and print show standard Devanagari while typing nearly normal transliteration. This brings much greater convenience for the user at input and editing time, and nearly automatic transliteration between different Indic alphabets and between them and Roman.

CONDITIONALS AND EMPHASIZERS IN BANGLA:
SOME PRAGMATIC EFFECTS OF THEIR INTERACTION

Tista Bagchi
(University of Chicago)

As scholars such as Ferguson and Comrie have noted (Ferguson, in Traugott et al. 1986: Overview; Comrie 1986), Bangla has two principal conditional constructions. One involves a nonfinite conditional participle (marked by the suffix /-le/, /-ile/ in the archaic 'High' form of written Bangla) formed from the verb of the protasis (while the apodosis is a finite clause). The other is characterized by the form /jodi/ 'if' signalling the protasis (which, in this kind of construction, is a finite clause) and optionally by one of the following forms immediately preceding the apodosis: /tObe/ 'then', /ta hole/ 'that being (so)' (itself containing the conditional participial form of the verb /hO-/ 'be, occur'), and the discourse particle /to/ (which is extremely difficult to translate, but in its most typical function roughly denotes 'as we both (i.e., speaker and addressee) know or accept as being true, ...'). It is with the second of these two construction types that this paper is concerned.

The problem addressed is the occurrence of the enclitic emphasizers (Dasgupta, 1984; treated as quantifiers by Ramchand 1990) /i/ (roughly, 'only', 'alone') and /o/ ('also, even') in the protasis of a conditional sentence in Bangla. First, if one considers a sentence such as (1a), uttering this sentence carries the Gricean conventional implicature (1b) (more generally, uttering a 'central' conditional, i.e., a conditional construction of the logical structure $p \rightarrow q$, carries with it the implicature $-p \rightarrow -q$, which is not present with a 'peripheral' conditional — a conditional construction not logically representable as a material-implication proposition $p \rightarrow q$, e.g. when q is a non-truth-functional proposition such as a question or a request — as Eilfort 1987 demonstrates):

(1) a. golap   phul-er   rON jodi holde   hOY
         rose   flower-Gen   color if   yellow   be-3rd ord.-Pres.

(tObe/ta-hole)   ta-te gOndho thake   n a
then/in that case it-Loc scent   stay-3rd ord.-Pres.   Neg

'If the color of a rose is yellow there is no scent in it.'

b. golap phul-er rON jodi holde   n a   hOY
                                     Neg   be-3rd ord.-Pres.

(tObe/ta-hole) ta-te gOndho thake
                                 stay-3rd ord.-Pres.

'If the color of a rose is not yellow there is (some)
scent in it.'

The implicature is cancellable by the addition of the emphasizer
/-o/ (here 'even') to /tObe/ta-hole/.   However, its distribution in the
protasis (where it occurs optionally) is determined by what is pre-
supposed regarding the protasis, as will be shown in this paper.   The
emphasizer /-i/, interestingly, does not readily occur in the protasis
of a 'central' conditional such as (1a) or (1b), but it can occur in the
protasis of a rhetorical 'peripheral' conditional such as (2):

(2) tumi   jodi   na-(i)   ele/aSbe
     you-sg.ord. if   Neg(-Emp) come-3rd ord.-Past/Future

     (tObe/ta-hole/to) amar ar   eSe   ki   labh?
     then   my   anymore come-ConjPpl. what good

     'If you aren't going to come what good will my coming be
     (anymore)?'

I show that, in addition to the fact that certain tense co-
occurrence restrictions between protasis and apodosis hold for
'central' but not 'peripheral' Bangla conditionals (even of a rhetorical
sort), the non-occurrence of the emphasizer /-i/ with 'central' con-
ditionals has an explanation in the framework of data semantics as
spelled out by Veltman (1986) — in particular, in terms of the
modality of the protasis as a datum in the information state pre-
supposed in uttering the conditional.   This may have wider im-
plications also for an understanding of the possible pragmatic con-
straints on the ways in which conditional constructions have evolved
in the history of Indic, from Sanskrit *yadi* and *cet* constructions
onward.

FOCUS MOVEMENT IN HINDI-URDU

Gurprit Bains
(Long Island University)

In Hindi-Urdu the following contrast holds:

(1) a.   *aap kahte haiṁ ki   raam ne kaunsii kitaab paRhii
         you say   are   that Ram-erg which   book   read
         'You say Ram has read which book?'

    b.   kaunsii kitaab aap kahte haiṁ ki   raam ne t paRhii
         which   book   you say   are   that Ram-erg   read
         'Which book do you say Ram has read?'

Example (1b) appears to show that wh-movement is permitted in Hindi-Urdu, in spite of the fact that Hindi-Urdu is a wh-in-situ language (see Davison 1985).

In this paper I show that what looks like wh-movement in Hindi-Urdu, as in example (1b), is an instance of the more general phenomenon of Focus-movement (see Gair 1986 for a similar phenomenon in Sinhala), which in Hindi-Urdu may take place in syntax, rather than at the level of Logical Form, as in English (see Chomsky 1976, May 1985). I provide evidence for the hypothesis that such a movement must result in S or IP-adjunction (contra Chomsky 1986) and that it is not an instance of movement of Spec of CP. I show that once adjunction to IP is allowed, then an explanation can be found for what appear to be violations of much of the subjacency condition in its classical version (see Chomsky 1973) in the case of Hindi-Urdu, for Hindi-Urdu permits extraction of focused wh-elements out of NP, PostP, and in general out of wh-islands, with neither S nor S-bar being observed as a bounding node. I show that, under the assumption that IP-adjunction is allowed, almost all cases of extraction out of bounding nodes result in Ø-subjacency.

AN ESSAY ON KASHMIRI STRESS

Rakesh M. Bhatt
(University of Illinois at Urbana-Champaign)

There is a type of stress system that is not represented in the typology of Hayes 1981.   These are stress systems that have more than two degrees of syllable weight, where stress is assigned to the heaviest syllable of the word.   Kashmiri is a language with such a system.

In this paper, I propose an algorithm for assignment of word stress in Kashmiri using the theoretical framework of Halle & Vergnaud 1987.   I argue that Kashmiri is similar to Khalkha Mangolian (lacking a head marking rule on line 0 constituent(s)) — with one additional wrinkle: Khalkha Mangolian contrasts two degrees of syllable weight (heavy vs. light) while Kashmiri has several degrees of syllable weight, and the assignment of stress appears to be sensitive to a syllable weight hierarchy, a distinction not easily encoded EITHER in a theory which considers stress a binary feature OR a theory assigning stress without the use of metrical constituents.

The stress patterns of Kashmiri can be succinctly described in the form of the following generalizations:

a. Only heads of syllable are stress-bearing.
b. The assignment of stress in Kashmiri is sensitive to a syllable-weight hierarchy.   The hierarchy is the following:
    CVVC > CVV > CVC > CV
c. The heaviest syllable of the word receives the stress.
d. If two or more syllables qualify as the 'heaviest' because they each have the same degree of syllable weight, then the stress appears on the leftmost one.
e. The word-final syllable never appears stressed.

The analysis proposed in this paper captures the generalization that long syllables are heavier than closed syllables which, in turn, are heavier than (open) light syllables.   Gupta (1987), Pandey (1989),

and Davis (1989) have shown that the assignment of primary stress for Sooke and for Hindi is sensitive to a syllable weight hierarchy. I argue that Kashmiri, though superficially seeming to require a 'gradual' or non-binary syllable weight distinction, does not in fact serve as a counterexample to the claim that only binary syllable weight distinctions exist in Universal Grammar. The syllable weight hierarchy of Kashmiri falls out as a consequence of the combination of rules needed for stress assignment. The special mechanisms developed in Halle & Vergnaud's metrical theory allow Kashmiri to be analyzed using a combination of devices independently motivated for other, less superficially complex, languages.

ON BINDING OF REFLEXIVES IN SINDHI

Pushpa Boolchandani
(Kendriya Hindi Sansthan)

In this paper I analyze reflexives in Sindhi in order to find out whether the notion of c-Command & the principle of Binding are adequate to formulate a theory of reflexives for the language. In Sindhi, we have sentence constructions like:

(1) gi:ta: Je   Pi:u   Pã:ɳa Khe   baca:yo.
    Gita Gen father self   acc   protected
    'Gita's father protected himself.'

(2) ghar   Pã:ɳa hi: Kiri: Pyo:.
    house   self   emph. fell
    'The house fell by itself.'

(3) mã: Pa:hĩye ghar   vaña: tho.
    I   my   house   going (pres. cont.)
    'I am going to my home.'

In the above sentences, the reflexive element *Pã:ɳa*, the emphatic reflexive *Pã:ɳa hi:*, and the reflexive-possessive *Pa:hĩye* are bound to their respective antecedent NPs. I analyze the rules and conditions binding these reflexives with their coreferential elements.

Chomsky (1981) has formulated the Binding theory as follows:

a. A bound anaphor must be bound in its governing category.
b. A pronoun must be free in its governing category.
c. A lexical NP must be free.

A Governing Category has been defined as: 'α is the governing category for X if and only if α is the minimal category containing X, and a subject accessible to X.' The governing categories are S and NP.

I examine whether the rule of Binding and the notion Governing Category can account for the coreferentiality in the following types of sentences of Sindhi:

(4) mã:$_1$ huna   khã: $_2$ Pã:hi:je$_{1/2}$ ghara jo pato   puchyo.
    I   him/her from my/his   home gen address asked
    'I asked him the address of my/his home.'

(5) ma:u$_1$ dhi:ukhe$_2$ Pã:hi:ja$_{1/2}$ gaha {pa:ra:e chadya:}
    mother   daughter acc   her   jewels made to wear
    'The mother asked the daughter to wear her jewels.'

(6) ma:u$_1$ dhi:ukhe$_2$ Pã:hi:ja$_{1/2}$ gaha pa:ina la:e cayo.
    mother   daughter acc   her   jewels wear asked
    'The mother asked the daughter to wear her jewels.'

(7) mã:$_1$ hunakhe$_2$ cayo   ki pahrĩ: Pã:hĩjo∗$_{1/2}$ kam kar.
    I   he/she acc.   asked   that first self   work do
    'I told him/her to do his/her work first.'

(8) tu:$_1$ mukhe$_2$ Pã: hĩ:jo$_{1/∗2}$ kita:bu de.
    you   me acc self   book   give
    'You give me your book.'

SOME OBSERVATIONS ON THE DEVELOPMENT OF WEST INDO-ARYAN PRONOMINAL SYSTEMS FROM APABHRAMŚA.

Vit M. Bubenik and C. Paranjape
(Memorial University of Newfoundland)

In this paper we address pertinent issues which have not received satisfactory explanation and due attention in older and more recent Indological literature. This will be done on the basis of primary data taken from representative texts (in Apabhraṁśa, Old Marathi, and Old Hindi) covering the period of the tenth to sixteenth centuries A.D. In addition, Old Western Rajasthani and Old Gujarati pronouns are considered for a complete picture of the system.

The pronominal inflection of Apabhraṁśa is in a transitional stage with respect to that of Old Indo-Aryan. Our purpose is to investigate the nature of this change in Apabhraṁśa and the extent to which it is carried over in Old Hindi and Old Marathi. Some of the issues to be discussed in terms of diatopy and diachrony are:

(1) The declining use of pronominal clitics of Middle Indo-Aryan (with only a few relics observable in late Apabhraṁśa and Old Hindi);

(2) The emerging oblique forms for pronouns to host postpositions on a par with the nouns.

(3) The loss of the double-oblique system in late Apabhraṁśa (*maiM* 'I' Acc/Instr) with some relics found in Old West Rajasthani and Old Gujarati, and the use of new syncretic systems operating on some pronouns in Old Hindi and Old Marathi.

(4) The nature and direction of paradigmatic leveling observable in the system of pronouns in late Apabhraṁśa.

(5) The syntactic behaviour of personal pronouns of Old Hindi and Old Marathi in the context of ergativity.

SEMANTIC CASE IN URDU

Miriam J. Butt and Tracy Holloway King
(Stanford University)

An analysis of subject and object case marking in Urdu involves both grammatical (functional) and semantic information. Lexical Functional Grammar (LFG) has provided accounts for both lexical (idiosyncratic) and grammatical case marking in various languages (Bresnan et. al. 1982), but as of yet has not concentrated on an account of semantic case. My analysis of subject and object case marking in Urdu modifies current implementations of Lexical Functional Grammar to allow both grammatical and semantic information to influence case marking.

In Urdu, grammatical subjects are not restricted to the nominative case but can appear with almost any case (Mohanan 1990). (1) is an example of a dative subject construction, while (2) has a genitive subject.

(1) naila-ko kitaab   milii.
     naila-Dat book-Nom   received
     Naila received a book.'

(2) naila-kii   ek bahin   hai
     nail-Gen   one sister-Nom is
     'Naila has one sister.'

It might appear that the case of the subject must be designated individually (idiosyncratically) for each verb. However, Mohanan (1990) showed that the case of Hindi subjects and objects is predictable given both semantic and syntactic information. Although some verbs require either only semantic or only syntactic information in determining subject case marking, others depend on the interaction of syntactic facts with semantic information like volition, definiteness, or aspect. Examples (3) and (4) demonstrate how semantic information interacts with grammatical information to determine case marking in Urdu. Only subjects in Urdu can be in the ergative case,

but as (3) shows, whether the subject is marked with the ergative also depends on volitionality. (4) focuses on the alternation of accusative and nominative case objects. When an inanimate object is definite, it appears in the accusative, as in (4a).

(3) a.   mohan-ne   cillayaa.
          mohan-Erg   screamed
          'Mohan screamed (on purpose).'

     b.   mohan   cillayaa
          mohan-Nom   screamed
          'Mohan screamed (involuntarily).'

(4) a.   naila   axbaar-ko   paṛhtii   hai
          naila-Nom   newspaper-Acc   read   be-Pres
          'Naila reads the newspaper.'

     b.   naila   axbaar   paṛhtii hai
          naila-Nom   newspaper-Nom   read be-Pres
          'Naila reads newspapers.'

Previously, the assignment of non-nominative case to grammatical subjects involved the stipulation of idiosyncratic (lexical) case. In LFG this consists of specifying in the lexical entry for each verb the case of the subject, unless it appears in the nominative. This technique was used by Andrews (1982) to explain the case marking of non-nominative subjects in Icelandic. However, the stipulation of subject or object case in each lexical entry is redundant for a language like Urdu where this case-marking is predictable on the basis of semantic information. To capture this regularity, I make use of the relation between functional-structure and argument-structure, which has been incorporated into LFG to account for the lexical mapping of arguments and complex predicates (Isoda & Sells 1990).

PERFECTIVITY AND THE RESULTATIVE STATE IN HINDI

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Aspectual contrast of the imperfective versus perfective verbal forms in Hindi has already been discussed by a number of scholars. Perfectivity in Hindi is expressed by compound verb expressions consisting of a main verb and a modifying verb in which the latter, being grammaticalized, loses its conceptual meaning and adds an additional semantic dimension to the main verb.   For example:

usne	ām	khā	liyā/
He+ case	mango	eat	take+asp+tense

'He has eaten the mango.'

The verb *le* 'to take' here has been grammaticalized and, along with other senses, it gives the sense of perfectivity.   In Hindi, however, there is another verbal element *čuk* which expresses perfectivity and which just like a modifying verb is attached to the main verb (which appears in the bare root form).   For example:

Vah	ām	khā	čukā
He	mango	eat	asp+tense

'He has eaten the mango.'

Although in a number of contexts, such as the ones given above, the two constructions, i.e., the compound verb and the   verb + *čuk* constructions, appear to have the same interpretation, closer examin- ation of the two brings about a number of differences.   Scholars of Hindi working in this field have, however, not paid much attention to the essential differences between these two constructions, or, they have not paid attention to a closer examination of the status of *čuk* in the language.

This paper brings out the syntactic and semantic differences be- tween the two types of perfective constructions in Hindi.   In order to do so, I first define the conceptual status of the two different verbal

elements: operators (such as *le-*) and *čuk*. The following two assertions are made in this respect:

> (i)   While an operator essentially emphasizes the termination of an act, *čuk* clearly indicates the resultative state;

> (ii) While an operator does not necessarily indicate an expected act, *čuk* essentially does imply an expected or presupposed act.

The paper provides the scope for testing the validity of *čuk* as an indicator of resultative state cross-linguistically. Data from Bengali showing resultative state are examined, and it is found that the syntactic and semantic tests valid for testing *čuk* as an indicator of the resultative state in Hindi are valid for them as well.

CASE MARKERS AND POSTPOSITIONS IN KANNADA

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and

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Traditional grammars of Kannada maintain a clear distinction between morphological case markers and postpositions. These accounts list *-u* (nom.), *-annu* (acc.), *-ge* (dat.), *-inda* (instr.), *-alli* (loc.), and *-a* (gen.) as case markers, and *me:le* 'on', *oLage* 'in/inside', *hattira* 'near', etc., as postpositions.

Recently, Sridhar (1989:160), although maintaining the same position regarding these categories, has raised some doubts about such a treatment without going into further details.

In this paper, we argue that Instrumentals and Locatives are not really case markers but true postpositions and what was considered as (true) postpositions in earlier accounts are really pseudo-postpositions sharing some [+N] features along with other nominal elements in this language. Our analysis crucially hinges on the case assignment property of pseudo and real postpositions. Whereas true postpositions assign 'oblique' case to their arguments under government, pseudo-postpositions assign genitive case to their arguments just like other nominal elements. But, there is a clear distinction between pseudo-postpositions and nominal elements, in the sense that pseudo postpositions cannot be preceded by nominal modifiers (such as determiners and adjectives) and cannot occur in the subject or object positions. The case of Datives is slightly different and somewhat controversial. We want to maintain that the Dative *-ge* is a case marker but behaves differently from the Nominative and Accusative case markers.

ALLITERATION IN SINDHI POETRY:
EVIDENCE FOR PHONOLOGICAL STRUCTURE

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A linguist analyzing poetry looks for patterns and constructs that reveal the structure of linguistic representation. Following Kiparsky (1973), we may ask what are the syntactic or phonological building blocks which are subject to patterned recurrence, and how is parallel structure defined? The present paper attempts to answer these questions with respect to the pattern of alliteration found in a popular form of Sindhi poetry (particularly in the work of the seventeenth-century poet Shah Latif). The study of alliteration in Sindhi poetry presents clear evidence for a theory of phonological segments which attributes a hierarchical, articulatory-based organization for distinctive features (Clements 1985, Sagey 1986), and entails some surprising results concerning the relationship between dental, retroflex, and palatal consonants in Sindhi.

The pattern of alliteration found in Shah Latif's poetry is illustrated in the following verse:

kaadiru pahanje kudarata siin
kaaimu aahi kadiimu

In this example, we find a pattern in which a sequence of consonants is repeated twice in each line: /k, d, r/ in the first line and /k, m/ in the second. Other verses show patterns built on a single consonant, a single vowel, or sequences of consonant and vowel. In the example shown here the pattern involves a repetition of the exact same sequence of consonants, but in other examples the pattern may involve consonants which are only partially identical, such as /t, ṭ /, /d, dh/, /j, j'/. These patterns demonstrate that the following sounds are identical for the purposes of alliteration: dentals and retroflex, plain and aspirate stops, plain and implosive stops. In addition, we find vowel patterns which include long and short vowels /a, aa/, and even patterns with distinct vowels /a, o/ (note: [a] = schwa).

In this paper, I explore the interpretation and analysis of these and other facts, which pose several challenges for phonological theory. In current models, identity between two segments is calculated on the basis of the hierarchical representation of distinctive features. Two segments may be identical if they share Place of Articulation features, or Place + Manner features, or simply Laryngeal features. The feature geometry allows only certain groups of features to function in defining a natural class. In Sindhi alliteration, we find that the Laryngeal features of aspiration and glottalization may be ignored in determining identity (e.g. /d, dh), but segments in the same identity class must bear consistent [voice] specifications. The identity class including retroflex and dentals (/t, ṭ/) seems to indicate that Place of Articulation is relevant and different kinds of coronals count as identical. Yet [č] never occurs in the same class as a dental or retroflex.

Another interesting characterization of this system is that patterns can consist of sequences of sounds which are not adjacent, as in the example seen above. The non-linear framework of current phonological theory explains why this pattern is possible, and predicts that alliterative patterns involving non-adjacent segments will necessarily define identity in terms of Place of Articulation.

FINITENESS AND CASE IN HINDI-URDU COMPLEMENTS

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Finite clauses in Hindi-Urdu, as in many other South-Asian languages, do not occur phrase-internally except under highly restricted conditions. Hindi-Urdu, lacking a quotative or a disjunctive suffix, allows finite clauses only in external positions. For example, the complement clause in (1a) may not be inside V as an argument receiving case directly from V:

(1) a.   *ham   [[ki woo nahĩĩ aaeegaa]   sooctee   haĩ]
           we   that 3p   not   come-fut-sg   think-impf   are

     b.   ham [(yah) sooctee haĩ] [ki woo nahĩĩ   aaeegaa]

           'We think [that he won't come]' (cf. Subbarao 1984)

The finite clause is left or right adjoined to the whole main clause, as in (1b), or is right adjoined to a noun such as *baat* 'matter', *khabar* 'news', etc. The position to the left of a lexical category like N, V, A, or P assigns Case, and only non-finite clauses may occur there.

This restriction holds for all types of finite clauses, including complements, relative clauses, and adverbials. It does not distinguish between clauses which are arguments and must get a thematic role like theme, and modifiers which do not receive a thematic role. Relative clauses, for example, are exactly like complements in this respect, but do not get thematic roles:

(2) a.   *[joo   kal aayaa hai   [laRkee-nee]] mujhee bataayaa.
            which yest. came   boy-erg   I-dat.   told

     b.   [PRO kal aaee huee [laRkee-nee]] mujhee bataayaa

     c.   is-laRkee-nee mujhee bataayaa [joo kal aayaa hai]

           'The boy [who came yesterday] told me (this).'
           (cf. Kachru 1978).

Stowell's (1981) account of the 'Case Resistance' of finite clauses ascribes the ungrammaticality of (1a) to two factors: (i) the finite complement cannot   receive Case, and (ii) phrases lacking Case are not 'visible' for Theta role assignment.   The Hindi-Urdu data show that failure to receive a theta role is not the cause of ungrammaticality, since (2a) is also ill-formed, and no theta role is involved in a modifier clause.   Rather, ill-formedness results from the incompatible combination of finite inflection and morphological features imposed by a governor governing to the left.   These generalized 'Case' features include verbal affixes and the requirement of a null subject, as in (2b).   Government and Case assignment to the left always places these features on embedded verbs in head-final languages.   The consequences of this are escaped in other SOV languages by the presence of a quotative or disjunctive suffix in final complementizer position which is inert to Case (cf. Steever 1987).

SOCIOLINGUISTIC PARAMETERS OF PĀṆINI'S SANSKRIT

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This paper reviews the latest research in relation to the status of
Pāṇini's Sanskrit. Was it a spoken language? Was it a living lan-
guage? Was it a first or a second language? Who spoke this langu-
age, and to whom? These questions, while they have been discussed
before, need to be looked at again. The extreme views in this regard
range from considering Pāṇini's Sanskrit as being his mother tongue,
to believing that Sanskrit in general including Pāṇini's Sanskrit, was
never a truly colloquial spoken language, and that the speakers of
Sanskrit always had a Prakrit or some other non-Sanskrit language
as their mother tongue. Both extremes have their pitfalls, and one
needs to have a more exact characterization. The present paper
attempts to arrive at such a characterization.

ON THE LOSS OF GENDER DISTINCTIONS IN NEPALI

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The Indo-Aryan language Nepali is closely related to Hindi and is quite similar grammatically in many respects.   However, one aspect of Nepali grammar that differs strikingly from Hindi is the gender system.   While Hindi has lexical gender and a full system of gender based verb agreement, in Nepali the system is quite different.

The loss of lexical gender distinctions in Nepali has been noted previously.   While there are still a few feminine nouns in Nepali, they are etymologically derived from forms with feminine morphology (i.e. *nokar/nokarni* 'servant');   the vast majority of Nepali nouns are not distinguished by gender.   Grammatical morphology, on the other hand, still shows some agreement with semantically feminine animate nouns.   The feminine forms however, while recognized and used in formal registers in Nepali, are relatively rare in the spoken language.

The current study will be an examination of the distribution of gender agreement in several genres of Nepali discourse.   The prescribed system of gender agreement will be compared with the actual distribution of forms in order to ascertain which morphological environments are most likely to conserve gender agreement, and which have lost it entirely.   Written genres of the study include newspaper and scholarly articles and a woman's magazine about current media celebrities.   Spoken genres will include narrative and conversation.

The paper will conclude with consideration of the motivation for the apparently ongoing loss of gender distinctions.   Bloch suggests that gender loss is due to substratum influence;   a hypothesis which seems very likely.   In this particular case, the substratum group would be speakers of Newari, a language with no gender morphology whatsoever.   The hypothesis will be tested by comparing the

percentages of gender agreement found in the speech of bilingual
Newars and monolingual Nepalis.

RELIGIOUS CUM LINGUISTIC PROBLEMS IN MODERN INDIA

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Religion and language are two major factors of social identity and cultural barriers in India. These two social institutions individually are capable of generating emotional integration, as well as disintegration as its essential counterpart, and when they join together as often seen in India it becomes a matter of serious study for the sociologists of language as far as the discipline of linguistics is concerned.

Right before the time of Buddha, religions and languages went together fully or partially and caused problems in India. With the advent of time the religious and language groups have often, if not always, grown large in number and size and problematic in nature. At the time of liberation from colonial rule, India underwent a partition after considerable bloodshed on account of religious and linguistic attitudes.

In modern India (i.e., India after independence) we find the following religious and linguistic ties.

Hinduism + Sanskrit / Sanskritized Hindi
Islam + Urdu / Persianized Hindi
Christianity + English or French or Portuguese
Sikh religion + Punjabi
Atheism / Anti-Hinduism + Tamil / pure Tamil

Besides, there are hundreds of tribes together with their traditional religions. But these religions are less institutionalized and their languages have less communal affiliations.

There are a lot of separate religious or linguistic problems also in India. But this paper discusses only those situations when they mix up and result in sociolinguistic problems.

THE SOURCES OF A PASSIVE

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It is not clear how Proto-Indo-European expressed a predication in passive diathesis, nor to what degree such an argument structure was resorted to in Indo-Iranian, to judge by the earliest documented attestation, employed for the passive, an idiosyncratic and defective paradigm of forms. The background of these inflexions and syntaxes has not been adequately traced. It seems to have escaped notice that, using different inherited morphs and combinations of categories, Old Irish (and, in basically like fashion, British Celtic) shows just the same suppletive and defective configuration of paradigmatic inflexions. From this complex correspondence we may infer a PIE ancestor set of morpho-syntaxes and lines of descent to the two daughter branches.

The facts: Indo-Iranian passive in *-yá-* (*badh-yá-te*, *uh-yá-te*, *s̄́r-yá-te*, *kr-iyá-te*: Avest. *kir-ye-ⁱti*) is restricted to the presential system, requires zero grade, and is distinguished from the fourth class and the denominatives. Avestan evidences not only early active inflexion but also a near-restriction to the 3rd person. Outside the distinctive presential the only separate inflexion is the lone 3sg. aorist, gunated with Brugmann's Law + *-i* (*á-kār-i*, *(á)sā́v-i*, *(á)ján-i* < **kʷór-i*, *klóu-i*, *gón?-i*), to which there was the added possibility of a periphrastic phrase with the perf. pass. pple. in *-tá-* (*tatáṃ me ápas* 'my work is done' (RV 1:110:1); *yuktás te astu dákṣiṇaḥ* 'let thy right (horse) be yoked' (RV 1.82.5)).

The Old Irish and Mediaeval Welsh passive (and Breton impersonal) with endings in *-r* (OIr. *carthair* ·*carthar*, *léicthir* ·*léicther*, *berair* ·*berar*, subjunctive *berthair* ·*berthar*, *gessair* ·*gessar*, relative *léicther*, *berar*, *berthar*, *gessar*, plural *cartair* ·*cartar*, *móraitir mórtair* ·*mór(a)tar*, *miditir*, ·*lécetar*, *bertair* ·*bertar*, ·*gessatar*, rel. *mór(a)tar*, *léic(e)ter léicetar*, *bertar*, and correspondingly in future formations: Welsh *cerir*, subj. *car(h)er*; Bret. *laser* 'is killed', *guillir* 'one can', future *caror* 'will be loved') applied this **-ri* only to the Celtic prima-

ry tenses, and the inflexion was formed only for the third person, first and second being treated as if morphological objects (1sg. *no-m·charthar*, 1pl. *no-n·carthar* 'I am, we are loved'; *y-m gelwir* 'I am called', *ny-n cerir* 'we are not loved').   The third singular preterite was suppletive (OIr. *·carad*, *·léced*, *·breth brethae*, pl. *·cartha*, *·léicthea*, *·bretha*, W. *carat*, *erchit*; Br. *croeat* 'was created'; OIr. *·slass* 'was struck' = W. *llas* 'was slain'; OIr. *·fess* 'was known' = W. *gwys* = Br. *gous*) < PIE *-*tó*-participle with or without auxiliary 'be'.

The inferred source structures are:
    *intransitive-existential -*iélo*- (= nonpersonal)
        (with verb base in complementation with 'denominatives' —   On the restricted Indo-Iranian evidence see now E. Tucker (1988), TPS 86.93-114)
    *impersonal -*r*-
    *-*tó*-participle predication ~ *perfect ('pret-pres.') + *hīc*

The descents are:
*John loves/d Mary
*There is love, 'one loves';   *Somebody loves M. it is Mary
*It was loved; it is Mary

CELTIC

> One loves Mary   > Somebody loves M., me, us;
                                   Somebody loves
  Mary was loved   Mary was loved

INDO-IRANIAN   INDO-IRANIAN AND CELTIC

> Mary is loved   > Mary is, I am, we are,
                                   sg. is, pl. are loved
  Mary was loved   Mary was loved
  (instrum. agent)   > preterite expanded to match
                                   primary range of arguments

FROM ASPECT TO TENSE IN OLD TAMIL:
EVIDENCE FROM NARRATIVE DISCOURSE

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Despite Tolkāppiar's assertion around the first century A.D. that old Tamil had three 'times' or tenses, modern scholars are consistent in reconstructing only two morphological tenses — a past, and a non-past — for the ancient language, and indeed for Proto-Dravidian as a whole. Zvelebil (1962), while supporting a two-way distinction, suggests however that the opposition in Early Old Tamil might better be viewed as 'perfective past' vs. 'imperfective future', indicating 'a primary aspectual (and not temporal) dichotomy' (15). To anyone who has worked with Old Tamil texts, this view has intuitive appeal, yet surprisingly, no attempt has been made to verify it with textual evidence.

In this paper I propose to examine portions of two epic narrative texts — Cilappatikāram (5th c.) and Kamparāmāyaṇam (12th c.) — in an effort to provide support for Zvelebil's claim. Narrative discourse is ideally suited to the study of tense/aspect, since it crucially involves the notions of sequence and simultaneity. There is a growing body of research which shows a correlation between tense/aspect forms and basic narrative functions, such as event line vs. background information, and primary event line vs. secondary event line. Much of this work focuses on the discourse functions of aspect: In numerous languages, perfective aspect 'foregrounds' or highlights the main narrative event line, while imperfective aspect encodes 'background' situations and events (Hopper 1979).

My preliminary analysis of the distribution of 'tense' forms in the two Tamil narrative texts reveals significant functional patterns. Cilappatikāram contains relatively few tensed forms. However, what past forms appear consistently encode events which are dynamic, crucial to the plot development, or otherwise contextually fore-grounded, while non-past forms (used with past time reference) are found in static, descriptive passages, and with verbs of saying which

introduce quotes. The Kamparāmāyaṇam, composed seven centuries later, after the modern three-way tense system was already in place, exhibits a different set of patterns from Cilappatikāram. While preserving the stylized use of non-past forms to introduce quoted material, the later text uses past forms for narrative events and situations of all types, the one exception being the use of non-past to refer to habitual activities in past time (a sense still conveyed by the future tense in Modern Tamil).

There is thus evidence in support of the view that in Old Tamil, the two-way distinction was a (functionally) aspectual one — i.e. foreground/background — whereas by the twelfth century, tenses had essentially taken on their modern values, leaving the foreground/background distinction to be signalled, presumably, by other means.

In concluding, I consider the implications of these findings for the historical development of aspectual auxiliary verbs in Tamil, suggesting that aspectual auxiliaries were innovated after the original perfective/imperfective distinction was lost, i.e., in an attempt to regain the functional utility of the earlier system. I cite examples of 'grounding' in Modern Tamil narrative via perfective and imperfective auxiliaries and discuss possible motivations for the morphosyntactic reorganization of the verbal system as a whole.

REFERENCES

Hopper, Paul.   1979.   Aspect and foregrounding in discourse. Discourse and syntax, ed. by T. Givón.   New York: Academic Press.
Zvelebil, Kamil.   1962.   Lectures on historical grammar of Tamil. Madras: University of Madras.

SYNTAX OR PHONOLOGICAL FORM?
RECONSIDERING SOME ALLEGEDLY SYNTACTIC PHENOMENA
OF VEDIC SANSKRIT

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A number of Vedic Sanskrit phenomena have traditionally been, and continue to be, considered syntactic. These are (i) the fact that finite verbs are said to be accented in dependent clauses (DCs) but unaccented in main clauses (MCs), unless initial; (ii) the fact that certain constructions (viz., deliberative questions) are characterized be clause-final pluti (+ trimoric vowel in the final syllable); and (iii) the fact that particles, discourse-deictics, clitic pronouns, and topic-alized elements tend to stack up at the beginning of the clause in what I have referred to (Hock 1982) as 'initial strings'. Cf. the illus-trations in (1) - (3).

I show that none of these phenomena is purely syntactic and that significant aspects of their behavior must be accounted for in Phonological Form (PF).

This is most easily done for types (1) and (2), since their overt manifestations (accent and trimoricity) are clearly phonological. Further, their conditioning is not exclusively syntactic but involves other, mainly semantic/pragmatic, factors. In addition, non-initial verb accentuation is not limited to DCs, but occurs in certain MCs, as in (4). Klein (In Press) shows that in some cases, non-initial MC verb accentuation is conditioned by poetic structure (such as caesuras). Moreover, MC verbs not initial in their clauses, but initial in the poetic line, always are accented; cf. (5). Sanskrit poetic structure, however, is clearly to be accounted for in PF, not in the syntax.

For the type (3), the argument is more subtle. Here again, pho-nological criteria play a role, since the relative order of particles and clitic pronouns is determined by their underlying accent. Secondly, while there are conceivable syntactic accounts that can get topic-alized elements and discourse-deictics to stack up in the proper

order (by moving then to different 'landing sites'), the relative order
of particles can be given a syntactic account only be a highly partic-
ularized proliferation of additional, 'adjoined' landing sites.   A PF
account, which can be simultaneously sensitive to syntactic in-
formation and phonological criteria, provides a much more elegant —
and motivated — alternative. (Something similar could be accomp-
lished by letting the syntax wildly generate any conceivable ordering
and letting a 'filter' eliminate the ones that do not occur. But that
filter would have to contain the same information that the PF account
would, except as a negative, rather than a positive conditioning, and
without any plausible motivation.)

I conclude the discussion by considering the implications of
some of these findings for linguistic theory in general.

(1) a.   [tásmai vísaḥ svayám evā́ namante]$_{MC}$
         [yasmin brahmā́ pū́rva éti]$_{RC}$ (RV 4.50.8)
         'Before him even the common people bow, for whom
         the brahmin is preeminent.'

    b.   [syā́ma ⌣ íd índrasya śármaṇi]$_{MC}$ (RV 1.4.6c)
         'May we be under Indra's protection.'

(2)   adháḥ svid āsī́3d upári svid āsī́3t (RV 10.129.5)
         'Was it above, or was it below?'

(3)   (NEXUS) 1   2   3   4   5
         átho   X̣/Ḍ P   Ṗ   E   Ḍ
         (Where NEXUS =- clause connector; P = unaccented
         particle, Ṗ = accented particle; E = enclitic pronominal;
         Ḍ = pronominal (tád, etád, yád, kím); X̣ = accented
         fronted word other than particles or Ḍ.)

Cf.   prá ha vā́ enam páśavo viśanti (MS 1.8.2)
         (X̣ P Ṗ E ...)
         'The cattle indeed turn toward him.'

(4)   párā ca yánti púnar ā́ ca yanti (RV 1.132.12)
         'They go away and they come back.'

(5)   surūpakṛtnúm ūtáye sudúghām iva godúhe | juhūmási
         dvávi-dvavi (RV 1.4.1)
         'Day by day we invoke for support the one who puts on
         a good shape just as (we approach) the good milk cow
         for the milker.'

KASHMIRI CAUSALS:
EVIDENCE FOR A TRANSFORMATIONAL APPROACH

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and

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In his recent monograph on the morphological causative in Kashmiri, S. Syeed presents evidence for a lexical rather than a syntactic ('transformational') account.   His primary arguments are two: (i) There are unpredictable gaps and idiosyncrasies in the forms and meanings of members of morphologically related causal sets.   (ii) The number of iterations of the causal morpheme *-inaay* in causal stems cannot be correlated with the number of causees in the PAS's (predicate argument structures) of such stems.

We accept the first of these arguments as sufficient to justify the separate listing in the lexicon of individual members of causal sets. However, we show that a closer examination of the second argument leads to a conclusion opposite to that drawn by Syeed.   In particular, instances in which the number of causees is greater than the number of iterations of the causal suffix force us to posit a syntactic source for much of the Kashmiri causal data.   In (1) below, the correct interpretation of the reduplicated conjunctive participle *preery* cannot be obtained except by allowing the finite verb to have scope over it.   That scope includes the causal agent of *hokhir-aav* 'make dry; exasperate' which has to be inherited by the non-causal predicate *praar* 'wait'.   To account for this inheritance in the lexicon would force the Lexicalist to set up an extra (empty) slot for a causal agent in the PAS of every predicate in Kashmiri.   Further, it would render the principle of Full Interpretation (Projection Principle) vacuous ('Thematic roles are maintained throughout a lexical derivation' Roeper 1987:274), since the filling of the extra slot would depend on whether or not a predicate fell under the scope of a causal in a tree.

(1) temy   hokhir-eev   zanaani preer-y preer-y
    he-ER   dry-CAUSed   wife   wait-CPM wait-CPM
    'He exasperated his wife by making her wait and wait.'
    (Cf. Syeed 1985:48)

We adduce data from Kashmiri to show that inheritance of a causal agent must be allowed even if the bequeathing predicate is a simple monomorphemic lexical transitive:

(2) razyi   thaph ker-yith   khooru-n-as   bɨ paS-as pyeTH
    rope-DT   grip do-CPM   lifted-3s-1s I roof-DT onto
    'He made me hold onto the rope and climb onto the roof.'

In (2), the form *khoor-n-as* (from *khaar* 'raise; send up') is in a sup-pletive relation to the intransitive *khas* 'climb'. Even so, the tran-sitive *thaph kar* 'grab, hold' has to inherit *khaar*'s agent as its own causal agent in order to yield the causative interpretation that it has in (2). Therefore, we must posit not only a syntactic rule for causa-tive but also allow generative semantic decomposition if we are to obtain the inputs such a syntactic rule would need.

Thus, the complete set of semantic and syntactic facts requires both a lexical and a syntactic treatment of causal phenomena in Kashmiri as well as a (de)compositional theory of lexical semantics.

REFERENCES

Roeper, T. 1987. Implicit arguments and the head-complement re-lation. Linguistic Inquiry 18:267-310.
Syeed, S. M. 1985. Morphological causatives and the problems of the transformational approach. Bloomington: Indiana University Linguistics Club.

DEMONSTRATIVES WITH NON-THIRD PERSONS IN VEDIC SANSKRIT

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The demonstratives *sa/tad* and, less commonly, *eṣa/etad* can be employed with non-third person pronouns and verb forms (type *so 'ham, sa tvam; sa bodhi, sa nayāmi*, etc.). Though this phenomenon is well-known and frequently mentioned in the secondary literature (e.g. Delbrück, AIS §138; Speyer/Speijer, Skt. Syn. §445; Ved. u. Skt. Syn. §266; Renou, Gr. l. véd. §400; Gr. l sans. §260), it has not, to my knowledge, been the subject of a thorough study. This paper makes such a study, utilizing a complete collection of the examples in the Ṛg-Veda and extensive collections from the Atharva-Veda, Saṁhitā prose, and Brāhmaṇa prose, as well as (rarer) examples from the Mahābhārata and Classical Sanskrit texts.

The study focuses especially on asymmetries in the distribution of the examples: distributional variation between 1st and 2nd persons, doubling of enclitics and of accented pronouns, of nominatives and other cases, of pronouns and verb forms, of indicatives and other moods of the verb, as well as differences due to chronology and/or text type. The context(s) of the examples are considered, and the function(s) of the doubling, when discernible, discussed.

The treatment of *sa/eṣa* doubling complements one recently completed on *ayam/asau* doubling (Jamison, World Sanskrit Conference, August 1990) and should contribute to the growing literature on the functions and distribution of demonstratives in Vedic Sanskrit.

THE WEB OF THE SPIDER:
LANGUAGE AND POWER IN SRI LANKA

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Language and politics became almost inseparable from the time of the granting of independence to Sri Lanka. The theme of this paper is the interplay of political concepts such as sovereignty with the nature of language as the unique characteristic of the human in the external world.

I trace the changes in the standing of the three languages, English, Tamil, and Sinhalese, from 1830 to the present day and indicate the social and political forces behind these changes. I indicate the points of comparison and contrast between the 'Aryan' Sinhalese language and the 'Dravidian' Tamil language in Sri Lanka and dwell on the lack of bilingualism in pre-colonial and post-colonial times. I indicate the nature of bilingualism in colonial times and discuss abortive efforts at bilingualism in the eighties. How would linguistics be able to help promote bilingualism if the state sponsors it?

This raises the issue of the role of English in colonial times and its changed role in the post-colonial era. Does recognizing English as a 'link language' in the constitution make it more effective as a civilizing agency? I discuss the ideas that have been canvassed about the role of English in a divided polity.

SIBILANT CONFUSION IN EARLY INDIC:
SANSKRIT *prādúr*

Brian Joseph
(Ohio State University)

The Sanskrit adverb *prādúr* 'forth to view, forth, in sight' (Atharva Veda and later), restricted to co-occurrence with the roots *as-* or *bhū-* in the meaning 'become manifest; be visible' or *kṛ-* in the sense 'make manifest; reveal', is without a satisfactory etymology, despite some discussion in the literature. Two suggestions have been made that are worthy of serious consideration, that of Monier-Williams and MacDonnell connecting *prādúr* with *dvār-* 'door', and that of Mayrhofer connecting it ultimately with *prātar* 'in the early morning; tomorrow'.

Both etymologies, however, are a bit problematic. In Monier-Williams' account, *prādúr*, as an isolated derivative of 'door', would have to show the same specifically Indo-Aryan — and thus relatively late — alteration of the initial **dh-* of the Indo-European proto-form (cf. Greek *thúrā* 'door', English *door*, Latin *forēs*, all pointing to **dh-*) to an initial *d-*, a reshaping usually attributed to influence from *dvā* 'two' (so Pokorny and Mayrhofer), that is shown by the base noun 'door', even though isolated extraparadigmatic forms typically retain older shapes of morphs. In Mayrhofer's view, on the other hand, *prādúr* is to be connected with Pāli *pātu(r)-* 'in sight; evident', a form which can presuppose an early Indic *prātur*, and ultimately therefore with Sanskrit *prātar*. For this analysis to work, it must be assumed that *prādúr* entered Sanskrit as a dialect borrowing, from a vernacular form in which the original **-t-* was weakened to *-d-*, even though the evidence regarding the outcome of intervocalic *t* at an early stage in the Prākrits points to a variety of treatments (cf. Pischel for details) and the development of intervocalic *t* is far from uniform in all the Prākrits. Moreover, the semantic connection with *prātar* is not so strong as to be completely convincing.

Thus although both of the proposed etymologies have some attractive aspects, neither is wholly satisfactory. An alternative

etymology is given here, one that takes on significance when viewed against the backdrop of sibilant 'confusion' (i.e. interchanges), especially involving *ś* and *s* and especially adjacent to sonorant, as in later Sanskrit root-variants such as *srīv-/śrīv-* 'fail' and *srams-/śrams-* 'loosen, let hang', or by-forms such as *syāla-/śyāla-* 'wife's brother', and — more important — as in Vedic *śruvat-* 'dissolving, melting', a variant of *sruvat-*, in RV 1.127.3.

In particular, I propose that the well-attested Indo-European root **derḱ-* 'see' is the source for *prādúr*, from a preform *prō-dṛḱ. The semantics of the preverb *pra-* with the Sanskrit root *dṛś-*, 'become visible; be seen; appear', argues for this etymology, as does the existence of other old adverbs from the same root combined with a preverb (e.g. Greek *hupódra* '(looking) sternly, grimly' from *upo-dṛḱ). This etymology requires only the assumption that word-final **-ṛḱ#* somehow yielded Sanskrit *-ur#*. The phonetic similarity of the Sanskrit sibilants (shown by sporadic assimilations involving sibilant sequences, e.g. *śaśa-* 'hare' from earlier **śas-a-* or *śuṣka-* 'dry' from earlier *suṣ-ka) and the sibilant confusion phenomenon together provide a mans by which a final sequence **-ṛś* in *prādṛś could have become **-ṛs*; *-ur* would have developed regularly from **-ṛs*, as in the genitive singular of kinship terms, e.g. *mātur* 'mother's' from *mātṛ-s.

This account, if correct, has important consequences for the question of the sociolinguistics of the Old Indic dialects in the Vedic period, since it provides another early example (along with *śruvat/ sruvat-*) of sibilant interchanges of the sort which are found later in Sanskrit in great numbers (e.g. *srams-/śrams-*) and which are almost surely sociolinguistically induced.

ADVANCEMENT IN SOME ASIAN AND AFRICAN LANGUAGES

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Advancement, a rule which promotes a nominal bearing a given grammatical relation in a clause to a higher relation in the same clause (Perlmutter 1983), has been one of the central themes in Relational Grammar (RG) for the past twenty or so years.   In RG, examples of advancement include such traditional rules as dative movement, raising, and passive.   This paper discusses advancement of dative nominals and locatives in passive constructions in some South Asian and African languages, with a focus on Hindi and Ciluba. In particular, the paper is concerned with the RG claim that 'the Relational Network of every passive clause in any human language has a nominal bearing the 2-relation and the 1-relation in successive strata' (Perlmutter & Postal 1983).   Data are presented which not only challenge this claim but also have far-reaching implications for relational laws resulting therefrom, viz. the Agreement Law, the Chômeur Law, and the Stratal Uniqueness Law.   The implications of the data for relational concepts such as 'Terms' and 'Chômeur' are also discussed.   It will be suggested that the theory modify its claim, laws and concepts so as to accommodate the data presented here and elsewhere in the literature on South Asian (e.g. Mohanan 1990) and African languages (e.g. Bresnan and Mchombo 1989).

MULTILINGUALISM AND SOCIAL IDENTITY:
THE CASE OF SINGAPORE

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Within the Acts of Identity framework (Le Page & Tabouret-Keller 1985), speech acts are seen as acts of projection. Through language speaker projects their identity, their inner universe, and shape it according to the behavioral patterns of the groups with which they wish to identify. Drawing on this framework a questionnaire was designed to determine how multilingual speakers in the Singapore context express their social identity through language; how they relate to their languages; and how they perceive various English accents to which they are exposed. In this paper the results of this questionnaire are discussed. It is found that speakers in the Singapore context express their social identities through a number of linguistic means, ranging from Singapore English continua (acrolect, mesolect, basilect), through ethnic languages (e.g. Malay, Chinese, Tamil), to language contact phenomena such as code-mixing and code-switching. Also, it is found that despite the high prestige associated with British and American English accents, multilingual Singaporians relate more to local Singapore English accent than to the former accents, since the local accent projects their identity as Singaporeans.

ANALOGY AS ARGUMENT IN ĀDI ŚAŃKARA

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Ādi Śaṅkara comes at the end of a long tradition of text-interpretation (artha-nirdhāraṇa) that formally began with Yāska (9th century B.C.) and culminated in Kumārila Bhaṭṭa (6th century A.D.), and in the course of which a rigorous system of interpretation (śāstra paddhati) developed which was common to the three major contending Schools (sampradāya) — the Brahmin, the Buddhist, and the Jaina — and which came to define India as an interpretive community. This paper, while examining Ādi Śaṅkara's exegetical practice as a superb representation of this shared system, centers chiefly on one of the major modes of interpretation in Śaṅkara — the analogy as metarule. The textual indices where Śaṅkara invokes analogy are first identified and then followed up with a listing, a typology, and a structural analysis of Śaṅkara's similes. Their role and place in the total argument, relative to the other nine instruments of interpretation in the Paddhati — verbal testimony, meta-assumption, coherence, metarules, grammar, etymology, four levels of meaning, and verbal symbolism — is next examined and defined. The object text for this analysis will be Śaṅkara's celebrated Vivekacuḍāmaṇi, though supportive materials will also be drawn from the Śaṅkara-Bhāṣya and some of his upaniṣad-commentaries. Finally, Śaṅkara's use of analogy as argument will be placed in the context of India's traditionally preeminent epistemological status of analogical reasoning since the Ṛg-Veda itself.

REFLEXIVE PRONOUNS IN VEDIC

Madelyn J. Kissock
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In this paper, I explore the syntactic and semantic features of reflexive pronouns in Vedic Sanskrit. The focus will be on the possessive reflexive *svá* and the indeclinable *svayám*. Using data collected from the Ṛg-Veda, as well as from earlier prose (Taittirīya and Maitrāyanī Saṁhitās), I examine the antecedence relationships of these anaphors in light of current binding theory, while keeping in mind the traditional accounts of Delbrück, Wackernagel, and others. (Delbrück (1888), for example, notes that both *svá* and *svayám* may be coreferent with substantives other than those which occur in subject position.) The paper also focuses on the particular properties of *svayám* which appears to have two possible functions — a simple emphatic or a true reflexive substantive which can occupy an argument position. For these functions, questions of word order and movement (that of extraposition site) are addressed.

An analysis of this type should provide enough comparative data to support my claim from an earlier paper that *tanū́* is not a reflexive, contrary to the assertion made in most, if not all, scholarly works including Delbrück, Mayrhofer, Grassmann, and Wackernagel. As a related topic, the functional purpose of reflexives with regard to active/middle voice distinctions is discussed. In addition, possible argument structure differences between 'benefactive' and 'passive' middles are described.

I hope that the conclusions drawn in this paper will provide some further insights into Vedic sentence structure and the function of reflexives.

ISSUES IN TRANSLATING TAMIL PURANAS

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In this paper, I present some of the problems I have encountered in translating Medieval Tamil Puranas as well as the solutions for them that I have come up with. I focus my discussion both on general aspects of form, style, and tone, and on specific problems that are particular to the Tamil language and the genre of the Purana. The following verse from the Koyil Puranam of Umapati Civacariyar illustrates some of these issues.

The great young sage walked through the forest
    where the ceaseless recitation of the four ancient Vedas
resounded like the ocean. He passed by marshes
    of kuvalai flowers whose scent is spread by young bees
that eat the dripping honey. He saw a tank,
    which removes all bondages, full of golden lotus flowers.
He praised the tank with his mind refreshed
    as tears poured forth from his eyes.

One problem is that of format. The original text is in verse and full of elaborate descriptions. The above translation is in strict prose order with normal punctuation. However, I have set it in the form of an eight line stanza to break up the long and flowery sentences into shorter units that are easier to follow. Also, the use of the stanza form lends a rhythmic structure to the translation that makes it seem more like verse, while maintaining the flow of the narrative. In this way I hope to combine the artistry of poetry with the clarity of prose.

Another consideration is to represent the philosophical orientation of the author, who in this case was a major theologian of the Saiva Siddhanta school.

I discuss these and other problems in detail in the paper, such as knowing who did what and with which to whom.

AGAINST WH-MOVEMENT IN HINDI

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It is well known that Hindi does not have S-Structure wh-movement (cf. Davison 1986; Mahajan 1987; Srivastava 1989). The question then arises whether Hindi has LF wh-movement of the sort suggested for Chinese and Japanese (Huang 1982; Lasnik & Saito 1984). In this paper, I suggest that Hindi does not have wh-movement to SPEC of CP at any level of representation. I argue that wh-in-situ in Hindi (and possibly in general) is treated like a clause-bound quantifier at LF and simply undergoes quantifier raising. I further argue that QR and LF is clause-bound. This general property of QR along with the assumption that Hindi does not have any move-ment to SPEC of CP yields a variety of consequences for the syntax of wh-questions in Hindi.

One of the consequences of the theory that is outlined above is that it automatically explains the ungrammaticality of (1):

(1) *raam-ne   socaa   ki mohan-ne   kis-ko dekhaa
    Ram-erg   thought that Mohan-erg   who   saw
    Intended as: 'Who did Ram think that Mohan saw?'

If QR is local then at LF the wh-phrase in the embedded clause will be trapped in the lower clause. This will lead to a selectional vio-lation since the embedded comp which is −wh will govern a wh-phrase. However, if the wh-phrase is moved out of the embedded clause at S-structure, the resulting sentence is no longer ill-formed (cf. Gurtu 1985):

(2) kis-ko   raam-ne   socaa   ki mohan-ne   dekhaa?

This result is yielded under my analysis because S-Structure scrambling of the wh-phrase (cf. Bains 1988; Mahajan 1990) has moved it to a position from which it can QR to adjoin to the matrix IP at LF. This theory then does not require wh-movement at S-struc-

ture for Hindi as suggested by Gurtu (1985). I discuss a number of other factors concerning multiple extractions that support this view.

I also suggest a new approach to *kyaa*-questions explored in earlier studies such as Davison 1986, Mahajan 1987, and Srivastava 1989. I suggest that the subordinate clause in a Hindi *kyaa*-question is base-generated adjoined to IP. The *kyaa*-expletive (associated with this base-generated adjoined clause) is generated as a complement to the verb. This particle undergoes QR at LF to adjoin to IP. I suggest that this expletive is replaced at LF by the associated clause. This gives us a configuration in which the wh-phrase is governed by the matrix +wh COMP. This approach to *kyaa*-questions also yields a number of interesting consequences in Hindi syntax, some which are explored in this paper.

On the basis of the framework developed in this paper, I explore the question of whether this approach can be extended to other languages with wh-in-situ. I provide some evidence that wh- in-situ must in fact be treated in a unified manner in all languages.

SANSKRIT REDUPLICATION:
A TEMPLATIC APPROACH

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Recent studies of reduplication processes suggest that reduplication involves the affixation of a templatic prosodic unit to the stem as a reduplicant. This reduplicant derives its segmental melody from the stem through a process of directional templatic association. The Sanskrit intensive reduplication provides an interesting case of what seems to look like discontinuous association. If directional association to a template is assumed to be free of specific rules and conditions, then this instance of discontinuous association poses serious problems for a templatic approach to reduplication. It would appear that there is no way of predicting what the reduplicant would be. However, this paper argues that it should not be analyzed as a case of discontinuous association but rather another instance of Edge-In directionality at work, not very different from other instances where Edge-In directionality is used (for example in the templatic morphology of Arabic, cf. Yip 1988).

Sanskrit intensives are formed by adding a prefix to the root. The prefix seems to be a reduplicating affix since it is based on the root it attaches to and derives its segmental melody based on it. This reduplicant is monosyllabic and is minimally heavy and thus bimoraic in my terms.

The intensive form of a verb like *krand* 'cry' in Sanskrit is *kan-i-krand* and not **kran-i-krand*. Similarly, the reduplicated intensive form of a verb like *kriid* is *kai-kriid* and not **kar-kriid*. Steriade (1988) proposes an account for these kind of facts for partial reduplication followed by processes of pruning of sorts to derive the reduced form of the reduplicant intensive prefix. Full reduplication copies both the segmental information and the prosodic structure that goes along with it. Assuming all the other phonological rules to be the way Steriade proposes them, my proposal is to derive these

forms within a templatic association approach using Edge-In while satisfying the template.

Specifically, I suggest the use of a bimoraic template for the intensive reduplicant in Sanskrit. Association to the template takes place with Edge-In directionality and is assumed to be free. The kind of Edge-In that I use is left to right at the left edge and right to left at the right edge and then left dominant. The aim is to claim that Sanskrit reduplication can be handled elegantly within a templatic association approach and that a full reduplication approach is unnecessary and in fact undesirable, since it has to resort to specific rules and conditions to first create a form that is then severely pruned.

MEET ME IN THE BAZAAR:
A HISTORICAL PERSPECTIVE
ON THE ORIGIN OF A NORTH INDIAN KOINE

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Bazaar Hindustani is a contact language in wide currency throughout North India. It has been described by various authors as a pidgin or pidginized variety of Hindi-Urdu. This claim seems to be based on the fact that Bazaar Hindustani shows a noticeable degree of structural 'simplification' and that it is a language of interlingual contact and trade. The term pidgin, however, carries with it certain connotations of power relations that these same authors recognize as inapplicable to BH. The result is a call for the re-definition of pidgin and a neglect of koine.

Previous studies have been unable to properly 'label' Bazaar Hindustani as a koine because they have been too narrow in their scope. Earlier authors have been largely concerned with the task of describing individual geographical varieties, thus neglecting both the supra-regional character of Bazaar Hindustani and its historical depth.

In this paper I attempt to widen the scope of the study, both geographically and historically. I begin by briefly comparing the varieties of Bazaar Hindustani spoken in Calcutta and Bombay to show that a single-origin account is necessary for these (and presumably all) varieties. Then, looking at British accounts of language and language use in North India from the late 18th and early 19th centuries, I show that Bazaar Hindustani most likely originated as a koine of the Moghul Empire and competing kingdoms.

SOCIOLINGUISTICS OF VERBAL ABUSE IN HINDI

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This paper attempts a sociolinguistic description and analysis of the language of abuse in Hindi, which has not received adequate scholarly attention to date. The institutionalized verbal behavior in the context of abuse has been analyzed both formally and functionally. It is examined with reference to both use and user. Among various types of popular abuse in Hindi, sex abuse, kin term abuse, animal abuse (particularly in the light of Leach's formulations), and metaphorical abuse receive special attention. The words of abuse are employed for a variety of purposes, such as insult, curse, contempt, challenge, and endearment. They are used to give vent to one's anger, irritation, annoyance — a kind of safety valve. The ritualistic uses of verbal abuse during wedding feasts and festivals like Holi are examined in the context of culture. Terms of abuse have also been classified according to user, such as those restricted to men, women, children, and members of specific occupations and trades. Register mixing and code-mixing in the context of personal abuse assume special sociolinguistic significance. Certain proverbs centering around words of abuse are recalled in the context of culture. It is postulated that the range of Hindi verbal abuse is wide and its pattern complex and of considerable sociolinguistic relevance. It is marked by a remarkable degree of convergence between culturally regulated patterns of behavior — both linguistic and non-linguistic.

TAMIL VERB STEM FORMATION

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The suffixes -kk-, -pp-, -k-, and -p- found in infinitives such as *maṟa-kk-a, maṟa-pp-a, niṟ-p-a,* and *niṟ-k-a* have led to various explanations regarding their origin and description. When compared with infinitives such as *ōṭ-a, var-a, kāṇ-a,* and *pēc-a,* in which the above-mentioned suffixes are absent, the presence of such suffixes, synchronically, does not add any extra meaning to these forms. Therefore they are described as stem formatives', 'extension suffixes', and 'augments'. Earlier discussions which were limited to Tamil, concentrated on the question of whether stems with these suffixes (e.g. *pōku* 'to go') are earlier than the stems without these suffixes (e.g. *pō* 'to go'). Those who believed that the extended stems are original, explained that the stem *āk-* 'to become' has changed to *ā-* by the loss of *k*. This change is correlated to a historic transformation during which an uriccol developed into a viṇaiccol. As far as the suffixes are concerned, it is said that the suffix -*pp*- is earlier than -*kk*-.

With the advent of comparative Dravidian and the diachronic study of Tamil, a new dimension is added to the solution of the above problem. Emeneau's Studies in Dravidian verb stem formation (JAOS 95, 1975) and P. S. Subrahmanyam's Dravidian Verb Morphology (1971) provided more empirical data and brilliant analyses of the verb stems and the correlations between suffixes and their meanings. Emeneau's study concentrated on the Central and North Dravidian languages.

The present paper attempts to make a synchronic, diachronic, and comparative analysis of the so-called stem formative suffixes in Tamil and Malayalam. The verbal forms in which such suffixes are found are analyzed in their syntactic contexts. The aim of the analysis is to find out whether there is a correlation between these suffixes and the meaning of the stems.

As a member of an agglutinative language family, Tamil is rich in stem formation. However, we have only a few studies on this important aspect of the verb morphology. Emeneau's work (1975) which correlates verbal suffixes with voice derivation, plural action, motion, and personal object, sets an examples for future research in this area of Dravidian linguistics.

THE ASSOCIATIVE CASE IN MALAYALAM:
MAKING SENSE OF A CATCH-ALL CATEGORY

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The paper begins by reviewing both the variety of nomenclature for the grammatical case in Malayalam herein referred to as 'associative', and the inadequacy of the descriptions attempted by both traditional and modern scholars.   Those from the Paninian (Sanskrit) tradition limited their descriptions to semantics, ignoring syntactic features completely, while those trained in modern linguistics focussed on syntactic features with little attention to semantics.

I next present an organized description of the associative derived from the analysis of a considerable corpus of data drawn from both spoken and written Malayalam collected over a two-year period, both in India and in the U.S.   It will be first shown that uses divide syntactically into three categories: (i) those required by a postposition, (ii) those selected by a full verb, and (iii) those conditioned by the related noun cooccurring with the existive verb.   Secondly, examples are set forth illustrating that semanto-syntactically uses (ii) and (iii) break down into two classes: (a) a small group of verbs which require their patient to appear in the associative in all constructions, and (b) a larger class of verbs which select accusative case for their patient but whose derived noun forces the patient to appear in the associative case in a sentence in a dative construction. I show that this demotion of case of patient fits the principles of Comrie's 'case hierarchy', though one counterexample is shown permitting either accusative or associative.   I next show how class (b) breaks down into subclasses along semantic lines.

Several semantic minimal pairs are next presented showing contrasts between the use of the associative and other cases — contrasts heretofore unreported in either the scholarly or pedagogical literatures.   It is then pointed out that the analysis presented here leads to the conclusion that the traditional scholars were more correct than

has been acknowledged in taking semantics as the primary organizing feature of the associative cases in Malayalam, since it also plays a role in defining subclasses.   On the other hand, a careful examination of the syntactic constraints is equally essential to a fuller understanding of this case and its place in the overall case system of Malayalam and other Dravidian languages.

Finally, the areal aspects of this case are explored by pointing out similarities between the uses outlined for the associative case in Malayalam, representing the Dravidian family, and comparable examples from Hindi-Urdu, representing the Indo-Aryan language family.   It is suggested that, though there are peripheral usages of the postposition *se* in Hindi-Urdu and the associative ending *-ooTu* in Malayalam which differ from each other, there is a large core of common or shared usages which render this seemingly unorganized body of interacting semantic and syntactic features a required addition to the features defining South Asia as a linguistic area.

COMPOUND VERBS IN ORIYA

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Although a lot has been brought to our attention in the last two decades that the normally available inflectional and derivational categories are just not enough to accommodate the wide range of grammatical meaning that the phenomenon of verb concatenation in Indian languages encodes, a little is really available as refined material to be stored and used for the purpose of a data base. As a matter of fact, most analyses do not exploit this proliferation of the morpho-syntactic categories which generally serve as a vehicle for the extension of the grammatical and lexical resources. On the contrary, the ad-hoc taxonomy sometimes employed for document-ation and enumeration of such facts (e.g. Hook 1974 and many of his followers) show minimal application for cross-linguistic data. One such example (appearing in the literature) is the motivation 'to do away with lexical semantics and properties of secondary verbs' (also known as auxiliary verbs and normally occurring at V2 position), by assuming that semantic delimitation is an impossible task (counter to the early attempts of Kachru 1965, Cardona 1965, and many others, for example).

Another such example is the biased convention of accepting the participle-V2 sequence (the non-conjunct type) as the only member for true compounding, an analysis which has neither contributed to the understanding of the function of the invariable semantics of the participle, nor the syntax and semantics of the other type of se-quencing and their roles in compound formation.

The lack of exploration of the lexical semantic has sometimes forced the analysts to draw upon pragmatic explanations when different circumstantial meanings are in competition due to the connective functions of a single secondary verb. Questions of lexical characteristics of V2 and their 'Infl-ish' character are raised again and again — for example by Steever (1983) and Dasgupta (1989, an updated version of 1977 work). This paper aims at reviewing the

available literature with a view to correct the old account, in addition to reviewing and mapping the old analysis of compound verbs in Oriya (an Indic language of Eastern India).   Although this list-reported language does not have a large set of verbs occurring in V2 position, the wide range of compound types that it possesses are of great interest to typologists.   Attempts are also made to relate the quotative (finite verb sequences, also labeled Serial Verbs in Steever 1989) to the prototypical compound verbs by reexamining the sequences 'V-infinitive/gerund + verb', 'V-participle/Advp + verb', and other types of sequencing in the light of grammaticalization and degrammaticalization of V2. Along with contributing to the meaning of the infinitive/gerund or participle construction this also is expected to set up the constituent classes for Oriya compound verbs.

PRONOUNS IN KANNADA:
SOCIOLINGUISTIC IMPLICATIONS

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(New York University)

Since the study of pronouns by R. Brown and A. Gilman, many sociolinguists have analyzed deixis in different societies in various contexts. The purpose of this paper is to make a comparative and contrastive study of pronouns in two dialects of Kannada, a major Dravidian language spoken in South India. The dialects chosen are: the dialect spoken in Bangalore, the capital city of Karnataka State (hereafter Dialect B), and the Havyaka dialect (hereafter Dialect H) mainly spoken in Shimoga District. Dialect B represents highly educated society and people in different occupations. On the other hand, Dialect H represents a simple phase of the society, the main occupation of whose speakers is cultivation.

The present study shows that sex predicts form of address in Dialect H, whereas this is not true for Dialect B. For example, Dialect H lacks a third person feminine pronoun. Moreover, the analysis reveals sociolinguistic changes of pronouns in Dialect B, relating them to the fact that in this society, solidarity and informality have been giving way to power and formality outside the family, while the reverse holds true within the family. For example, youngsters are no longer addressed in the second person singular by elders if they are not familiar to them. In the past, wives never used the second person singular to address their husbands, but now the picture is comparatively relaxed. Dialect H has retained its simple stratification even though speakers are exposed to urbanism.

ON LIBERATING ENGLISH TO BE A WORLD LANGUAGE: AN INDIAN PERSPECTIVE

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(National University of Singapore)

The emergence of English as a world language is in many ways a new phenomenon in human history. We therefore often find a tendency to restrict the form and notion of world-language English to certain outmoded concepts about a world language. English needs to be 'liberated' from these restrictions. In this paper the problem of liberating English will be discussed at two levels — at the level of the cultural resonance of the language and then at the most surface level of its expression, namely the spoken form.

It has been generally accepted that the English language is valuable to India because it is a means of promoting political, economic, and technological interests in the modern world by making available the magnificent centuries of the mind. I argue in this paper that English is valuable to India also because it renders possible the most magnificent expression of the soul of India, which is as multifaceted because of its synthetical and assimilative genius as the English language is in its capacity to express multifarious types of consciousness. But for this to happen effectively, the English language will have to be Indianized not so much in its purely linguistic apparatus but in its inner vibration. It will have to be capable of achieving what ancient Sanskrit was able to achieve as the language of the Vedas, the Upanishads, and the Gita, by acquiring the potentialities appropriate to the magic, mystery, the depth, and the sudden and revelatory reach of the spiritual consciousness.

Secondly, it will be argued that if English is to be a world language in the true sense of this term, we will have to let it develop the way Chinese has — to be accessible to all educated speakers of the language in the written form but not necessarily in the spoken form. The need for internationally intelligible spoken models of English for countries in South Asia is often exaggerated. English is needed more for intranational than for international communication

in these countries.   Since English is being learned through formal schooling by speakers of many diverse languages and often in very difficult circumstances all over the world today, it is unrealistic to insist on internationally intelligible spoken English as a feature of adequate competence in English.   This is a level of attainment best left to a small group of 'brokers'.   Furthermore, English should prove hospitable to the cultural aspirations of the people using it so that their need to feel a certain closeness to it even in the spoken form is not frustrated.

ARTICULATORY AND ACOUSTIC PROPERTIES OF APICAL AND LAMINAL STOP CONSONANTS: A CROSS-LANGUAGE STUDY

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Chomsky and Halle (1968) have hypothesized that laminal articulations have a larger constriction than apical consonants. This paper explores the question of what exactly is meant articulatorily by apical and laminal articulation in Indian languages and then examines the corresponding acoustic differences. In the second part, an attempt is made to determine whether these differing articulatory strategies are consistent within a language or vary according to speaker-specific idiosyncrasies.

A SOCIO-COGNITIVE APPROACH TO DESIGNING A SELF-INSTRUCTIONAL MULTI-MEDIA COURSE IN ENGLISH COMMUNICATIVE SKILLS

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Indira Gandhi National Open University, New Delhi, disseminates education by the distance mode, i.e. by correspondence, printed materials, and audio-video cassettes. This paper studies the various considerations that were made by the team of course writers in designing the course in English communicative skills. Indians need to learn English as a second language to fulfill certain socio-cognitive needs — for communication as a link in a multi-lingual background, as a language of advanced studies, research, and library reference, and for professional purposes in science and technology and in business. The recent advent of information technology in the form of teletext and compunication (computer communication) has made it necessary for Indians in urban settings to be properly cognizant of this.

FUNCTIONAL ARTICULATION:
ANALYZING DIGLOSSIC VARIATION

John C. Paolillo
(Stanford University)

Diglossia is a widespread characteristic of South Asian languages: Many South Asian languages, both past and present, show either strong diglossic tendencies, or long histories of diglossia. South Asia is also a rich example of a multilingual nation, a sociolinguistic 'type' of situation often compared with diglossia. Thus, South Asia provides a perfect opportunity to explore the nature of diglossia, and its relation to multilingualism.

Grammatical description of diglossic (and multi-lingual) situations has been limited to separately describing the varieties involved, or cataloguing a list of differences between H and L. Some recent work, notably Britto 1985, recognizes that diglossic situations are usually much more complex than is suggested by the H and L labels: Individual grammatical features may be manipulated separately to produce particular communicative effects, particularly in functionally intermediate contexts. Britto proposes a notion of 'mutability' to account for such features, an H grammatical feature that is used in some L contexts is 'mutable to L', while an H feature used only in H contexts is 'immutable'.

Britto's approach, however, fails to characterize correctly the language of functionally intermediate contexts, particularly in situations such as Calcutta Bengali (Chatterji 1986), where a minimum of two dimensions of functional and grammatical variation can be observed. In Bengali, lexical choice (Sanskritic vs. non-Sanskritic) corresponds to a dimension of formal vs. informal contexts, and morphophonemics (Sadhu vs. Cholit morphophonemics) corresponds to a dimension of educational vs. non-educational contexts, yielding a total of four grammatically distinct functional ranges. Britto's mutability, with only one dimension of variation between H and L, is incapable of characterizing this situation.

If we resort to the traditional approach of independently characterizing the grammar of each recognizable variety, we are faced with another problem: The number of varieties to be characterized increases exponentially with each feature to be considered. A hypothetical diglossia with eight mutable features would require 64 different grammars.

I propose here an alternative to both the traditional approach and Britto's approach to grammatical description in diglossias, illustrated with examples from two South Asian languages, Bengali and Sinhala. This approach, which I call 'functional articulation', requires all grammatical dimensions of variation in a diglossia to be encompassed within a single grammar. The individual grammatical features that participate in the diglossic variation are associated with distinct functional ranges (they are 'functionally articulated') by associating them with different 'communicative attitudes', components of meaning which refer to contextual parameters such as speaker, hearer, audience, message, etc. Examples of communicative attitudes are 'public' (intended to reflect immediate personal involvement of the speaker), and 'edited' (intended to reflect prior consideration of the speaker). Different contexts select for different attitudes according to social norms so that, for example, in a public speaking situation, grammatical features possessing 'public' and 'interactive' communicative attitudes would be selected.

Thus, functional and grammatical description are integrated in this approach for a richer understanding of diglossic variation than is possible with either the traditional approach, or with Britto's notion of 'mutability'. Using communicative attitudes that refer to group membership allows one to make an account of multilingual situations where the different languages share a great deal of structure (e.g. Hindi and Panjabi). Thus, with functional articulation, it is possible to cast an account of the differences between diglossia and multilingualism, two important types of language situations in the linguistic environment of South Asia.

REFERENCES

Britto, Francis. 1986. Diglossia: a study of the theory with application to Tamil. Washington, DC: Georgetown University Press.

Chatterji, Suhas. 1986. Diglossia in Bengali. South Asian languages:
    Structure, convergence, and diglossia, ed. by Bh. Krishnamurti et
    al. Delhi: Motilal Banarsidas.

TELUGU NEGATIVES AND NON-CAPABILITATIVES: MORPHOLOGICAL STRUCTURE AND SYNTACTIC STRUCTURE

Rosanne Pelletier
(Yale University)

This paper analyzes the syntactic structure properties of two negative constructions in the Dravidian language Telugu. I demonstrate the non-concatenative fit between the levels of morphological structure and syntactic structure and give a historical account of the rather quirky syntactic structure facts. In (A) we see that the negative morpheme *lee-* is used in both the non-capabilitative and the past negative constructions. Morphologically (1) and (2) differ in that while the non-capabilitative *lee-* agrees with the subject *nuwwu*, the past negative *lee-* does not. Both negative constructions are mono-clausal; the difference in agreement stems from the different morphological structures of the two negative constructions. Since the target of agreement is the first predicative word to the right, it is clear that the components of the complex predicate *ammalee-* 'cannot sell' in (1) are treated as a single unit in terms of morphological structure. On the other hand, *amma* and *lee-* in (2) do not constitute such a predicative word; the agreement target in (2) is *amma*, which as an infinitive, cannot carry agreement features; *leedu* carries default features.

While in terms of morphological structure, the non-capabilitative and the past negative constructions differ from each other, in terms of syntactic structure the two constructions behave exactly alike. For example, the emphatic clitic *-ee* can be attached only to the highest projection of a lexical category, as we see in (3a) and (3b). This cliticization pattern, as well as the lack of a VP node, are two syntactic-structure features which Telugu shares with its sister language Malayalam (Mohanan 1982). In (4a) and (4b), then, we see that *-ee* can be attached to both *amma* and *leedu*, which is hardly surprising in view of their behavior as separate predicate units with respect to agreement.

The facts in (5) show that the components of the morphologically complex non-capabilitative *amma-lee-* 'cannot sell' can also both be cliticized, indicating their status as separate syntactic constituents.   Thus the elements of the non-capabilitative construction, while unified in morphological structure, are discrete in syntactic structure.   The disparate structures of the non-capabilitative construction, while striking, are not problematic under the assumption that morphology does not 'feed into' syntax (see e.g. Sadock 1991). Its dual structure IS puzzling, however, when compared with the capabilitative structure.   In (6a) and (6b) we see that *amma-gala-* 'can sell' functions as a complex predicate with respect to both levels of structure.   We see then that the disparate structures of *amma-lee* do not constitute a random mismatch between morphological structure and syntactic structure; rather, this mismatch indicates properties specific to negative structures.

In fact, these syntactic negative constructions are an innovation of Modern Telugu (Mahadeva Sastri 1969).   The innovated negative forms were grafted onto the Serial Verb pattern which, although extremely restricted in Modern Telugu, is shown by Steever (1987) to be a prominent pattern in the proto-language.   Based on historical and comparative evidence, Steever gives precisely the same analysis of negative constructions in Dravidian that syntactic structure tests induce us to give for the Telugu forms: These are morphologically defective Serial Verbs.   This analysis predicts exactly those constituent-structure facts that we find: the syntactic-structure/morphological-structure divergence in the non-capabilitative, as well as the status as discrete syntactic constituents in the non-capabilitative but not the capabilitative.

A.   NEGATIVE FORMS

    (1) Non-capabilitative:

nuwwu	aa	pedda	illu	amma	lee-wu	
you-sg	that	big	house	sell-INF	neg-2sg	

       'You CANNOT sell that big house.'

    (2) Past negative:

nuwwu	aa	pedda	illu	amma	lee-du	
you-sg	that	big	house	sell-INF	neg-3sg	neut

       'You DID NOT sell that big house.'

B.   CLITICIZATION

    (3) Non-syntactic constituent:

       a.   [aa   pedda   ill   ]-ee
           [that   big   house   ]-EMPH

    b.   *[aa   pedd-ee illu]
           [that   big-EMPH house]

(4) Past negative:

    a.   nuwwu aa pedda illu   amma   lee-d-ee
        you-sg that big house   sell-INF   neg-3sg neut-EMPH
        'You did NOT sell that big house.'

    b.   nuwwu aa pedda illu   amm-ee   lee-du
        you-sg that big   house sell-INF-EMPH neg-3sg neut
        'You did not SELL that big house.'

(5) Non-capabilitative:

    a.   nuwwu aa pedda   illu   amma   lee-w-ee
        you-sg that big   house   sell-INF   neg-2sg-EMPH
        'You CANNOT sell that big house.'

    b.   nuwwu aa pedda   illu   amm-ee   lee-wu
        you-sg that big   house   sell-INF-EMPH neg-2sg
        'You cannot SELL that big house.'

(6) Capabilitative:

    a.   nuwwu aa pedda   illu   amma   gala-w-ee
        you-sg that big   house   sell-INF be able-2sg-EMPH
        'You CAN sell that big house.'

    b.   *nuwwu aa pedda   illu   amm-ee   gala-wu
        you-sg that big   house   sell-INF-EMPH neg-2sg
        'You can SELL that big house.'

REFERENCES

Bresnan, Joan (ed.). 1982. The mental representation of grammatical relations. Cambridge: MIT Press.

Mahadeva Sastri, Korada. 1969. Historical grammar of Telugu. Tirupati: Sri Venkateswara University.

Mohanan, K. P. 1982. Grammatical relations and clause structure in Malayalam. Bresnan 1982.

Sadock, Jerrold. 1991. Autolexical syntax: A theory of parallel grammatical representations. Chicago: University of Chicago Press.

Steever, Sanford. 1987. The serial verb formation in the Dravidian Languages. Delhi: Motilal Banarsidass.

SAMMELANI HINDI AND MALVIYA HINDI: LANGUAGE AND POLITICS IN INDIA BETWEEN 1875 AND 1930

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The struggle for Hindi from about 1870 to 1930. Our story starts from the 'Court Character' or Nagari controversy of the last decades of the nineteenth century and culminates in the contentious acceptance of Hindi as 'the national language'. This is a long and extremely complex story. In microcosmic form, it is the story of the transformation of the national movement — the transformation of the Congress Party from a bunch of Anglicized memorialists waiting upon the pleasure of the colonial masters, into the mass instrument of Gandhi. This is a stirring history, but we are now becoming increasingly sensitized to the ambivalences and the complexities of these developments. Thus, historical phenomena are multivalent, and different aspects become salient in different historical periods. Initiatives that appear bold and creative in an earlier period may be found to be the carriers also of some of the seeds of our present problems. Thus, at some point, through processes that will bear thinking about, the 'democratic' struggle for Hindi modulates into the formation/assertion of a Hindu nationality — i.e. the communalization of politics. And this troublesome communalization is itself only a subset of that process of the vernacularization of politics of which the struggle for Hindi is an integral part. Further, in all this process, it isn't only the external context of Hindi that is changing, or even Hindi's own angle of intervention — the svarupa of the language is itself being redefined, so that the language that Malaviya is agitating for in the closing decades of the nineteenth century has little resemblance to — or important differences from — the Sammelani Hindi that becomes triumphant in the 1930s.

THE CATEGORY OF NOMINALS IN BANGLA

Gillian Ramchand
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Bangla nominals are interesting for a variety of reasons.   The ways in which common nouns interact with plurals, definiteness and case-marking seem to indicate a split in type between animates and nonanimates.   (I will use this terminology even though the split isn't strictly inanimate vs. animate.   It seems to be a difference between one privileged group of animates versus all other nominals.)   Moreover, it is quite difficult to articulate the effect of these morphological affixes in the language in a way that would be coherent for both types.   The aim of the paper is to lay out some of the problems in defining their denotations.

I discuss the properties of the animate and inanimate nouns with respect to three main classes of phenomena: semantic interpretation (i.e. possibilities of definite and/or generic meanings and scopal interactions), the interaction with the determiner system with respect to the above semantic properties, and case marking.

Readings for inanimate nouns cannot be definite unless they have a 'definiteness' clitic attached to the end of the noun.   In general, bare inanimate nouns can have both indefinite and generic meanings.

(1) a.   Ami   am-ṭa   kheyechi
        I-NOM   mango-DEF   eat-PERF PAST 1st
        'I have eaten the mango.'

     b.   Ami   am   kheyeche.
        I-NOM   mango   eat-PRES PERF 3rd
        'I have eaten mangos (one or more).'

Animate nouns cannot in general take singular definitive enclitics.   In bare form, they can have definite or indefinite readings.

In object position, a definite reading must be accompanied by an accusative case marker.

(2) a.   Śe   meye   dǽkho
          s/he-NOM girl   see-PRES 3rd.
          'S/he sees girls (one or more).'

     b.   Śe   meye-ke   dǽkho
          s/he-NOM girl-ACC   see-PRES 3rd.
          'S/he sees the girl.'

Just as the definite clitics may not appear on animates, the accusative case-marker cannot appear on inanimates in object position.

Besides patterning differently with respect to definite markers and accusative case, these two noun classes also have different morphological requirements in numerical quantification, and with respect to plural marking.   But in addition to this 'morphological split', animates and inanimates have different scopal properties with respect to other quantifiers in a sentence. Thus, it appears that with inanimates in the bare unmarked form, only the narrow-scope reading is possible.   With the animates, the situation is rather different.   It is possible to get both the wide-scope and the narrow-scope readings for this kind of nominal.

Thus, there are striking differences between the meanings of inanimates and the meanings of animates in the same contexts, which parallel the split in morphological selection processes.   The claim one would like to make is that these differences are not arbitrary, but reflect a fundamental difference in the denotation of these two classes of nominal.

The problem this paper addresses is twofold: (i) How do we understand the denotation of the nominal category in Bangla, so that the possible semantic readings and their interaction with the so-called determiner system can be systematically derived? (ii) How do we represent the split in behavior between the human/animate and nonhuman nominals in Bangla within a denotational system of this kind?

The analysis this paper offers is to say that the animate/human nominals are actually different from the inanimates in that they can represent atoms in a 'count' domain (in the sense of Link 1983), whereas the latter must be seen as representing atoms in a 'mass' domain lattice.   I present evidence for this position, and consider its

implications for argument structure and case-marking in this and related languages.

COORDINATION AND WORD ORDER

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An interesting facet of coordination in Kannada is the degree of manifestations of agreement features on the verb. This paper focuses on the relation between word order and agreement in coordination in Kannada. Agreement in terms of number and person is unaffected by word order. However, agreement in terms of neuter and ±human features is dependent on word order. (1) and (2) are typical of examples where the verb agrees with the noun phrase closest to it with respect to the human feature, but where agreement in terms of person and number are not affected by proximity to the verb.

(1) banDiyu aaLugaLu   bandaru
    cart   workers   came
    3sg neut 3pl   3pl nonneut
    'Cart and workers came.'

(2) aaLugaLu   banDiyu   bandavu
    3pl   3sg neut   3pl neut
    (T. N. Srikentiah 'Kannada Madyama Vyadarana')

A GPSG analysis of the above facts is provided.

THE PURE VOWELS OF PUNJABI

Kamlesh Sadanand
(University of Hyderabad)

In standard colloquial Punjabi spoken in different parts of the State of Punjab there are ten pure oral vowel phonemes. Some of these have the potentiality of occurring with heavy nasalization even if there are no nasal consonants in the syllables in which they occur.

The aim of the paper is twofold:

(i) to ascertain the precise phonetic quality of each of these vowels with the help of spectography. The KAY Elemetrics Sona-Graph, 6061B, is used to study the formant frequencies, particularly the first and second formants of each of these ten pure oral vowels. With the help of the logarithmic graph suggested by Joos (1945) and Ladefoged (1975), the tongue positions of the vowels are ascertained.

(ii) to examine the formant frequencies of the nasalized vowels to see if the phenomenon of nasalization has any considerable influence on the formant frequencies of the vowels.

I also examine the degree of nasalization in the case of phonemically distinct nasalized vowels and compare it with the degree of nasalization in the case of oral vowels which are accidentally nasalized because of their occurrence in proximity with nasal consonants. This experiment is done with the help of an electro-aerometer connected to a mingograph.

MALAYALAM SYLLABIFICATION

Suchitra Sadanandan
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Syllabification in Malayalam presents an interesting problem. On the one hand, Malayalam seems to prohibit codas but, on the other hand, generalizations in distribution can only be captured if codas are allowed (Tara Mohanan 1989). Tara Mohanan presents one possible explanation for the puzzle. She argues that in a lexical model of phonology the paradox is the result of the difference in wellformedness conditions holding at the different levels. Such an analysis, while being descriptively adequate, opens the door to a potentially unrestrained exploitation of constraints which might result in explanatorily inadequate grammars.

In this paper, I present an alternative way of analyzing syllable structure in Malayalam, an analysis which rejects the unconstrained interpretation of wellformedness conditions that Tara Mohanan adopts. My analysis uses as its basis some of the insights into syllabification that a Government Phonology approach (e.g. Jonathan Kaye 1988) offers. The proposed analysis shows that the paradox in Malayalam syllabification is only an apparent paradox, one that does not exist if we distinguish between word-internal codas and word-final ones. This distinction is not a mere stipulation, but is a consequence of adopting the principle of coda licensing, a crucial part of a government approach to syllable structure (Kaye 1989). This approach to Malayalam syllabification not only resolves the above-mentioned paradox but also helps to advance a unified account of diverse phonological processes in Malayalam, namely epenthesis, stem-initial gemination, stem-final gemination, and lenition.

ON CHANGE AND VARIATION OF (ḷ) IN KANNADA

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This paper attempts to study the change and variation of (ḷ) and other related sounds in Kannada inscriptions during the period A.D. 450 to 1100. It has been claimed by Narasimiah (1941) and Gai (1946) that intervocalically *l → ḷ*, and in the case of consonant clusters *lC → rC → CC*, eventually leading to the loss of *ḷ*. However, a closer look suggests that a series of splits and mergers took place in the sounds *l, ḷ, r,* and *ḍ* during the period under consideration. The details of the various splits and mergers are outlined in the present study.

The data for the analysis have been drawn from a computer database of Kannada inscriptions created on the Macintosh. The database has been scanned for all potential and possible occurrences of the variable. A multivariate analysis has been done using Gold Varb 2.0 to determine the role of different linguistic environments and social-geographical factors in the use of the variable.

ASSESSING ŚABARA'S ARGUMENTS FOR THE CONCLUSION THAT A GENERIC TERM DENOTES JUST A CLASS PROPERTY

Peter M. Scharf
(University of Pennsylvania)

In the Ākṛtyadhikaraṇa, Śabara argues that a generic term denotes just a class property and not an individual. He argues vigorously to refute the view upheld by Pāṇinians and many Naiyāyakas that a generic term denotes both. The first of two arguments is by concomitant presence and absence. It depends on the doubtful example of the term *śyenacit* (falcon altar) adduced as evidence of a generic term whose use is followed by cognition of a class property and not of an individual. Hence, the argument fails. The second argument is based on the limitation composed by virtue of adopting presumption (*arthāpatti*) as part of the means to determine what a word denotes. That limitation is that if one can account for cognition of the individual otherwise, one cannot presume that the word denotes it. According to Śabara, however, the manner by which a listener arrives at cognition of an individual, in each instance of understanding a sentence using a generic term, requires the same condition. Hence comprehension of each sentence and determining that a word has the capacity to denote are equally based on presumption. Hence this argument too proves faulty.

THE VEDIC CLAUSE-INITIAL STRING
AND UNIVERSAL GRAMMAR

Steven Schäufele
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One of the distinguishing characteristics of Vedic as opposed to later periods of Sanskrit is what Hock (1982 and elsewhere) has called the 'clause-initial string'. This string constitutes a 'landing site' for a variety of syntactic phenomena, including topicalization, the placing of 'sentential particles', and the fronting of various pronominals, including but not limited to clitics and 'wh-' words. Attempts have been made (e.g. Hale 1987) to describe some of these phenomena within an 'orthodox' version of the Revised Extended Standard Theory based primarily on English and to some extent on other modern Western-European languages. But it has become increasingly clear that such attempts create more problems than they solve.

In this paper I discuss these problems and show that they are susceptible of plausible solutions if we allow our theory of Universal Grammar to be adjusted by the consideration of data from languages originating within the Indo-European stock but outside of modern Western Europe. In the process, I argue that COMP is less a linguistic universal than a coalescence of several features which some languages keep distinct; that particle placement is best treated not as a syntactic phenomenon at all but as a local transformation at PF; and that both lexical topicalization and lexical adjunction must be allowed. And I show that these adjustments do much less damage to the theory than more 'orthodox' attempts do to the data.

SEMIO-LINGUISTIC ASPECT OF DHVANI SIDDHĀNTA

Krishna K. Sharma
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Literature is semiotic transposition of poetic impulse grounded in and through the language. Ānandvardhana, in his celebrated work Dhvanyāloka, deals with the methods, both linguistic and semiotic, underlying the transfer of the linguistic structure from the grammatical level to the semiotic level conveying the poetic message.

Ānandvardhana for the first time categorically stated that the poetic message imbued in the linguistic structure is derived with the help of the features rendering it a semiotic importance, and this thinking leads to the semiolinguistic perspective of the theory. This is perhaps the least attended to, yet most significant issue of Dhvani Siddhānta.

Ānandvardhana concerned himself with poetic structure at the level of discourse, a level much higher than that of the word or that of the sentence, although these are vital ingredients.

The analysis of the grammatical level of the discourse is not sufficient to obtain the poetic message. It has to be considered in the light of features which illuminate it with semiotic value.

There are a number of notable commentaries on Dhvanyāloka, but none has strived to bring out this significant aspect of this masterpiece. The problem of the transfer of discourse from the lower level of meaning to the higher level of significance, which is the major principle involved in the development of this theory, has not been addressed.

The different contexts, giving rise to different grammatical structures, color them with specific semiotic values. The choice of words and their placing in the structure is directed and controlled by the semiotic features. Each of the linguistic items functions in the specific contextual milieu. In bringing out the poetic message,

Ānandvardhana lays necessary balanced weightage on both of the dimensions, i.e. linguistic and semiotic.

In this paper, I bring out this aspect of Dhvani Siddhānta, which has not received due consideration from the scholars of this work of the great master.

NAMING AND EXPRESSING OBJECTS IN PĀṆINI

Rama Natha Sharma
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The Aṣṭādhyāyī of Pāṇini, as a grammatical device, manipulates naming and expressing as tools to denote grammatical and notional relations between nominals on the one hand, and the action on the other. This paper briefly outlines the main characteristics of this device, preparatory to a detailed analysis of naming and expressing the object (karman). An attempt is then made to explain various types of objects as they have been discussed by the tradition. But the basic purpose of this paper remains to deal with the nature, and problems of representation, with possible resolutions, especially as they relate to karman named and expressed. While no attempt is made to compare the Pāṇinian system of naming and expressing with similar techniques in other formal systems, my findings may very well form a basis for such a comparison.

THE AESTHETICS OF PLAY IN PUNJABI FOLKLORIC
TRADITION

Atamjit Singh
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The religious culture of India revels an exceptionally rich diversity of cultural activities permeated by the spirit of play. The play is usually associated with childhood, but a line of development can be traced from the infantile phase, though childhood and adolescence, to maturity. It begins as spontaneous pleasure seeking activity of the infant. The root $l\bar{a}s$ in Sanskrit would appear to refer to playing in its primal form; it combines the meaning of shining, sudden appearance, sudden noise, blazing up, moving to and fro with irrepressible playfulness, — Blakes' delight. But it has been often noticed by the psychologists after observing young children that play is not all pure pleasure, not the equivalent of the adult's recreation or recovery of the repressed unconscious.

As the child grows up, the spontaneous manifestations of play become increasingly structured. The play activity as such can be placed within the polarity of turbulence and order or spontaneity and contest. This metamorphosis of impulsive play into a cultural institution, with rules, conventions, and highly trained personnel is a FORMATIVE PROCESS. In Sanskrit, the usual term for play among children is $kr\bar{\imath}da$. It also refers to gaiety, hopping, skipping, or dancing, and it approximates to the root $n\underline{r}t$ which is applied to the whole field of dance and drama. Looked at philologically, Indian play terms are linked with one another since ancient times.

A salient feature of Punjabi life and culture is the play element transformed into different aesthetic and cultural configurations and manifests itself in diverse forms in the literary and cultural life of the people of Punjab. Some basic patterns of play in their aesthetic forms is discussed in this paper.

A SITUATION-TYPE ANALYSIS OF COMPOUND VERBS

Mona Singh
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Compound Verbs (CVs) have been said to have aspectual content (Porizka 1969), but most research on them has been into their non-aspectual functions.   Recent literature on the aspectual function of CVs has been restricted to the emergence of CVs and the statistical analyses of CVs in CV-rich and CV-poor languages (Hook 1988). Attempts have also been made to provide percentages of the oc-currences of various CVs in Hindi and their correlation with their position in the paragraph (Hook 1989).

According to extant analyses the function of CVs is merely to EMPHASIZE the perfective aspect (Hook 1989). But this view does not provide a convincing explanation of the distinction between sentences (1) and (2) below, both of which have the perfective aspect.   A complete and exhaustive analysis of the aspectual function of CVs must provide general rules that can account for the Compound Verb : Simple Verb dichotomy.

(1) hamne   kitaab   paRhi
     we-ERG   book   read-PERF
     'We read the book.'

(2) hamne   kitaab   paRh   li
     we-ERG   book   read   take-PERF
     'We read the book entirely.'

This paper is an extension of work reported in Singh 1990. It pre-sents an analysis of CVs as markers of telic situation types and of their interaction with the perfective aspect.   Sentences describing telic events (achievements and accomplishments) obligatorily have CVs focusing on one of the following: INITIAL ENDPOINT, FINAL END-POINT, RESULTANT STATE and ENTIRE EVENT. Sentences describing atelic events (activities) and states, however, can only have a simple verb. Of primary importance here is the aspectual class or situation type of

the event.   Sentences with the same verb can fall into either the telic or the atelic class.   For example, sentences (1) and (2) both have the same verb 'to read'.   However, the situation type of (1) is atelic, since it is an activity without any endpoint, while the situation type of sentence (2) is telic, since it has a natural final endpoint.   Compound verbs are a mechanism for capturing the telic nature of the event.

In this paper, I present a simple explanation of why CVs must be used in some sentences and not in others.   The situation-type analysis of CVs also provides a very natural explanation for the non-acceptability of CVs in sentences expressing negation and progression.   I also discuss the implication of this analysis for the pragmatic factors associated with CVs.   Briefly, the situation-type analysis not only provides a simple rule for the semantics of CVs, it also makes the pragmatics of CVs understandable.

REFERENCES

Hook, Peter.   1988.   On the emergence of perfect aspect in Indo-Aryan.   10th South Asian Languages and Analysis Roundtable Madison.
-----.   1989.   Determining thresholds for the emergence of perfective aspect in Indo-Aryan languages.   CLS 11:3.239-261.
Porizka, Vincec.   1969.   On the perfective verbal aspect in Hindi (concluded).   Archiv Orientalni 37.345-364.
Singh, Mona.   1990.   The aspectual content of compound verbs.   Eastern States Conference on Linguistics.

DRASTIC MODERNIZATION OF THE CURRICULA OF THE TEACHER TRAINING COURSES

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A sizable population of the deprived children throughout the world, including the immigrant children from third-world countries to industrialized countries like Germany, the USA, etc. are 'out of school' or poor scorers at the schools, the result of which is an ever-increasing number of adult illiterates producing an inefficient work force.

The research being conducted by this institute through three experimental primary schools with children belonging to the nomadic tribes, denotified tribes, and scheduled castes (formerly known as untouchables) reveal that the teacher, who is the pivot around which the entire education revolves, is primarily responsible for this pathetic state-of-affairs because of deficiencies in the teacher training curricula. The middle-class teachers have no knowledge of the social heritage of the deprived children, which in turn prevents them from understanding the issues pertaining to the unpreparedness of the deprived children to meet the challenges of the middle-class biased school when they enter at the age of 6+ and to take remedial steps. The lack of preparedness arises out of the fact that the deprived children, on entering the class at the age of 6+, find a discontinuity between their home subculture and home language on one hand and the variety used at the school on the other hand. The middle-class biased teachers blame the children for their so-called 'deficiency' and condemn them as uneducable. The negative attitude of the teachers towards the deprived children induces/encourages the middle-class children in the class to ridicule the deprived children and segregate them. This pathetic situation can only be remedied through a thorough overhaul of teacher training curricula and by providing in-service training programs to existing teachers. The three major areas where this needs to be attended to are: (i) language use in different contexts and teaching the standard variety as an alternative variety and not as a replacive one, (ii) taking advantage of the strong points

of the deprived children, and (iii) providing the teacher trainers and the teachers with detailed information regarding the concept of 'Self-fulfilling prophecy' which would enable them to improve the quality of the learning process.   The three principal hypotheses of any such attempt should be:

(i)   no child is uneducable;
(ii) If the children from deprived groups fail to benefit from the formal educational system, the fault lies with the system and not with the children and hence the system must change;   and
(iii) the child is never at fault

The Institute is working on these hypotheses, and the result so far has been quite encouraging.

A LEXICALIST ANALYSIS OF PARTICIPLE COMPOUNDS IN KANNADA

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Based on a detailed analysis of Modern Literary Kannada par-
ticipial constructions, we defend a classic abstract version of lexical
theory according to which syntactic phenomena (in the broadest
sense of the word syntactic) are divided between distinct domains,
with the dividing line being drawn at the level of the major lexical
category, X, rather than the surface word.   On this view, all pheno-
mena that can be described entirely within a single member of a
major lexical category are lexical, while those that involve reference
to phrasal or sentential information are syntactic.

Because the division between lexical and syntactic is one of do-
mains rather than rules, there is no fundamental difference between
lexical and syntactic constructions.   However, if a construction is
found in both domains, it will show distinct properties in each do-
main, due to conditions imposed by the domains themselves.

The possibility of a single construction having manifestations in
two domains permits the use of a powerful analytic technique whose
locus classicus is Wasow's 1977 article on the English passive, where-
in lexical and syntactic versions of a single rule are compared.   The
advantage of this technique is that it allows the investigators to fac-
tor out the construction itself, thus allowing for a better under-
standing of the differences between the domains.

In our presentation, we use this technique to analyze sentential
and lexical versions of the participial construction in Kannada.   This
construction consists of a verb participle followed by a noun,
analogous to English forms like *living forest* or *long-departed soul*.
In its sentential use in Kannada, this participial construction forms
relative clauses and is the most common type of relative clause
construction in the language.   In its lexical use, it forms participial
compound nouns, a type of construction whose proper description

has occupied traditional grammarians for centuries (e.g. Kesiraja 1260).

Despite their basic identity, there are numerous morphological, syntactic and semantic differences between the lexical and syntactic uses of this participial construction. We discuss these differences in detail and show how they follow quite directly from the single theoretical distinction that we have drawn. We also discuss the comparable English construction and show that it is neither lexical nor sentential, but rather phrasal. Finally, we discuss the relation between the notions 'lexical' and 'lexicon'.

ASPECTS OF THE SYNTAX OF SPOKEN INDIAN ENGLISH

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While there have been a few studies of Indian English based on written material, literary and non-literary, there do not seem to be many systematic (as opposed to impressionistic) studies of the spoken language. Yet, there is reason to believe that typically non-native features might occur more in spoken than in the (monitored) written language. In this paper, we analyze six spoken narratives and conversations involving educated speakers of Indian English and identify a number of syntactic patterns characteristic of Indian English. We then go on to show that these patterns are more characteristic of speakers educated through one of the regional languages than of speakers who studied through English. We suggest that this difference is attributable to what might be called the 'permeability of syntax' in bilingual usage, i.e., the bilingual's tendency to freely extrapolate from the syntax of one language in using the other while addressing fellow bilinguals.

PAIR-LIST ANSWERS IN HINDI INDIRECT QUESTIONS

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Under standard accounts the possibility of (2) as an answer to (1) is taken to involve LF movement of *what*, the wh in-situ, to matrix spec, as shown in (3):

(1) Who knows where Mary bought what?

(2) Joe knows where Mary bought the book and Bill knows where she bought the pen.

(3) [CP [spec what$_i$ who$_j$] [IP t$_j$ knows [CP [spec t$_i$ where$_k$] [IP Mary bought t$_i$ t$_k$]]]]

The facts of Hindi, however, are a problem for this analysis of pair-list answers.

Hindi has wh in-situ but its scope properties are very different from those of Chinese wh in-situ, as noted by Davison (1984), Mahajan (1987), and Srivastav (1989). In particular, when it occurs inside a finite complement it necessarily takes narrow scope. (4), for example, can only be interpreted as an indirect question. An LF like (5) with the embedded wh in-situ in matrix spec is clearly ruled out:

(4) ravii   jaantaa hai   merii ne   kyaa   kiyaa
     Ravi   knows   Mary   what   did
     'Ravi knows what Mary did.'
     (NOT: What does Ravi know Mary did?)

(5) *[CP [spec what$_i$] [IP ravi knows [CP [spec t$_i$] [IP mary t$_i$ did]]]]

Now consider (6), the Hindi counterpart of (1):

(6) kaun   jaantaa hai   ki   merii ne kahãã   kyaa   kharidaa
     who   knows   that Mary   where   what   bought
     'Who knows where Mary bought what?'

(6) readily allows for a pair-list answer like (2). This answer obviously cannot be derived from an LF like (3) in which *kyaa* 'what' has moved to matrix spec, given (4) - (5). The Hindi facts thus call for an account of pair-list answers in these contexts which is not dependent on movement of wh in-situ to matrix spec.

The alternative pursued here therefore takes (7) as the only LF of (6):

(7) [CP [spec whoj] [IP tj knows [CP [spec whatᵢ whereₖ]
     [IP Mary tₖ tᵢ bought]]]]

Following Karttunen 1977 it is assumed that this question denotes a set of true propositions of the form $\exists x\ know'\ (x, P)$, where P is the set of true propositions of the form $\exists y\ \exists z\ bought'\ (mary,\ y\ at\ z)$. Schematically put, the meaning of the propositions P, the meaning of the questions depends on a relation between a set of individuals X and a set of propositions P, where both S and P may contain one or more members. Though it is not specified whether every member of X knows every member of P, there is a conventional implicature that $\forall x\ \Sigma X$ and $\forall p\ \Sigma P$, x knows p. Thus, if (6) were answered with *John and Bill* it would be taken to imply that they both know the two propositions linking the pen and the book to the places Mary bought them at.

Note that a pair-list answer is given in situations where neither X nor P are singletons, but it is not the case that $\forall x\ \Sigma X$ and $\forall p\ \Sigma P$, x knows p. That is, the relation between X and P does not distribute down to the members of the two sets. The pair-list answer, we might say, cancels the conventional implicature that every member of X knows every member of P by making explicit that the members of X JOINTLY know P. The pair-list answer thus involves a cumulative reading of (7), rather than the pure distributive reading, in the sense of Scha 1981.

While the primary motivation for moving from an account based on movement to one based on a semantic distinction between distributive, and cumulative readings to a single representation comes from Hindi, it is shown that there are advantages in adopting this approach even for English. As noted by Hirschbuhler (1978), the movement account does not predict the absence of a pair-list answer for (8):

(8) Which girl knows where Mary bought which book?

Under the movement account the wh in-situ *which book* should be able to move to matrix spec on a par with (1). But if the matrix spec contains *which girl*, and *which book* has not moved to matrix spec, there is a principled reason why (1) should allow such movement but not (8).

Under the present account the absence of a pair-list answer for (8) is predicted. Since *which girl* carries a uniqueness implication, the set of individuals who know the indirect question will be a singleton, but cumulative readings require both sets in *know' (X,P)* to have more than one member. In the case of (1), the cumulative reading is possible since *who* does not carry a uniqueness implication and the set X can have more than one member.

CONVERGENCE AND SYNTACTIC CHANGE:
THE CASE OF THE NEGATIVE PARTICIPLES IN DAKKHINI

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The purpose of this paper is to discuss negative participles (conjunctive, infinitival, and relative) in Dakkhini with a view to arrive at the principles governing syntactic change in contact situations.   We show how far Dakkhini negative participles have retained the original Hindi-Urdu pattern and how far they have converged with Telugu.

Dakkhini amalgamates the syntax of both Telugu and Hindi-Urdu in negative conjunctive participles functioning as adverbial clauses.   In Telugu conjunctive participial constructions a negative conjunctive participle can be used in place of an affirmative conjunctive participle.   The negative in such cases has no semantic import.

    (1) T: ne:nu   WELL AKA MUNDU kamala pustakam kone:sindi
               I   go   NEG before Kamala book   bought
               'Kamala bought the book before I went.'

    (2) T: ne:nu   WELLE MUNDU Kamla pustakam kone:sindi
               I   go   before   Kamla book   bought

Dakkhini in such cases uses an infinitival construction, and the negative here too has no semantic import.

    (3) D.   mãĩ nãĩ: ja:ne ke   pail   kamla: kita:b khari:d li:
               I   NEG go INF GEN before   Kamla book bought
               'Kamla bought the book before I went.'

    (4) D.   mãĩ ja:ne ke pail   kamla: kita:b khari:d li:
               I   go INF GEN before   Kamla book   bought

However, there are negative participles with *so* which do not have an affirmative counterpart.   This, we argue, is due to the principle of Avoidance of Constructional Homonymity which operates in syntactic change.

We also show that when convergence takes place, certain hybrid constructions emerge which retain the morphological features of the parent language but converge with the syntax of the contact language.

THE INFL NODES IN NON-FINITE CLAUSES
IN DRAVIDIAN AND TIBETO-BURMAN LANGUAGES

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The purpose of this paper is to provide an explanation for the occurrence of lexical subjects with ergative or nominative case marking in non-finite clauses.

According to the standard GB framework, the subject position of a non-finite clause is always occupied by PRO since it should occur in an ungoverned and uncase-marked position. However, 'languages use other marked options to permit phonetically realized subjects of infinitives to surface; e.g. nominative subjects in Portuguese with infinitives with AGR, dative subjects of indirect question in Russian, prepositional phrase subjects in Hebrew' (Chomsky LGB 1981:142).

We present data from Dravidian and Tibeto-Burman languages which clearly show that

(i) Non-Finite clauses (adjectival, adverbial, and conjunctive participial clauses) permit lexical subjects; and

(ii) the Subject Identity constraint is not obeyed in conjunctive participial clauses.

To account for these phenomena, we attempt to provide an explanation in terms of the marked options which the languages of these two families permit. We show that the contents of the INFL node and case theory play a crucial role in such an explanation.

NEW DIMENSIONS OF WORD ORDER FREEDOM
IN VERB-FINAL LANGUAGES

Asha Tickoo
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SOV languages are said to have less rigid word order than SVO languages because they allow scrambling. This paper attempts to demonstrate that the 'freedom' of SOV languages is also expressed in the fact that there are weaker functional constraints on preposing in these languages compared to the constraints on preposing in verb-medial languages. A comparison is made of preposing in verb-final Hindi and Kashmiri and verb-medial English. The analytical framework adopted in the evaluation of the constraints on Kashmiri and Hindi preposing is the approach of Prince (1981, 1984) and Ward (1985), in which (i) the referent of the preposed constituent of English preposing marks a salient scalar relationship to another discourse entity, itself already evoked or saliently inferrable from the discourse, and (ii) the preposing is 'presuppositional' (cf. Jackendoff 1972) in that it marks an open proposition (OP) as salient in the discourse (cf. Prince 1981).

The study demonstrates that while preposing in verb-final languages is more functionally constrained than fronting by scrambling, in that it occurs only in a clause that is temporally asequenced to its preceding clause and fronting by scrambling is not constrained to do this, it is less functionally constrained than preposing in verb-medial English. The OP of English preposing must be salient given. Hindi and Kashmiri preposing, on the other hand, are felicitous when the OP is shared knowledge given (cf. Prince 1981).

CLAUSAL VS. NON-CLAUSAL SUBORDINATION
IN SANSKRIT NARRATIVES

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As is well known, Sanskrit has two major means of subordinating one proposition to another. One employs clausal structures with finite verbs (mainly relative-clause constructions), and the other employs non-clausal structures with non-finite verbs (mainly absolutive, participial, infinitival, and verbal-noun constructions). What is not so well known is the functional difference between the two methods of subordination. In this paper, I try to give an account of what motivates the choice between clausal and non-clausal subordination in particular contexts by considering the consequences of each choice. For example, finite verbs are able to express modality (indicative, optative, imperative), while non-finite verbs cannot unambiguously indicate modality. On the other hand, non-finite verbs can be used to clearly indicate relative tense, while finite verbs cannot. I further illustrate the role that these considerations and others play in Sanskrit narrative texts.

For instance, in the Vetālapañcaviṁśati there are two descriptions of the same procedure for obtaining magical power. The first is a brief summary of the rite given in order to illustrate to the king how he will meet his death. All but the last of the verbs in the description appear in the absolutive:

tvam ito mahāsattvamahārājaśrīvikramādityasya rāja-
dhānīm **gatvā** tasya rājña upadhaukanāya bilvaphalā-
bhyantararatnāni **viniveśya** dinakatipayam yojayitvā ma-
hāsattvaṁ sahāyam **kṛtvā** pretādhiṣṭhitajñāninam rāja-
sahāyena dakṣiṇaśmaśāne **nītvā** tam śavaṁ rājānaṁ ca
maṇḍalam **racayitvā** tatra **nītvā** maṇḍalapūjām **vidhāya**
śavasya mastake padaṁ **dattvā** rājānam devyai balim
dattvā śavadvayamastake pādadvayaṁ **dattvā** nigadiṣyasi
devi ...

Here, then, in what essentially is a narrative passage, the absolute
is sufficient to indicate the temporal sequencing of the actions.

The second description consists of the instructions for
performing the rite as given by the vetāla to the king.   To ensure
proper execution, the sequence of actions and their relationship to
each other must be clearly expressed.   In this version we find a
variety of methods of subordination, including absolutive (Abs.),
locative absolute (LA), participial (Pple.), and relative-clause (RC)
constructions, as well as serialization of sentences, each containing a
finite verb (FV) or other main verb (MV).   (Sentence breaks are
indicated by |.)

tvam idānīṁ mām evaṁ nītvā (Abs.) tatsakāśaṁ gaccha
(FV) | gate tvayi (LA) tadā sa tu tvāṁ dṛṣṭvā harṣam atulam
prāpya (Abs) nigadiṣyati (FV) | bho mahārāja .../ tatra
drutaṁ snānaṁ kuru (FV) | devatārādhanaṁ samācara (FV)
| tvayā saha devatāpūjāṁ vidhāyā (Abs.) āvayoḥ eva
yathāvācā siddhiḥ bhavati (FV) | tadā kartavyam (MV) |
tarhi tvayi api tad vacanena devyāḥ kuṇḍe payasi snātvā
(Abs.) tatra upasthite (LA) tadā tvāṁ vadiṣyati (FV) |
devatāṁ pūjayā (FV) ... | tadā devatāṁ pūjayiṣyasi (FV) |
kṛte devatārādhane (LA) tadā vadiṣyati (FV) | devatāṁ
pradakṣiṇīkṛtya (Abs.) ... | tadā tvaṁ vadiṣyasi (FV) | ...
narapatir ahaṁ ... | tava vacanam idam avagamya (Abs.)
[yadā sa tu kṣāntiśīlaḥ devatāyā daṇḍapraṇāmaṁ kurvan
(Pple.) kāyaprapātaṁ kurute (FV)]RC tatkṣaṇāt tvam api
khaḍgena śiraḥ chittvā (Abs.) tanmastake mṛtakasya ma-
stake ca pādadvayaṁ dattvā (Abs.) mukulākāraṁ śirasi
añjaliṁ niveśya (Abs.) vadiṣyasi (FV) | devi ... | varam imaṁ
prārthayiṣyasi (FV)

THE MENTAL DICTIONARY:
ITS ROLE IN LINGUISTIC THEORY

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In this paper, it is argued that apart from the Permanent Lexicon, defined in (i) below, which is quite non-controversial, the construct 'Mental Dictionary', defined in (ii) below, is also necessary in linguistic theory.

   (i)   The Permanent Lexicon is a list of all the underived entries of the language. Idiosyncratic properties of non-derived entries like their phonological structure, meaning, sub-categorization, case-marking, selectional restriction, theta frame, etc., are part of the lexical entry.

   (ii) The Mental Dictionary is a paradigmatic list of lexical entries of the language.

(i) is a proper subset of (ii) (henceforth MD).

The paper is organized in two parts. The first part examines some aspects of the verb morphology of Tamil — a diglossic, Dravidian language — and argues that some of the differences bet-ween the high and the low varieties must be explained with reference to the MD. The seemingly accidental gaps in the depleted paradigms of the low variety can be accounted for in a principled manner with reference to the related paradigms in the high variety. In other words, these differences can be captured as sub-regularities in the MD. A theory lacking the MD will not be descriptively adequate.

The second part of the paper is concerned with the definition of MD with respect to the recent proposal regarding the Lexicon as an artifact of the Listing Principle (Borer MS). A modified version of the Listing Principle is proposed in the light of a discussion of some aspects of verb formation in Tamil. It is suggested that incorporating

the construct 'Mental Dictionary' in linguistic theory would require redefining the notion of lexical insertion at D-Structure.   I demonstrate with data from slip-of-the-tongue phenomena that this is a move in the right direction which would bridge the gap between theoretical linguistics and psycholinguistics.

THE HARAPPAN SCRIPT:
THE MOST ANCIENT FORM OF DRAVIDIAN

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There has been much speculation concerning the identity of the language of the Harappan script.   Recently the writing was deciphered using the Dravidian languages.   In this paper I discuss the Dravidian character of the Harappan language and the historical linkages between the Harappan language and contemporary Dravidian languages, especially Tamil.

VERBAL COMPOUNDS IN MALAYALAM

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Mohanan (1986) shows that compounds in Malayalam can be grouped into two categories, subcompounds (compounds that involve one head and one non-head) and cocompounds (compounds that involve coordinate, and hence multi-headed structure), and that the various phonological differences between the two can be explained by assuming that they are formed in different strata (or levels) in the lexicon. In this paper I argue that subcompounds in Malayalam should be further divided into two subcategories, verbal compounds (compounds in which there is a predicate-argument relationship between the immediate constituents) and root compounds (compounds in which there is no predicate-argument relationship between the immediate constituents).   I claim that this subclassification makes it possible to eliminate several residual stipulations found in Mohanan's (ibid.) account.

Mohanan, in the course of demonstrating that subcompounds in Malayalam undergo Onset Fusion, Sonorant Degemination, Stem-Initial Gemination, Stem-Final Gemination, and Nasal Deletion, and that both subcompounds and cocompounds undergo Vowel Lengthening and Vowel Sandhi, points out in passing that verbal compounds, which he takes to be a type of subcompound, do not undergo Stem-Final Gemination or Nasal Deletion; but Onset Fusion, Sonorant Degemination, Stem-Initial Gemination, Vowel Lengthening, and Vowel Sandhi are likewise inapplicable to verbal compounds. This bifurcation between two classes of subcompounds justifies postulation of a separate stratum for verbal compounding.

The behavior of verbal compounds in Japanese and English also supports the proposed analysis.   Root compounds, but not verbal compounds in Japanese undergo a phonological rule called Rendaku (Sequential Voicing) (see Vance 1987 for references).   Likewise, root compounds, but not verbal compounds in English undergo the Rhythm Rule (Roeper & Siegel 1978).   A universal generalization seems to be that verbal compounds undergo fewer phonological rules than root compounds.   The proposed analysis accounts at least for

why root compounds and verbal compounds undergo different sets of phonological rules, if not necessarily for why one of the two sets is smaller than the other.

Alternatives to the stratum-ordering account of the phenomena in question are discussed and ultimately rejected. For instance, the attempt to reduce the difference between verbal compounds and root compounds to the Right Branch Condition, which has been proposed for the application of Rendaku in Japanese, and the attempt to resort to the categorial difference between N and V to explain the different behavior of the two classes of compounds are both shown to be empirically inadequate. The former proposal fails to capture the Malayalam facts and the latter to capture some Japanese facts. Provided that the putative universal generalization mentioned in the last paragraph is correct, the stratum-ordering account or something analogous to it seems necessary.

Thus, the assumption that verbal compounding constitutes a separate stratum in the lexicon not only allows us to capture some properties of verbal compounds in Malayalam but offers a way to make a universal characterization of verbal compounds.

ERGATIVITY IN THE INDO-EUROPEAN LANGUAGES
OF SOUTH ASIA:
DIACHRONIC AND SYNCHRONIC PROCESSES

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The modern Indo-European languages of South Asia should be divided typologically not into two (Eastern — non-Eastern) but into three groups: Northern — non-Northern and a further differentiation of the last one into Eastern — non-Eastern.   Synchronically only the languages of the Eastern group are devoid of ergativity which no doubt (compare the Old Bengali text of Charya) diachronically were characterized by the same type of (late) ergativity that now the languages of the Northern group clearly demonstrate; see Zakharyin 1987.   Not purely historical but historico-sociolinguistic factors must be taken into account, as the evolutionary accusativization of Dakhini and of Literary (but not Colloquial) Singhalese show.   The degree of conscious subjective interference into functioning of a certain language (as evolutionary processes in such pairs as, say, Punjabi-Hindi, Shina-Kashmiri, Assamese-Bengali demonstrate) is also playing an important role in the historico-typological processes in South Asia.

In his search for diachronic antecedents of the ergativity in NIA and Dardic H. H. Hock (1986) has correctly given up the traditional term 'past participle' in connection with *-ta/-na* forms and has justly rejected as 'dubious' the suggestions by Pray (1976), Anderson (1977), and Klaiman (1978).   But his own analysis of examples like Old Indo-Aryan 'to be born' ('intransitive but not passive', as he says) is not quite sound, as he does not take into account the difference between the tense stems *jan-a-* 'to give birth' – *jā-ya-* 'to be born'; see S. W. Jamison 1979.   Hock's statement that in Vedic 'passives are barred from intransitives' could also be correlated, as in Vedic personal passives (especially Aorist passives) there existed a typically ergative opposition 'A - S/P'.   Compare, for example, *...nābhā ny asādi hotā* 'The hotar got placed at the hub ...' (RV 3.4.4.) and *agnir hotā ny asīdad...upasthe mātuḥ* 'Agni-hotar ... placed himself in his mother's lap' (RV 5.1.6); see T. Elizarenkova 1982.

Thus we could state that in Vedic an 'A - S/P' ergative device oper-
ates with all the three types of P-oriented constructions (finite
passive, participial, and gerundivial), as in all the three the
morphological marking of A-NP differs from the marking of either P-
NP or S-NP.

The history of ergativity in Indo-Aryan and Dardic also shows
that there has been a continuous process of semo-syntactic con-
vergence of the stative and active verbal forms in which the active
(and finite) forms have always been playing the role of a 'standard
model' for their stative counterparts. In the evolution of ergativity a
direct line can be established between Vedic proper and later
Modern Indo-Aryan and Dardic, standardized Sanskrit and the
Prakrits being 'gaps' in this evolution.

THE DEVELOPMENT OF ERGATIVITY IN INDO-EUROPEAN LANGUAGES OF WESTERN INDIA IN THE FIFTEENTH THROUGH TWENTIETH CENTURIES

Boris A. Zakharyin and L. V. Khokhlova
(Moscow State University)

This paper aims at evaluating trends in the development of ergativity (morphological and semantic) in some Indo-Aryan and Dardic languages during the fifteenth through twentieth centuries; data obtained from informants and extracted out of the texts of the fifteenth through twentieth centuries were analyzed.   Morphological ergativity was treated in accordance with the codified definition by R. M. W. Dixon (1979), and in the syntactic sphere, B. Comrie's differentiation (1979) between accusative-nonaccusative types of verbal concord was taken into account.

The starting point for Old Punjabi, Gujarati, and Rajasthani of the fifteenth century was the maximal development of morphological ergativity and preservation of the accusative type of syntax.   Later in Punjabi and Rajasthani, and still later in Gujarati, morphological ergativity started decreasing and syntactic ergativity, increasing correspondingly.   Modern Rajasthani and Gujarati have retained syntactic ergativity. but Punjabi has returned to accusative syntax in noun functioning — with the exclusion of the personal pronouns, as the latter have developed the accusative type of morphology and the ergative type of syntax.

The diachronic analysis permits us to take a non-trivial look at synchronic ergativity.   While remaining on purely synchronic soil we could agree that Rajasthani is the only exception to Anderson's (1977) and Comrie's (1978) universal (stressing that combination 'ergative verbal concord + non-accusative marking' does not occur in one and the same language) and to back Magier in noting this.   Of course, by manipulating synchronic data it is always possible to convert this 'exception' into 'non-exception', following, for example, Klaiman (1987) who supposed that as in Marwari, A, S and also P might have the same unmarked case.   (We deal here with 'neutral

case marking'.   NP marking in Marwari thus does no harm to the An-
derson-Comrie's universal.)   Diachronically, it is quite clear that the
identical marking of A, S, and P in Rajasthani is not a unique
phenomenon, that it was some historical stage in the development of
split ergativity in different Indo-European languages of the area.
The split in P-marking in Kashmiri noted by P. Hook (1984) and
thought to be a 'unique feature' of the language does not look like
this in a broad historical perspective.

A SKETCHY HISTORY OF CLITICIZATION AND VERB STEM NOUN INCORPORATION IN MUNDA

Norman Zide
(University of Chicago)

Noun incorporation in verb stems is reconstructable for South Munda (SM), but not for Proto-Munda (PM). Subject-marking pronominal prefixes are reconstructable for SM and, it seems, likely for PM. Intransitivity/transitivity is marked by distinct tense suffixes in SM (but not Northern Munda), and is perhaps to be reconstructed for PM. In the (ca. 10) modern languages, North and South, enclitic pronouns marking subject, and, less commonly, direct and indirect object are common. I present and analyze the data, and look at the observations and analyses of others (B. P. Mahapatra, J. Sadock, D. Stampe, and S. Starosta) on cliticization in various Munda languages. I propose a tentative reconstruction of clitics in Munda, and offer a hypothesis about the development of noun incorporation in verb stems in South Munda.
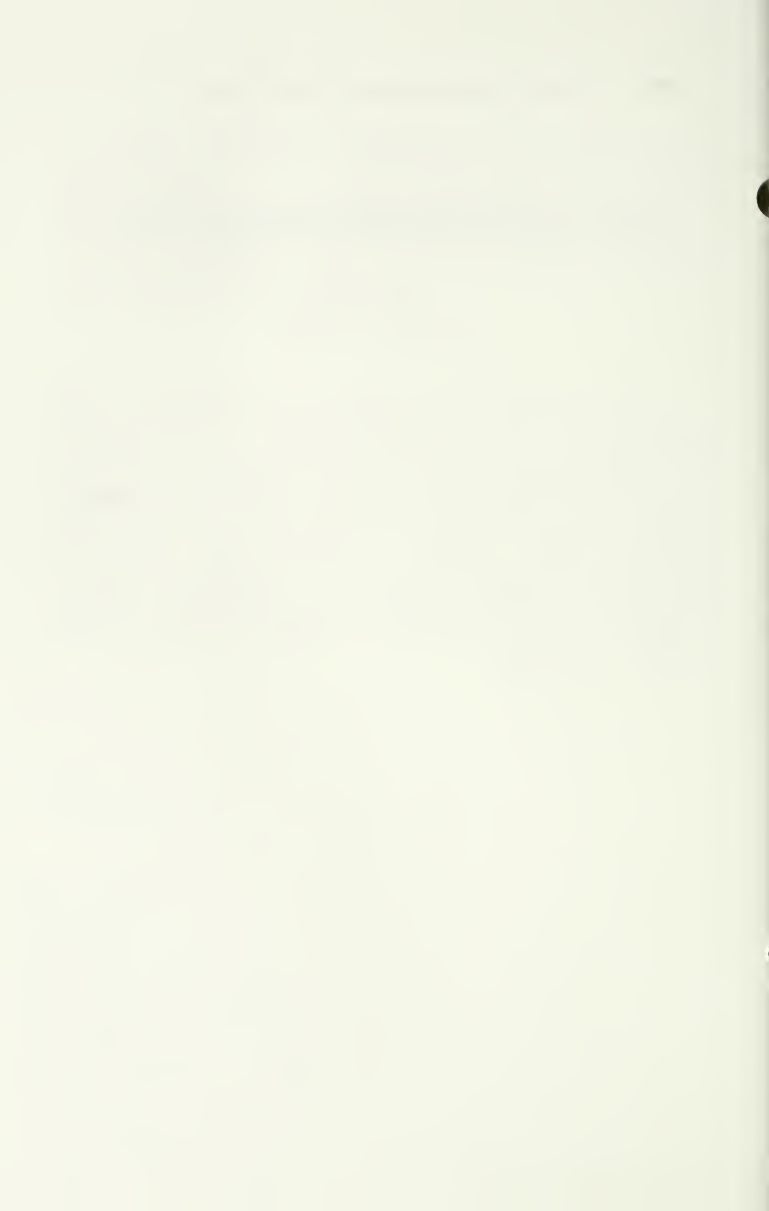
PART II: PANELS
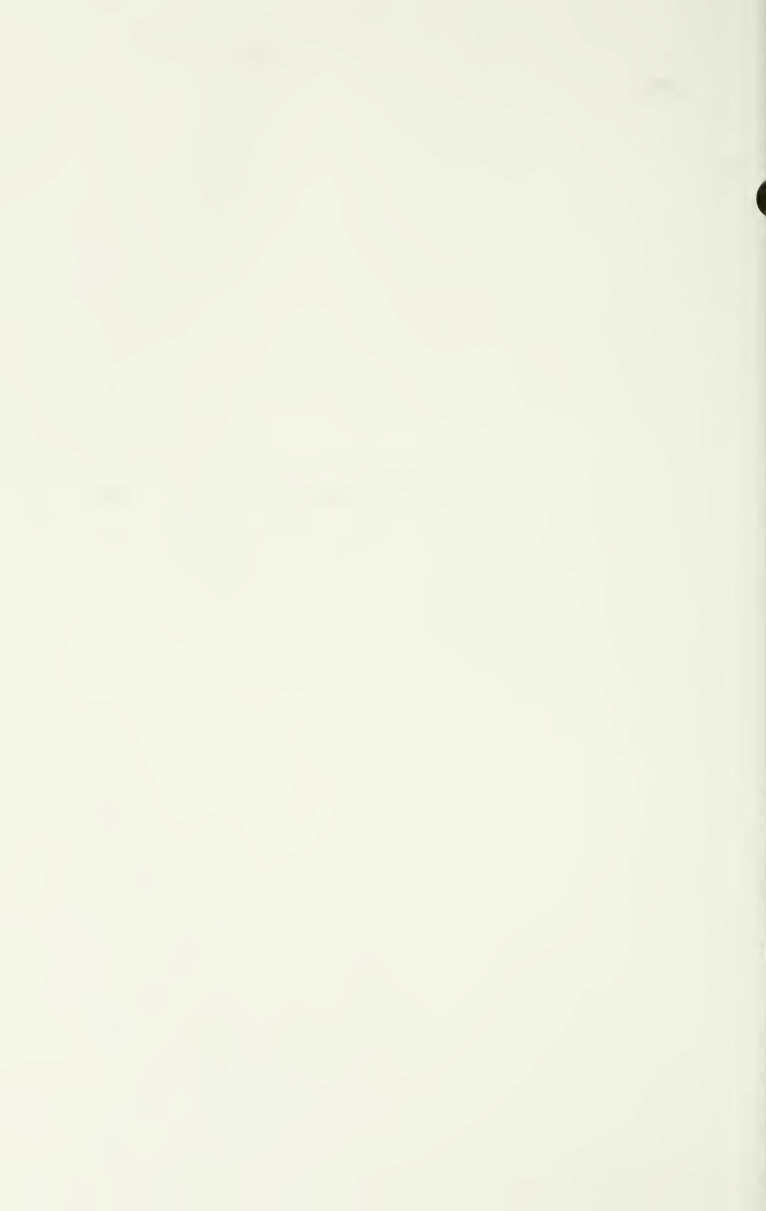
**CONVENTIONS OF POLITENESS
IN SOUTH ASIAN LANGUAGES**

Organized by Manindra K. Verma
(University of Wisconsin at Madison)

A GRAMMAR OF POLITENESS IN MARATHI

Rajeshwari   Pandharipande
(University of Illinois at Urbana-Champaign)

In this paper I discuss theoretical as well as empirical issues related to defining the notion of politeness in Marathi. I argue that the notion of politeness cannot be defined purely in terms of structural configurations and that pragmatic as well as discourse considerations must be incorporated for an adequate analysis of politeness.

The following major points are in focus: (a) the structures (morphological and syntactic) acknowledged as correlates of politeness in traditional grammars of Marathi (e.g., morphological markers of number and person, verb agreement markers, etc.) and their inadequacy in defining politeness; (b) pragmatic and discourse conditions which are relevant for defining politeness; and (c) finally, the necessity to incorporate the 'interactional' dimension of the discourse in adequately characterizing politeness in Marathi.

Additionally, this paper compares and contrasts the notion of politeness in Marathi and Hindi and demonstrates the relevance of the approach proposed in the paper for crosslinguistic/typological generalizations.

TOWARDS AN ETHNOGRAPHY OF POLITENESS IN MAITHILI

Mithilesh K. Mishra
(University of Illinois at Urbana-Champaign)

This paper discusses some of the salient semantic and pragmatic aspects of Maithili (verb) agreement markings which are very commonly used to signal politeness in this language. On the basis of the evidence drawn from Maithili, the paper argues that POLITENESS, like ILLOCUTIONARY FORCE, should be treated as a derivative property of utterances/speech acts and not as some kind of structurally primitive concept or property of utterances or speech acts. The paper also argues that by analyzing the mechanisms that relate SENSE of a sentence with its FORCE, it is indeed possible to map the grammar of a culture which the speakers (belonging to that particular culture) acquire and command as a very vital part of their communicative competence. Finally, the paper compares and contrasts the strategies used by Maithili and Hindi speakers for conveying POLITENESS and/or INDIRECTNESS.

DIRECTIVES IN PANJABI AND LAHANDA

Tej K. Bhatia
(Syracuse University)

The aim of this paper is to focus attention on the notion of directives and how they are coded and actually used in Punjabi and Lahanda. Directives constitute a universal feature of human languages, and this paper will examine spoken as well as written directives with reference to the degree of politeness, power, and authority. In addition to exploring the various formal and functional aspects of directives, the paper will also examine the claims of theories such as Brown and Levinson's 'face-saving' theory (1987).

REFERENCE

Brown, Penelope, & Stephen C. Levinson. 1987. Politeness: Some universals in language use. Cambridge: Cambridge University Press.

LINGUISTIC CONVENTIONS OF POLITENESS
IN BHOJPURI AND MAGAHI

Manindra K. Verma
(University of Wisconsin at Madison)

This paper discusses the elaborate pronominal system and the agreement markings used in Bhojpuri and Magahi to signal politeness. Bhojpuri seems particularly rich in pronominal distinctions of politeness, whereas Magahi seems to bring in agreement features for finer distinctions. Beyond these, both languages seem to involve uses of certain syntactic constructions in preference to others for their expression of politeness. The role of the passive — both morphologically and syntactically — seems to be particularly important.

DISCOURSE IN THE OTHER TONGUE

Organized by Yamuna Kachru
(University of Illinois at Urbana-Champaign)

RECREATING SOUTH ASIAN SPEECH ACTS IN ENGLISH: A STUDY IN LINGUISTIC TRANSFER

Jean D'Souza
(National University of Singapore)

This paper is concerned with pragmatic aspects of language use. Studies by Apte 1974, D'Souza 1988, Loveday 1982, Olstain & Cohen 1981, Sridhar & Sridhar 1986, among others have shown that there are important differences, both cross-cultural and cross-linguistic, in the way a given speech act (e.g. directive, commissive, expressive) is performed in a given language. Speech acts in Indian English are examined in an attempt to discover how, if at all, the realization of speech acts in this variety differs from their realization in the native varieties of English. Data will be taken from creative writing in English, and the 'high' vs. 'colloquial' use of English (as manifest in text and dialogue) will be contrasted to discover whether the 'context of situation' (Kachru 1980) affects the realization of the speech act.

SPEECH ACT IN THE MOTHER TONGUE AND THE OTHER TONGUE

Yamuna Kachru
(University of Illinois at Urbana-Champaign)

Levinson, toward the end of a discussion of speech act theory, mentions two major traditions of research on language use 'undermining' speech act theory: one, ethnography of speaking, and the other, language acquisition (1983:278-283).   Later, in a brief section on the interrelationship of pragmatics, sociolinguistics, and psycholinguistics, Levinson again points to the common interests shared by both pragmatics and sociolinguistics and suggests potential contributions each could make to the other (374-375).   The present study makes an attempt to show that it is essential to draw on all three subdisciplines — pragmatics, sociolinguistics, and ethnography of communications — to account for speech act data from South Asian languages and Indian English.   The data are drawn from literary texts in select South Asian languages and Indian English.   It is hoped that insights gained from this study will be helpful in designing a more comprehensive study on speech acts in South Asian languages and in Indian English.

REFERENCE

Levinson, Stephen C.   1983.   Pragmatics.   Cambridge: Cambridge University Press.

ON CREATING SPEECH ACTS:
THE CREATIVITY OF INDIAN ENGLISH WRITERS

Cecil L. Nelson
(Indiana State University)

As B. Kachru has pointed out (1988:584), Raja Rao and, by extension, other Indian English creative writers expand the expressive repertoire of English in their 'extensive use of native similes and metaphors...; the transfer of rhetorical devices; the transcreation of proverbs, idioms, and speech acts; ... and an extensive employment of code-mixing ... and code-switching.' This paper examines and categorizes examples of created speech acts in the works of some Indian English authors, including 'classics' such as Raja Rao and 'moderns' such as Bharati Mukherjee, 'in a transplanted language in a speech community that does not share the native cultural contexts of the transplanted language', as Y. Kachru (1987:87) puts it. Through examination of such fictional language performance, we may see into the dual — or, if it is not partitioned, greatly expanded — competence of the practiced bilingual. A given speech act may serve, for example, to let the reader know what the relevant appropriateness conditions in a scene are. Use of such devices tests authors' creativity, since writers (most often) try to let monolingual readers in on the meaning/significance of such elements. In the novel *Jasmine*, for example, Mukherjee (1989:49) writes (bracketed insertions mine):

[Dida, the protagonist's paternal grandmother,] spoke only to Pitaji [Father].... 'Some women think they own the world because their husbands are too lazy to beat them,' but Mataji [Mother] just went about her cooking with her mouth zipped and her veiled head down.

The passage is densely packed with clues about the relationship of the mother- and daughter-in-law in this traditional Hindu family. The indirection of the speech act in using a proverbial style and addressing the comment to someone other than the real target gives the pronouncement more force than a simple and specific criticism directed at the son's wife would have. Interestingly, Mukherjee also shows in this novel how speech-act bilingualism develops in both

directions.   *Jasmine*'s Indian protagonist says of her American
husband (p. 26): 'Bud calls me Jane. Me Bud, you Jane. I didn't get
it at first. He kids.'

This examination of the speech act creativity of Indian English
authors will support the 'justification' of a 'method of expression ... as
distinctive and colorful as the Irish or the American' (Raja Rao, cited
by B. Kachru 1988:586).

REFERENCES

Kachru, Braj B. 1988. Toward expanding the English canon: Raja
    Rao's 1938 credo for creativity. World Literature Today 62:4.582-
    586.
Kachru, Yamuna. 1987. Cross-cultural texts, discourse strategies and
    discourse interpretation. Discourse across cultures: Strategies in
    World Englishes, ed. by L. E. Smith, 87-100. New York: Prentice-
    Hall.
Mukherjee, Bharati. 1989. Jasmine. New York: Grove Weidenfeld.
Nelson, Cecil L. 1988. The pragmatic dimension of creativity in the
    other tongue. World Englishes 7:2.173-182.
Raja Rao. 1963 [1938]. Kanthapura. New York: New Directions.

LANGUAGE AND FEMALE IDENTITY IN INDIA

Tamara Valentine
(University of South Carolina at Spartanburg)

That linguistic variation correlates with the social variable
'gender' is a universal feature of all speech communities.   But, are
there common life experiences or gender-specific circumstances
particular to women which affect cultures of the world?   Is it that
male and female language differences are directly related to the
universal oppression felt by all women and girls of the world?   Or
are language styles a reflection of subcultural differences?   I address
interactions of female Hindi and English speakers from actual spoken
data recently collected in the urban and rural areas of North India.   I
examine the major theme emerging on 'women's style of talking';
that is, women's interactive style is based on solidarity, support, and
cooperation.   I examine the recurring patterns in Indian female con-
versations, consider how the patterns are similar or different to the
major perspectives explored in Western studies, and discuss the im-
portance of studying the role of gender in cross-cultural com-
munication and the implications for the understanding of language
use across cultures.

LANGUAGE IDENTITY AND CONFLICT IN SOUTH ASIA

Organized by Rakesh M. Bhatt
(University of Illinois at Urbana-Champaign)

A HOUSE DIVIDED:
CONFLICT AND RIVALRY IN TWO VARIETIES OF A LANGUAGE

Mariam Ahmed
(University of Illinois at Urbana-Champaign)

This paper addresses the issue of conflict and rivalry concerning the history, functions, and status of Urdu in pre-1947 India and post-1947 South Asia. The paper aims at (1) the genesis of the conflict, (2) the attitudes toward Urdu, (3) the political, social, religious, and educational implications of such attitudes.

I also discuss briefly the diversity which has developed between Indian Urdu and Pakistani Urdu and the underlying motivations for such diversity. I would also like to add a comment about the diversity which has developed between the Urdu spoken in the north of India and the Urdu spoken in other regions.

TRANSPLANTED LANGUAGES AND ETHNIC IDENTITY

Tej K. Bhatia
(Syracuse University)

Several South Asian languages have been transplanted around the world as a result of emigration from Asia. Although these languages have not provoked any serious nationalism or linguistic rivalry or conflict in their nonnative context, nevertheless they are emerging as powerful markers and rally-points for group identity.

The aim of this paper is to examine the Hindi diaspora in this context and to shed light on the question of language identity and other related phenomena. The paper is centered around notions such as language, ethnic identity, group solidarity, etc. The interaction of these notions is examined primarily from two view-points: social and scholarly.

The data are drawn from a wide variety of sources, including field data, interviews and the related research literature.

LANGUAGE MINORITIES:
ISSUES OF IDENTITY IN A GLOBAL PERSPECTIVE

Kamal K. Sridhar
(State University of New York at Stony Brook)

Theoretical models that accommodate issues of linguistic identity, contact, and conflict are ideally an area of research for linguists, particularly sociolinguists. Lack of such models in linguistics forces us to look to available models in other disciplines. There are several existing models in sociology, philosophy, and political science. The present paper draws on models used in sociology and philosophy. Special reference is made to Allard's (1979) work, which is based on an analysis of forty-six minority groups in Western Europe. The applicability of his approach to the study of minority languages in South Asia is evaluated.

IDENTITY, CONFLICT AND CONVERGENCE:
SOUTH ASIA AS A SOCIOLINGUISTIC AREA

Rakesh M. Bhatt
(University of Illinois at Urbana-Champaign)

The past few years have seen a global conflict in terms of movements and uprisings which seem to have revolved around a common theme: IDENTITY. In these few years, the United States has witnessed the rise of a powerful lobby that demands that English be established as the national language of the United States, while in the Soviet Union the Baltic states have started asserting their ethno-linguistic identity to claim autonomy from the Union. Similar expressions of identity and solidarity resulted in upheavals in the other Eastern bloc countries. The outcome was inevitable: the fall of the Iron Curtain and the union of the two Germanies.

This paper focuses on South Asia (mainly India) which provides a fascinating sociolinguistic laboratory for the study of the interaction of (1) language contact and language identity; (2) language identity and language conflict; and (3) language conflict and language change. Diverse groups of people belonging to different caste, religious, or ethnic groups are integrated within a single political structure. The socio-political and sociolinguistic consequences of such social settings can be seen in the conflict that arises in almost all domains of interpersonal interactions. Examples include the violent situation in Jaffna, Sri Lanka, where Tamil and Sinhalese speakers are engaged in a seemingly unending ethnolinguistic war which has resulted in the loss of thousands of lives so far; the creation of Pakistan out of British India in 1947 on primarily religious grounds and later the creation of Bangladesh out of Pakistan in 1971 on a mainly linguistic basis; the political restructuring of Indian society after the creation of Hindi-speaking Haryana out of the earlier state of Punjab and of Telugu-speaking Andhra Pradesh from Madras; and recently, the terrorist attacks in

the states of Kashmir, Punjab, and Assam in support of regional autonomy.

At the bottom of all these movements, conflicts, and uprisings is the single issue of identity. This raises one important question: How do different social groups in multilingual, multiethnic, and multicultural countries become politically mobilized? A related question that is of tremendous sociolinguistic importance is: How do different linguistic groups maintain their linguistic identity under pressures of language shift and convergence? These and other questions relating to issues of language policies and language planning are discussed.

LANGUAGE OF RELIGION

Organized by Rajeshwari Pandharipande
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THE QUESTION OF DEFINING THE LANGUAGE OF RELIGION

Rajeshwari   Pandharipande
(University of Illinois at Urbana-Champaign)

Although it is a well-known fact that religious language signi-
ficantly differs from its non-religious counterpart in terms of its
linguistic structure and sociolinguistic function, there is no definition
available at present which adequately describes the language of
religion.   Language of religion has been studied from diverse per-
spectives by scholars in disciplines such as sociology, philosophy,
theology, psychology, and linguistics.   The paper discusses the defini-
tions provided within the frameworks of the above disciplines and
points out that the shortcomings of these definitions stem from the
fact that they are based either exclusively on the content, or the
structure, or the function of the language of religion.

The paper further argues for a unified approach toward defining
the language of religion, an approach which takes into account its
structural, content-related, and functional features, and their inter-
dependency.

Vaṣaṭ, śrauṣaṭ, AND OTHER RITUAL PARTICLES: THEIR ORIGIN AND THEIR USE IN VEDIC RITUALISTIC LITERATURE

Hans Henrich Hock
(University of Illinois at Urbana-Champaign)

Sanskrit has a long tradition of using a variety of particles in ritualistic and religious/philosophical literature. Many of these, e.g. *om, him (hum), ho* differ markedly in structure and connotations from ordinary words of the language. In late or post-Vedic literature they are therefore able to acquire very special and 'deep' religious/ philosophical connotations. This is especially true for *om*. Another consequence of their differences from ordinary lexical items is that the question of their etymologies has given rise to a number of conflicting views.

In a forthcoming paper I show that *om*, the particle gaining the most significant connotations in late and post-Vedic, arose from an interjection comparable to Engl. *o(h), ho(h)*, and the like. The route through which it gained special connotations lay in Vedic recitation practices. After briefly rehearsing the history of *om*, I argue that a similar explanation is likely for *him*, attested as early as the Rig-Veda, whose prehistoric development can only be inferred.

Explanations of this sort are not available for two other ritualistic expressions, attested as early as the Rig-Veda, viz. *vaṣaṭ* and *śrauṣaṭ*: These are related to 'normal' words of the language, viz. the roots *vah-* 'convey' and *śru-* 'hear, listen', respectively. The latter relation is perfectly obvious in ritualistic literature, where the *śrauṣaṭ* call is prompted by the formulas in (1) which contain a causative of *śru-*.

(1)   a.   ó śrāvaya   (MS 1.4.11)
      b.   óm śrāvaya   (MS 4.1.11)
      c.   = å śrāvaya   (KS 31.13) etc.
           'Call for the śrauṣaṭ.'

Now, in some of its versions, viz. (1a, b), the prompting formula exhibits the particle *(o)m*. Combined with other evidence this suggests that *śrauṣaṭ* functions as a ritualistic particle in the Veda. Further, *śrauṣaṭ* and especially *vaṣaṭ* share with the early history of *om* the fact that they undergo various phonological deformations and mystical interpretations. Thus, in the Śatapatha-Brāhmaṇa (1.7.2.21), *vaṣaṭ* appears as *vauṭ* and, via *vauk*, is then equated with *vāk* '(sacred) speech'. In the final part of this paper I show that these 'ritualistic' deformations make it possible in principle to explain the prehistoric phonetic developments leading to *vaṣaṭ* and *śrauṣaṭ*.

THE ROLE OF DEIXIS
IN DEFINING ORDINARY VS. RELIGIOUS LANGUAGE

Mithilesh K. Mishra
(University of Illinois at Urbana-Champaign)

This paper argues that the nature and function of religious language can be adequately defined and explained by properly understanding the nature of deixis in language. The paper argues that though Buhler's (1934) seminal work on deixis (i.e. the notion of three coordinates of time, space, and ego-center or 'I') is a valid starting point and is useful in certain contexts, his postulation of the distinction between deixis at phantasma (imaginary deixis) and real/ordinary deixis is arbitrary, unnecessary, and untenable. I argue that by taking into account the ontology of Buhler's coordinates, it is possible to 'derive' all kinds of deictic fields (including the one referred to and used for cognition in the religious language) and their concomitant discoursal semantic properties. This exercise is independently needed to account for the unbridled creativity of one of the coordinates, 'I'. Lastly, the paper discusses the functions of various religious symbols and artifacts for both modifying the overall nature of deixis in ordinary language and for 'collapsing' the (above-mentioned) tripartite distinctions of the coordinates.

LITERARY RESPONSES TO INDIA

Organized by Girdhari Tikku
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RABINDRANATH TAGORE'S NOBEL PRIZE:
WHAT DOES IT MEAN?

Ali Anushiravani
(University of Illinois at Urbana-Champaign)

This paper is a study of the presentation of the Swedish Academy's Nobel Committee.   The purpose of the paper is to examine the Western response to Tagore.   In the Nobel Committee's presenta- tion Tagore is called an 'Anglo-Indian poet'.   Tagore is praised for his 'never-failing concomitant of the expansion of British civilization' and his Christian message.   Even Bengal is considered 'the oldest Anglo- Indian province'.   The Nobel Committee alienates Tagore from his own Indian heritage and attempts to place his thoughts and ideas within a Christian framework as though Tagore were celebrating Christianity in his works.   What the Nobel Committee of the Swedish Academy sees in Tagore is not Tagore as he really is; it is Tagore made in their own image.   In other words, what they see in Tagore is not 'the Other' but 'Us'.   It seems what Vasco da Gama could not ac- complish five hundred years ago, namely to Christianize India, has been achieved by the Swedish Academy.

The question addressed in this paper is: If this is the case, then what does Tagore's Nobel Prize mean?   The point is that Tagore deserves the Nobel Prize for bringing East and West nearer.   This is what the Nobel Prize is all about: to bring 'the Other' nearer, to create a respect for 'the Other' as he is, not as we want him to be.   The Nobel Committee's presentation seems to fail to appreciate Tagore's universal message for which he really deserves the Prize.

CHINESE RESPONSE TO TAGORE: PIN HSIN'S POETRY

Yongan Wu
(University of Illinois at Urbana-Champaign)

On a windy, moon-lit autumn night last year, you
suddenly came to me in the form of a book.   On reading
your poems and biography, I had nothing in my heart but a
feeling of deep, crystal-like beauty.

Thus wrote Pin Hsin to Tagore on her first discovery of the Indian
poet and philosopher.   This was a moment of contact between two
hearts, one in China and the other in India.   The two writers had so
much in common that when Pin Hsin first read Tagore, there emitted
a ready echo from her heart.

This paper deals with the theme of love (divine love, universal
love, maternal love, brotherly love ...) in the works of Tagore and of
Pin Hsin through a study of their different philosophical and religious
backgrounds — the points where they started, the similar messages
they sent to the world in their writings — the point where they met,
and other differences there are in their treatment of the same theme
— the point where they varied.   It is a comparative study of Tagore
and Pin Hsin yet it goes beyond their literary works to their
philosophical and religious beliefs that played a part in the pro-
duction of their literary works.

ALDOUS HUXLEY'S *THE ISLAND*

Girdhari Tikku
(University of Illinois at Urbana-Champaign)

The Island of Aldous Huxley is a utopian novel, some say a continuation of his *Brave New World.* The novel, one can argue, is an attempt to use the facilities of modern medicine and psychology to create an ideal society. The philosophical setting of this novel draws heavily from Hindu and Buddhistic philosophic thought and mythology. Huxley was very close to Christopher Isherwood and both collaborated with Swami Prabhavananda of the Vedanta Center at Los Angeles in publication of the Gita texts. This paper expands on these points to see the novel as a western response to Indian literature and thought.

COLERIDGE AND BASHŌ:
THE LEGACY OF INDIAN MONISM

Hiroko Harada
(University of Illinois at Urbana-Champaign)

This comparative study analyses two outstanding poets of Japan and England, Matsua Bashō (1644-1694) and Samual Taylor Coleridge (1772-1834), in the light of early Indian philosophy.

A gap of time, space, and culture lies between Coleridge and Bashō, and numerous differences found in their poetic styles and subjects naturally separate the two poets. Despite their extrinsic differences there is undoubtedly a sort of internal and intrinsic common ground where the two artists meet in terms of their goal of creation, namely an organic poetry, achieved by the amalgamation of Self (the poet) and Other (nature).

The concept of the organic nature of poetry is founded, in Coleridge, on his knowledge of Hellenism, especially Plotinus, and Hebraism, and in Bashō, on his close attachment to Zen Buddhism. One of the common aspects found in the oriental and occidental religious and philosophical thoughts is the notion of monism which, according to R. H. Blyth, directly or indirectly originates in early Indian thought.

On this basis I would like to propose the thesis that both Coleridge and Bashō present their individual theories of poetry standing upon one common ground, India. I would like to closely examine their theories and point out the comparable elements, primarily their ideas of monism which establishes organic unity, and finally seek the identity of their monism in Indian monism, in order to visualize the invisible thread that tightly connect the English poet and the Japanese poet.

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