This chapter gives an outline of the analysis of Engenni phonology and explains the transcription used in the examples. The transcription is similar to the alphabet which has now been adopted by the Engenni people. The approach to the analysis is basically phonemic, though, as will be seen, there is some departure from orthodox phonemic theory in that some phonetic features are analysed as features of the syllable or of some larger phonological unit rather than as features of individual phonemes. The reasons for this analysis will be given later. The aim of this chapter is not to present the phonological analysis in detail but to describe all the features of the phonology which are relevant to the grammar.

2.1. Consonants

The consonant phonemes are set out in tabular form below.

		Labio-velar	Labial	Labio-dental	Alveolar	Palatal	Velar
Plosives							
egressive	vl.		p		t		k
	vd.		b		d		g
ingressive	vl.	kp					
	vd.	gb	bh		dh		
Fricatives	vl.			f	s		
	vd.			v	z		
Nasals			m		n		
Lateral					l		
Vibrant					r		
Semivowels			w			y	

(a) Labio-velars, kp and gb, have double articulation.
(b) The symbols bh and dh indicate implosives made with ingressive glottalic air-stream.
(c) The vibrant r is made with a single alveolar tap.
(d) A voiceless glottal fricative h occurs in a few exclamations. It is regarded as extra-systemic, as its distribution is so limited.

2.1.1. Labialisation and Palatalisation

The following consonants may occur with lip-rounding (i.e., labialisation):

Labials	p	b	bh
Labio-dentals	f	v	
Alveolars	t	d	s
Velars	k	g	

The following consonants may occur with raising of the tongue to the close front position (i.e., palatalisation):

Labials	p	b	bh	m
Labio-dentals	f	v		
Alveolars	t	d	dh	s	z
Velars	k	g		

Labialisation and palatalisation are analysed phonologically as features of the syllable. Alternative analyses would be (a) to establish twenty-three extra consonant phonemes, or (b) to analyse labialisation and palatalisation as separate consonant phonemes. Neither analysis is satisfactory. The former is uneconomical in the number of phonemes, and the latter would lead to setting up consonant clusters which do not otherwise occur in the CV structure of the language.[1]

For ease in reading, the feature of labialisation is transcribed by a w following the consonant, and the feature of palatalisation by a y following the consonant. The phoneme w and the feature of labialisation are thus transcribed in the same way, as are the phoneme y and the feature of palatalisation. Following a consonant, y/w is to be interpreted as a feature of the syllable and elsewhere as a phoneme.

The lip-rounding with back vowels and the raising of the tongue with front vowels are not analysed as a feature of the syllable but as part of the articulation of the vowel.

2.1.2. Nasalisation

The semivowels w and y occur both with and without velic closure. The position of the velum remains the same for the following vowel. Two analyses are possible: (a) Two extra consonant phonemes, w̃ and ỹ, may be set up, or (b) the nasalisation may be analysed as a feature of the syllable. The latter analysis is adopted, as it is more economical in the number of phonemes required and parallels the features of palatalisation and labialisation of the syllable. It also reflects the phonetic data more closely, since the nasalisation extends to the following vowel, i.e., throughout the syllable.[2] The nasalisation feature is transcribed by n preceding the w or y, e.g., nwei, nyou, to avoid

---

[1] For a fuller discussion of this problem see P. M. Bendor-Samuel 1965.

[2] It is recognised that labialisation, palatalisation, nasalisa-

the use of diacritics.

Two examples have been recorded of the feature of nasalisation co-occurring with the feature of labialisation:

knwẹi   *be heavy*   knwei   *be bent*

2.2. Vowels

The vowels are set out below in tabular form according to their phonetic quality. (For the definition of 'raised' and 'lowered' see below.)

		Front	Central	Back
Close	Raised	i		u
	Lowered	ɩ		ʊ
Nonclose	Raised	e	ə	o
	Lowered	ɛ	a	ɔ

In the southern dialect, Ediro, the distinction between [ə] and [a] has been lost.

2.2.1 Vowel Harmony System

Vowels divide into two sets:

(a) Those with the tongue more raised, resulting in a closer quality (shown in the chart as 'raised').

(b) Those with the tongue more lowered and slightly further back, resulting in a more open quality (shown in the chart as 'lowered').

The (b) set predominate in the language. There is a system of vowel harmony between the two sets which extends throughout the phonological group (Section 2.5). The vowels are analysed as five phonemes, with the raising or lowering of the tongue position as a feature of the phonological group.

In the transcription, the five phonemes are represented as i, e, a, o, u. The lowered tongue feature is shown by a dot under the initial vowel of the word; the raised tongue feature by the absence of a dot. The only exception to this procedure is in words where the only vowel is [a]. This is not marked with a dot since there is almost no possibility of confusion with [ə], as only one occurrence of the latter as the sole vowel in a word has been found. As [a] is very much more frequent than [ə], the non-

tion, and the vowel system which is described on the following page could also be analysed prosodically. See, for example, J. Carnochan 1966.

marking of [a] in this special circumstance reduces very considerably the number of times the diacritic dot is needed.

In compound words (Sections 10.1.1.2 and 10.2.2), the two parts are hyphened and the vowel feature of each part is marked separately, e.g., ạmini-bhwoni *soup,* ony-ạvuramu *woman.*

2.2.2.   Vowel Sequences

Sequences of two similar or diverse vowels occur in morpheme-final position. In diverse sequences, either the first or second member is a close vowel. The sequences are analysed as a sequence of two vowels, as they frequently bear distinctive tones. They are transcribed as two vowels:

ùviì	*paddle (noun)*	gbèi	*kill*
òdhià	*sin (noun)*	bhùe	*keep*
gbòu	*plant (verb)*	pèè	*very full*
dùu	*go out*	bhòò	*lukewarm*

2.2.3.   Nasalisation of Vowels

Close back vowels following a nasal consonant are nasalised. These vowels are analysed as allophones of the corresponding oral vowels and are not marked in the transcription. Vowels are also nasalised when the syllable has a feature of nasalisation (Section 2.1.2). As has already been stated, the feature of nasalisation is marked by n preceding the consonant, so the vowel does not require marking.

2.3.   Tone and Intonation

In this study, the term 'tone' is used to classify the pitch on individual syllables. The pitches are arranged in certain patterns termed 'tone patterns'. The term 'intonation' is used for modifications of an entire tone pattern, e.g., raising the general pitch level while the relation of the individual tones to each other remains constant.

2.3.1.   Basic Tone System

There are three phonetic ranges of pitch, and there are restrictions on the distribution of the top and middle ranges. Two top pitches do not occur in sequence, and a middle pitch does not occur between two low pitches within a phonological clause (Section 2.5).

The system is analysed as having two contrasting tonemes, low tone and high tone, plus a feature of upstep which gives rise to the top pitch. The upstep feature is of two types: automatic upstep and the upstep toneme which are described below. The upstepped high tone arising from automatic upstep is phonologically predictable and is therefore analysed as an allotone of high tone. The upstepped high tone arising from the occurrence of the upstep toneme is not phonologically predictable.

In the examples, tone is marked as follows: low tone `, high tone is unmarked, and upstepped high tone resulting from the up-step toneme ´. In subsequent chapters, when referring to the tone system, the term 'upstepped high tone' (abbreviated h) is used only for the upstep toneme, since the upstepped high tone result-ing from automatic upstep is an allotone. The other two tones are abbreviated thus: low tone L and high tone H.

Automatic upstep. A H tone is upstepped before a L tone within the phonological clause but not across phonological clause boundaries (examples 1-3). A H tone is also upstepped before a following L tone syllable which is elided (examples 4-5). (De-tails of the elision of vowels at word junctures will be given in Section 2.4.)

(1)   ìkpilàma nụ   *as for snail*

```
    ―
      ― ―
―   ―
```

(2)   ọmù dhẹmu ya sàmù   *Is the house big?*

```
―         ―
    ― ―
  ―       ― ―
```

Compare with example 3.

(3)   ọmù dhẹmu ya   *The house is big.*

```
―
    ― ― ―
  ―
```

In the following examples the absence of a pitch mark under a syllable means that the vowel of that syllable is elided.

(4)   uɲwonì olilo   *mouth of a bottle*

```
    ―
―   ´   ― ― ―
```

(5)   ogbò opilopo   *back of a pig*

```
―
    ― ― ― ―
```

Upstep toneme. At certain points in the grammatical system, a h tone occurs not preceding a L tone. Therefore it is necessary to introduce into the system an upstep toneme which is phonologi-cally not predictable.

The noun ịgbo *net* has the tone pattern HH in isolation. In a verbal clause string, the final syllable of the nominal phrase object is upstepped before the next verb (Section 5.9).
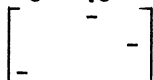
(6)   mì do i̧gbó dhe̞mesè̞   *I wove the net bigger.*

$$\begin{bmatrix} & - & & \\ & & - & - & - \\ - & & & & \end{bmatrix}$$
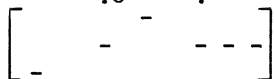
I weave net enlarge

The genitive construct is marked initially by a h tone (Section 8.2.1.3).

(7)   ègwè í̧gbo   *nets (lit. plurality of nets)*

$$\begin{bmatrix} & - & \\ & & - \\ = & & \end{bmatrix}$$

Other places in the grammatical system where an upstep toneme occurs are:

> (a) future tense (Section 5.4.1.3)
> (b) phrase junctures (Section 5.8.2)
> (c) juncture of nouns and some adjectives (Section 8.2.1.1)
> (d) juncture of nouns and some reinforcers (Section 8.2.1.1)
> (e) the preverbals n̄a and i (Section 11.1)
> (f) the sequential particle i (Section 3.2.1)

An upstepped high tone of either type has the following effect on successive tones within the phonological clause:

Another H tone cannot be upstepped until an actual L tone (not an elided L tone) has interposed.

Compare the initial tone of ifufomu in the following:

(8)   ifûfomù   *sandfly*   ogbò ifùfomù   *back of a sandfly*

$$\begin{bmatrix} - & - \\ - & - \end{bmatrix} \qquad \begin{bmatrix} - & & - \\ & - & \\ & - & - \end{bmatrix}$$
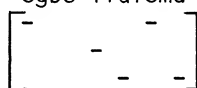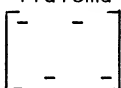
Word-final L tone or tones perturb to H tone before a following H tone, except at the boundary of the nominal phrase subject and the verbal phrase where there is a special low juncture (Section 5.8.2).

Compare the tone of o̞mu and of e̞numa in the following pairs:

(9) ò kunu o̞mù sà̞mù   *Did he build a house?*
    he build house qu

(10) ò kunu o̞mu n' a̧kîè   *He built a house in the town.*
     he build house in town

(11) ò̞ to̞u e̞nùmà   *He took money.*
     he take money

(12) ò̞ to̞u e̞numa to̞u du̧ înùmù   *He took money to buy something.*
     he take money take buy thing

Note that the assimilated L tone still has the effect of raising the previous H tone to h, since there is an ordered se-

quence in the pitch changes. Firstly, a L tone causes a previous
H tone to be upstepped; secondly, a L tone following an upstepped
H tone and preceding a H tone perturbs to H tone.

Tone glides. Rising and falling glides occur on single syl-
lables. A syllable with a tone glide is of the same duration as
a syllable with a level tone. The glides are analysed as a se-
quence of two tones, as they result either from a juncture feature
or from the compression of a tone pattern. The rising glide usu-
ally rises from L to H, unless it is followed by a L tone, in
which case it rises from L to h due to the operation of automatic
upstep. The rising glide is marked ˇ. The falling glide usually
falls from h to L, unless it is preceded by a h tone, in which
case it falls from H to L. The falling glide is marked ^. A
ligature between two tones indicates that the tones form a glide,
e.g., H͜L, L͜H.

Word-final falling glides occur only at the end of a phono-
logical clause before a pause, or at the end of the nominal
phrase subject when there is a low juncture with the verbal phrase
(Section 5.8.2). Clause medially there is a single h tone.

Compare the tone of ukwo and of kpẹ in the following:

(13) mḭ̀ ta ûkwô   *I went to farm.*
      I go farm

(14) mḭ̀ ta ûkwo nà   *I went to the farm.*

(15) mḭ̀ ta ûkwo n'udhè *I went to farm yesterday.*

(16) mị̀ sḭ̀ kpḛ̂   *I will pay.*
      I will pay

(17) mị̀ sḭ̀ kpẹ wọ̀   *I will pay you.*

(18) mị̀ sḭ̀ kpẹ n' înyà *I will pay you today.*

2.3.2. Intonation

In certain grammatical categories, there is a rise in the
overall pitch level of part or the whole of the clause, but the
tone pattern (i.e., the relation between individual pitches) of
the words is not altered. This change of pitch is analysed as a
different intonation pattern. The start of the rise in pitch is
marked in the transcription by an arrow ↑. For the intonation
pattern marking question sentences, see Section 4.6, and marking
interrogative clauses see 5.6.

The feature of negation has a special intonation pattern in
which the relation between the pitches is narrower than in the
positive. This is fully described in Section 5.4.1.1. It is not
marked in the transcription.

2.4. Word Juncture

As all nouns begin and end with a vowel, and all other words end with a vowel, two vowels frequently come together at word boundaries, and this results in the elision of the first vowel.

2.4.1. Juncture of Major Words

(a) Close vowel in word-final position followed by VC-. In final syllables of minimal nouns (VCV) and verbs (CV), the vowel elides and the tone is lost, but the closeness and frontness of a front vowel is maintained in the palatalisation of the syllable. Similarly, the closeness and backness of a back vowel is maintained in the labialisation of the syllable.

(19)	dhị ậnàmù	[dhyậnàmù]	*eat meat*
(20)	ạvì ạmò	[ạvyạmò]	*a child's leg*
(21)	dụ àswâ	[dwàswâ]	*buy a hoe*
(22)	ọmù ậbhù	[ọmwậbhù]	*a doctor's house*

With nonminimal nouns (VCV+) and verbs (CV+), the close vowel of the final syllable elides together with the tone, and there is no palatalisation or labialisation of the syllable except in the cases noted below.

(23)	ìkènì ậnò	[ìkènậnò]	*this ivory*
(24)	ùtùmù ậnàmù	[ùtùmậnàmù]	*an animal's tail*
(25)	fọ̀li ạ̀bhii	[fọ̀lạ̀bhii]	*peel kola*
(26)	fùnu èdhi	[fùnèdhi]	*climb a palm tree*
(27)	dẹ̀i èsèni	[dẹ̀èsèni]	*sell fish*
(28)	yọ̀u ạ̀mìni	[yọ̀ạ̀mìni]	*bail out water*

The syllable does have a feature of palatalisation or labialisation in the following cases:

When the root has reduplicated syllables.

(29)	mìmi ạ̀kàni	[mìmyạ̀kàni]	*squeeze the cloth*
(30)	ovuvù ânò	[ovuvwânò]	*this light*

When the syllable ri or rị is preceded by an identical vowel.

(31)	ìkìrì ậnò	[ìkìryậnò]	*this grasscutter*
(32)	ạbhìrî ậnò	[ạbhìryậnò]	*this fish trap*

When the syllable ru or rụ is not preceded by an identical vowel.

(33)	ẹsàrù ậnò	[ẹsàrwậnò]	*this mosquito*
(34)	ọ̀gbarù ậnò	[ọ̀gbarwậnò]	*this fish (one particular species)*

When there is a sequence of two similar vowels in word-final position, the final vowel elides together with the tone.

(35) ùviî ânò   [ùviânò]   *this paddle*

(36) utùù ânò   [utùânò]   *this hat*

(37) ọ̀ rịi ạkìè   [ọ̀rịạkìè]   *He passed the town.*

(38) ò duu ậmìnì   [òduậmìnì]   *He bathed.* (lit. *he went out to water)*

(b) Nonclose vowel in word-final position followed by VC-. With all nouns and verbs, the nonclose vowel elides together with the tone.

(39) ọ̀kọ̀ edèî   [ọ̀kedèî]   *a man's canoe*

(40) dìre èsèni   [dìrèsèni]   *cook fish*

(41) ò kie ạmò   [òkiạmò]   *She refused the child.*

(42) zùo ạ̀mìni   [zùạ̀mìni]   *draw water*

When there is a sequence of two similar vowels in word-final position, both vowels elide, and there is compensatory lengthening of the first vowel of the second word. The tone of the first of the two vowels is retained.

(43) imòsyì nàà ịvùràmù [imòsyì nị̀ivùràmù] *men and women*

(44) okàà edèî   [okèedèî]   *old man*

(c) Additional elision in fast speech. Usually no elision takes place before a single V morpheme, but in fast speech elision may occur with compensatory lengthening of the first vowel of the second word. The tone of the elided vowel is retained.

(45) mị nà gbe ò [mị nàgboò] *I am going home.*

Similarly, in fast speech both vowels of a vowel sequence may elide. There is compensatory lengthening of the first vowel of the second word, and the tone of the first vowel of the sequence is retained.

(46) ọ dèị akà   [ọdàakà]   *She sells corn.*

(47) ọ tọ̀u ẹnùmà [ọtẹ̀enùmà]   *She takes money.*

2.4.2. Junction of Particles With Major Words

The vowel of the particles ga, ka, na, sa (all with H tone) elides before a V syllable, but the tone is retained, giving rise to a HL glide if the following word normally begins with a L tone.

(48) ò wei ga ò somu ya   [òweigôsomuya] *He said it was all right.*

(49) ạdhe wịìa ka ò gbe   [ạdhewịìakôgbe] *When day dawned, he went home.*

(50) èsènì ivà na ọ̀ ya   [èsènivànộya] *There are two fish.*

(51) sa ọ̀ki   [sộki] *It's not him.*

2.5. Relation Between the Phonological and Grammatical Hierarchies

The five units set up for the analysis of Engenni phonology are the following: phoneme, syllable, phonological word, phonological clause, and pause group.

The phoneme is the lowest unit in the hierarchy and therefore has no structure.

The syllable has the structure V or CV (except in loanwords) and bears one or two tones.

The phonological word is the unit bearing the tone pattern. It is further characterised by vowel harmony. It usually correlates with the grammatical word, except in the case of compound nouns (Section 10.2.2). Various groupings within the nominal phrase (Section 8.2.1.1), a singular pronoun subject and the following verb (Section 5.8.1), and the verb and following postverbal(s) (Section 11.2) constitute extended phonological words. Vowel harmony operates throughout the extended phonological word, and certain regular tone perturbations occur between the elements.

The phonological clause is the unit within which there is elision and automatic upstep. It is bounded by potential pause. It usually correlates with the grammatical clause, but may be smaller, e.g., when there is a pause before an adverbial phrase in a long clause.

The pause group is the largest unit of phonological significance.   It is characterised by a final intonation with lessening of voice intensity, lowering of the pitch of the final tone, and a final pause. It correlates with the grammatical sentence (Section 4.0).

2.6. Other Symbols used in the Transcription

Where it is relevant to the description, the following additional symbols are used in the examples:

/	phrase boundary
// or ,	clause boundary
/// or .	sentence boundary
[ ]	rankshifted unit