CHAPTER 1
INTRODUCTION

1.1 HISTORY

The Huli people live in the central mountains of the Papua New Guinea mainland, at a latitude of 6° below the equator and at a mean altitude of about 1500 metres above sea level. They number over 65,000 (Kloss & McConnel 1981), grouped in clans (hamigini) and subclans (hamigini emene) throughout the area shown in the map on page 2.

Some of their origin myths speak of ancestral kinship ties with neighbouring language groups, while genealogies and oral traditions suggest that there has been some migratory movement within the area they regard as their own. They have probably been living in this area for 600 to 1000 years (Blong 1979), or possibly even longer, given that the Highlands of Papua New Guinea have been inhabited for at least 2,500 years (White & O'Connell 1982: 176).

The present-day inhabitants of the land employ a system of shifting cultivation whereby virgin bush is cleared and the ground tilled as need arises, leaving old worn-out tracts of land to recuperate through natural re-afforestation. The secondary forests that then appear become available for clearing and recultivation within the space of two to four generations, although in the higher and less fertile regions the forests tend to degrade into grasslands rather than to return to their original state.

The restricted population movements induced by this cyclic pattern of agriculture are largely responsible for the fact
that the Huli have no remembered contacts with language groups other than their immediate neighbours before 1935, when an Australian administration patrol led by Hides and O'Malley trekked into Huli country.

This first contact surprised both parties, since neither was aware of the other's existence. Both were cautious, but initial relations were cordial, and the patrol made its way across the southern edge of Huli territory. Hides camped above a huge intermontane basin, and came to call it "Tarifuroro" when an old Huli who had come to visit them gestured towards the valley and said this (Hides 1939: 91). It seems likely now that what the Huli probably said was

```
a^aliporo
Tagali porogo
Tagali go-1S-SIMP PRES-DET
(to the) Tagali (river) I go
I'm going to the Tagali
```

but, whatever the case, this 'name', shortened for convenience to "Tari", was eventually given to the largest administration centre to be set up in Huli country.

Unfortunately, the friendliness that marked the initial encounters between the Huli and the patrol did not last, and three Hulis - including one girl (Frankel 1986: 14) - had been shot dead before Hides and O'Malley moved on. When the next patrol, led by Taylor and Black, came through the area in 1938-39 it was allowed free passage, as was the party led by Smith, Clancy and Neville, which entered to set up a permanent administration centre and to commence work on an airstrip in 1951.

This airstrip and its adjoining settlement were called "Tari", and the Australian administration went on to establish similar centres at Goloba ("Koroba") in 1955 (Sinclair 1966),
Magarima ("Margarima") in about 1960, and Gumu ("Komo") in about 1965. The first christian missionaries arrived in Lumulumu (the Huli name for "Tari") in 1952.

1.2 LANGUAGE STUDIES

During the period 1954-55, W.M. Rule produced an orthography and a preliminary pedagogical grammar of the language, the latter being revised around 1964. The policy of the missionary group to which Rule belongs is to limit the availability of its language materials to those within its own organization. However, part of Rule's Huli grammar has been published by Oceania (Rule 1977) and is accessible in this form.

Among others who have contributed to the study of the Huli language by data collection and analysis are Rev. Berard Tomassetti, Timon Kaple, Myron Flax, Matthew Gross, Dominic McGuinness, Malachy McBride and Lawrence Pozzouli, all of the Order of Friars Minor Capuchin, and Rev. David Neis, Patrick Ruane and Kevin Flanagan.


In about 1972 there was a general agreement among those working in linguistics and literacy to adopt Rule's earlier orthographic statement, and the bulk of language materials produced since then, including the Huli New Testament, have used it.

Between the years 1977-79, B. Cheetham visited the Huli country a number of times and made a study of formal and non-formal education systems. His circulated papers include one on
1.3 ETHNOLOGICAL STUDIES

R.M. Glasse has published a number of papers on Huli culture (Glasse 1959a, 1959b, 1965, 1968, and 1974), as well as a doctoral thesis (Glasse 1968). Although he was restricted to the vicinity of Lumulumu, his account remains the major and most significant one of Huli society.

Another anthropologist, P. Challands, conducted a demographic survey in the Tari basin in connection with a population control programme in the mid-1970s.


With the exception of Challands, all those involved in ethnological studies of the Huli have either published their findings in journals or books, or have left written accounts of their work in thesis form. On the other hand, Rule alone of the linguists has published something of note on the language itself: the revision of his MA thesis (Rule 1977), which

1.4 THIS PRESENT STUDY

This study has been influenced by the work of those mentioned in 1.3, but especially by Rev B. Tomassetti and M.Gross, and by W.M.Rule.

I have used the method of phonological description devised by Chomsky & Halle (1968) and modified by others such as Hyman (1975). This method has its drawbacks, particularly in correlating the proposed distinctive features with physiological data produced through scientific instruments, as is demonstrated in empirical studies seeking to differentiate between 'tense' and 'lax' (cf Maddieson & Ladefoged 1985), and efforts to describe 'aspiration' (cf Chomsky & Halle 1968: 326-329). However, it also offers economy of description, allowing the enquirer to explore phonological change in an interesting way, and to establish useful rules that point to the motivation for this change.

The description of verb morphology identifies three classes of verbs, along with three distinct suffix groups. It elaborates on the notions of existential verbs (EV) and adjunct + pro-verb (APV) constructions, taking up the insights of Adrianne Lang (Lang 1975). The APV in particular is shown to be a configuration that persistently re-occurs, demanding consideration at various levels of language structure.


Typological features such as switch-reference and covert
noun classification are discussed, as are registers and genres. The linguistic description is preceded by a general description of Huli society, and is rounded out by a description social and linguistic changed occasioned by the advent of 'Western' culture and the new languages that came with it.

Seven texts are then presented that illustrate many of the linguistic and socio-cultural features described in preceding chapters of the thesis. These are followed by appendices that contain data on a tone survey, a glossary of the Huli that occurs in the body of the thesis, and a list of verbs randomly selected when conducting a survey into the semantic domains of verb classes.

1.5 ENVOY

This grammar is clearly an account of only a small part of the language. It is an initial attempt by a non-native speaker to come at some of the interlayered networks and systems that are constituents of a living and ever-changing reality made up of the language and its speakers. Perhaps it is only the native speaker who has enough access to a language and to the culture it signals to enable him/her to write a linguistic description that is truly coherent. I would hope that when the day comes for a native speaker to write such a description of Huli, this study, and others like it, will provide the writer with a useful starting point.
CHAPTER 2

TRADITIONAL SOCIETY

2.1 GEOGRAPHICAL SETTING

The land in which the Huli people dwell is one of contrasting scenery, notable for its rugged mountain ranges and fertile, swampy valleys. The rivers that drain the area are subterranean in sections, and there are numerous caves and potholes in the limestone rock formations. In places the rivers run swiftly through deep gorges, while elsewhere they take a less hurried course through swamplands in the wide, expansive intermontane basins. The slopes of all but the tallest of the highest mountains are covered in dense rainforests, with here and there an outcrop of white limestone cliff or a patch of light green swordgrass.

The rainforests provide timber, vine and bamboo for the construction of dwellings and the crafting of artifacts, while pandanus palms in the high bush yield crops of nuts, rich in protein and harvested each year. Small game animals, such as pigs, possums and cassowaries, also provide a source of protein, and are hunted for their pelts and feathers.

There are areas of volcanic soil, ideal for the cultivation of sweet-potato, which is the staple diet. Other arable land is to be found in the higher parts of swamps - like the areas around their edges - and on mountain knolls and the smaller high plateaux where people plant their gardens and husband their pigs.

The success of Huli subsistence economy is linked to the
climatic conditions, and although these are sub-tropical, the average annual rainfall is high. Persistent and heavy rain always brings the threat of flooding and crop damage, while periods of drought can cause frost to occur in the higher regions.

Some people live at heights as great as 2,000 metres above sea-level, while others dwell in the deeper mountain valleys and in the lower areas of the central cordillera at altitudes of only 1,000 metres. Consequently, temperatures across Huli country can vary greatly, although the main body of the population - in the Wabia-Lumulumu-Burani-Goloba region - enjoys a daily temperature of about 20°C and an average nightly temperature of around 10°C. This temperate climate persists throughout the year, with no seasonal variations.

The climate, the rugged terrain, the flora and fauna: all these are important environmental factors in Huli life. They are constant referents in Huli poetical expressions (cf Pugh-Kitigan 1975: 191), and especially in Huli music, which is an extension of speech (Peters 1975: 53) and functions as a significant form of communication, both phatic and ritual. Environmental factors are also determinants in Huli structural and behavioural patterns, and Huli technology and ideology.

2.2 TRADITIONAL BELIEFS

The complicated account of Huli beliefs given in Glasse 1965 is based on data he gathered in Hoyabia, near Lumulumu. Since his day, others have queried his findings (e.g. Goldman 1983; Frankel 1986), especially in regard to his main claim: that the Huli descent system is cognatic. It is certainly true that Glasse's view was limited by his being unable at the time
of his fieldwork to move freely in and out of what was then restrictive territory, but subsequent studies have also been based on data gathered in particular communities, not from the wider, more general Huli population. Barnes has said that 'Huli institutions are likely to remain analytically controversial' (Glasse 1968: 4), and while this might be true, some aspects of Huli culture identified by Glasse are widely held or known. I will describe these briefly, adding observations of my own.

2.2.1 dama These are a loose hierarchy of supra-human beings that inhabit the sky, rivers and water holes, caves and dense bushlands, and especially the higher reaches of the mountains. They control the climate and the land, and affect fertility in both soil and livestock. They can cause a variety of sicknesses and misfortunes in humans, including death, and are constantly and capriciously active in human affairs.

The originating dama of the Huli and their neighbours are generally less malevolent than others, and all dama can to some extent be placated and persuaded to desist from causing harm. Sometimes they can be tricked or warded off, and it is even possible to manipulate some of them and harness the powers that they possess (cf Glasse 1965: 33-37).

2.2.3 dinini Less powerful than dama, but still more powerful than humans are the dinini or ghosts of the dead. These, too, are active in human affairs, male ghosts being benevolent and protective towards their descendants, while female ghosts are invariably spiteful and malevolent to all except their own offspring. Some dinini have wandered in from other places and taken up their abode in Huli territory, and these may be looked upon as having almost the status of dama. dinini cannot be ap-
peased, only tricked or thwarted by the use of strategies more powerful than theirs (cf Glasse 1965: 29-32).

2.2.4 *tomi* This is a general term for power that is not necessarily attached to *dama* or *dinini* but can reside in some material objects - such as stones - or be generated by certain religious formulae called *gamu*. It can cause sickness or death, either accidentally or through human manipulations (cf Glasse 1968: 105-106).

2.2.5 *wali* This is the Huli word for 'woman' or 'women', who are all regarded as being unwittingly endowed with *tomi*, especially potent in their menstrual blood. They are seen as being a baleful influence on and a potential source of danger to men. On occasions they may consciously use their powers to cause harm (cf Glasse 1968: 106), and men have to learn ritual strategies to guard themselves against them.

2.3 SOCIAL STRUCTURES

Having looked at some salient aspects of Huli ideology, we shall now consider in outline Huli social structures. It is convenient to examine these under the classification labels 'hereditary' and 'non-hereditary', although there is some overlap between these categories.

2.3.1 Hereditary Social Structures

2.3.1.1 *hamigini* This is a social group with residential rights within a defined territory. Membership is reckoned in terms of descent - cognatic according to Glasse 1968, agnatic according to Frankel 1986. Whatever the case, membership is
established by being able to trace one's ancestors back through many generations, and thus demonstrate one's claim to identity with the group. The Huli term \textit{hamigini} is equivalent to what Glasse calls a 'parish' (Glasse 1968: 23-24), while his term 'parish section' equates with the Huli \textit{hamigini emene}.

2.3.1.2 \textit{hamigini emene}  This is a unit residing within and owning a portion of the territory occupied by a \textit{hamigini}. At this point it will help to clarify matters if I start to call a \textit{hamigini} a clan and a \textit{hamigini emene} a subclan, always bearing in mind that for the purposes of this study the terms 'clan' and 'subclan' take their definitions from the Huli terms to which they have been made to correspond.

Subclans are autonomous and are the basic social units of Huli society, making war, initiating peace and paying indemnities without obligations to consult the rest of the clan (cf Glasse 1968: 24). Claims to membership and to territorial rights are based on a person's being able to establish descent from the founder of the subclan, or relationship with a subclan member. Affines also become resident members, as do those who are permitted through bonds of friendship to reside within the subclan and align themselves with it in its activities (cf Glasse 1968: 24-35). Non-kin, however, can never claim the position accorded to full members of a subclan.

This position has to do with the amount of security enjoyed as regards land tenure, and the extent to which a person is morally obliged to be involved in subclan activities. It also governs the degree of support a person is expected to give or can expect to receive in discharging obligations or accepting death indemnities from others.
This basic pattern is complicated by the fact that a person may, by descent, be affiliated to more than one subclan, and a further complication arises in that people can, and frequently do, reside multilocally. Hence, an individual will usually belong in one way or another to more than one subclan at a time. This mobility and freedom of choice mean that kinship and other ties extend beyond subclan territorial boundaries.

2.3.1.3 Kinship structures. The extent of close kinship within Huli society is reflected in the language: 'brothers and sisters' include what we would call half-brothers, half-sisters, and all parallel cousins (cf Glasse 1968: 148). Within these parameters, siblings of the opposite sex call each other reciprocally mbalini, female siblings call each other hagabuni, and male siblings share among themselves the label hamene. The label aba includes one's father and all those whom he calls hamene, and the term aija includes one's mother and all those whom she calls hagabuni.

The terminology and the semantic fields covered by each item indicate the generally wide concept of family held by the Huli, although when occasion demands, finer and more precise distinctions can be made. Thus, the relationship between paternal uncle and nephew/niece is designated by the reciprocal term ajane, while the term ama is used reciprocally of the relationship between maternal aunt and nephew/niece.

It can be seen that while a subclan is an extended family, kinship structures go well beyond its confines.

2.3.1.4 Marriage. Although marriage is an institution rather than a hereditary structure, it is convenient to consider
it here.

2.3.1.4.1 In Huli society a man is free to take as many wives as he can afford. Choice of marriage partners is restricted to some extent by hereditary kinship structures, custom demanding agnatic exogamy but forbidding the marriage of close cognates (Glasse 1968: 49). This leaves open the possibility of marriages extending beyond clan confines, and even to other language groups.

2.3.1.4.2 A young man and woman may freely choose to marry each other, or a man's bride may be selected for him by his sub-clan or close kin. Either way, the marriage is instituted by the bride's kin receiving from the groom's kin a suitable bride-wealth - a payment made mainly in pigs, varying in number from 15 to 30. The groom has the right to designate the bride's place of residence, and has the duty to build a house for her and give her land on which to work a garden.

The bride is expected to rear the children, tend the garden, and herd the pigs. Girls are her continuing responsibility, but her sons go to live with their father when they reach the age of nine or ten. In general, the husband is deemed to have greater rights over the children than the wife, and even after divorce he can claim the major share of any brideprice paid for daughters living with his former wife or her kin (Glasse 1968: 54).

2.3.1.4.3 Divorce is not infrequent, the commonest cause being failure of the woman to produce children. A man will be anxious to recover the pigs paid for a woman who proves to be lazy or unbiddable, while on her part a woman can end an unsatisfactory
union simply by leaving her husband (Glasse 1968: 76).

2.3.2 Non-hereditary Social Structures

In Huli society there are no hereditary chiefs or offices that carry political power that underpins the hereditary structures described above (cf Glasse 1968: 21). An exception to this can be found in some clans where the reposit of genealogical history is in the hands of a single individual, who can trace his ancestry back to the clan founder. Apart from this, power and social importance can be achieved by any man with the right combination of talents, ambition and industry, a man's influence over others being in direct proportion to his mastery of practical skills and the strategies necessary for combating malevolent influences. In almost every case, mastery of skills and strategies is linked directly to mastery of their associated varieties of language, and one who has command of esoteric or secret registers and genres is held in regard, and others will tend to listen to his counsel and follow his lead.

This type of leadership is exercised in various areas of social and economic activity, and I shall describe some of these now.

2.3.2.1 homogo A man who has succeeded in gaining wealth above the ordinary is called a homogo. His success is evident in the size and productivity of his gardens, the number of his wives and of his children, and the health, size and number of his pigs. He usually has gardens in several subclan territories, residing multilocally, and his influence is felt by many. He clearly has the wisdom and secret strategies necessary for success, and his advice is sought - and bought - by others. Because of his standing in different subclans he is a natural ar-
bitrator in times of dispute, while his wealth makes him a valuable associate when death indemnities have to be met or when bridewealth has to be paid. He may or may not be also recognized as a manaji.

2.3.2.2 manaji One who is in possession of considerable secret knowledge is called a manaji. His knowledge is of religious rites and divinations, and his power has been proved. He may also be a custodian of Huli myths and lore. Among the publicly acknowledged manaji are figures of influence such as the leaders of the haroli or bachelor cult (cf Cheetham 1979: 89) and the leaders of cave cults (cf Habel 1979).

2.3.2.3 dandaji These are men skilled in war and hunting, knowledgeable in the use of fighting spells and strategies, and in the secret language necessary for journeying into the high bush. They are natural candidates for leadership in war, although war parties usually tend to follow the successful man of the moment.

2.3.2.4 dombagwa An arbitrator in disputes is known as a dombagwa. He usually has command of the special register called damba bi (cf Goldman 1980: 224), and is skilled in remembering details, so that he is able quickly and vividly to relate the background to the matter under dispute (Peters 1975: 19) and to point towards a solution. He is frequently, but not necessarily, a homogo. An accomplished dombagwa will chant the damba bi in monotone.

2.3.2.5 Singers There is no generic term in Huli that covers those who exercise an influence in society through music. Players of the gāwā 'mouth bow' and hirijule 'jaw's harp' art-
iculate words as they play, telling stories and recounting everyday happenings (cf Peters 1975; Pugh-Kitigan 1975). Chanters of the long and intricate bi te 'folktales' make an essential contribution to poetry and to phatic communion, as do the singers of ritual u 'love chants'. Performers of the dawe 'wail for dead men' and the dugu 'wail for dead women and children' are leaders in important social functions, esteemed for their skills. Players of the gāwā and hirijule may also be feared a little, since gamu 'religious formulae' are known to gain potency when performed on these instruments.

2.3.2.6 jagibano Men who achieve no distinction in society and are patently unsuccessful - with few children, poor gardens and sickly pigs - are called jagibano. They are presumed to have failed to have gained even the minimum knowledge of everyday living skills and the basic gamu necessary for ordinary success. They are at the opposite end of the continuum from the homogo. A jagibano may be married, but more typically he is single. Such single men, including widowers, are called daloali, and generally they have little social influence. A marked exception to this, however, is the daloali who leads the haroli.

2.3.2.7 haroli Significant in Huli society are the members of the bachelor cult, the haroli or ibagiya. This cult is part of the initiation process for young men, the group being led by an older, celibate, man, the ritual daloali. He is admired and feared for his command of mana 'lore' and gamu 'religious formulae', for his wealth in pigs and for his spartan way of life. Young men pay highly to join the cult for two or three years, learning from the daloali - who is also a manaji -
the complexities of traditional mythology and lore, especially the religious strategies for warding off the evil influences of women. The haroli are segregated from the rest of society, living in large tracts of dense bush into which no woman or married man may go.

2.3.2.8 kebeali Similarly segregated from others are the curators of cave shrines (cf Habel 1979: 19-24; Goldman 1979), the kebeali or gebeali. These custodians of the shrines are meant to refrain from contact with women during their terms of office, and to dwell apart from the rest of the community. They are privy to the religious rites and formulae necessary for mediation with the dama that inhabit the shrines, and can command high fees for the placatory services that they perform.

2.3.2.9 wali The position accorded women in Huli ideology is reflected in the social structures. Women live apart from men and have little voice in decisions taken at subclan level. Even when they have been the cause of a war they take no part in the fighting or in subsequent negotiations for peace (cf Glasse 1968: 99-100). Their say in the choice of a marriage partner depends to some extent on how assertive they are (cf Glasse 1968: 52), but ultimately it is the male members of the subclans involved who control the decision and settle on the bridewealth.

2.3.2.9.1 A woman may own pigs and other valuables, and she is entitled to the food she grows in her gardens, but she can never achieve the wealth and influence that a man can. She may gain a certain standing among other women as a chanter of dugu or a player of the gāwā or hirijule, or as one who possesses special secret knowledge and gamu (cf Pugh-Kitigan 1975: 45),
but her political influence in society at large is not significant.

2.4 TECHNOLOGY

This word is used to designate the means employed by a society to control its environment and enhance its well-being. Under this heading I would like to consider briefly gamu, gardening, animal husbandry, and houses and other artifacts.

2.4.1 gamu This term is used generically of religious formulae, which are directed primarily towards achieving material well-being through the manipulation of non-material controlling forces. Thus there are gamu associated with nearly every situation to be encountered in daily life, and a simple working knowledge of these is considered normal. There are also gamu performed at clan and subclan levels, led by those that have the specialist knowledge required — such as the kebeali already mentioned (cf 2.3.2.8 above).

2.4.2 mabu There is a variety of gamu to accompany the important practice of gardening. Gardens, called mabu, are made by clearing the bush and digging over and composting the soil before planting. Each person has a large garden in an area of cleared bush, drained by deep ditches and protected from stray pigs by wooden fences. The initial heavy work of clearing the bush is done by the man, but the woman will then do the mounding and planting if the garden is meant for her, otherwise the man usually completes the work by himself.

2.4.3 anda A similar division of labour is observed in constructing anda 'houses'. The man cuts down the trees and
adzes the planks from which the walls and rafters are made, and
the woman brings bundles of swordgrass to be used for thatching.
Usually houses are not situated by the owner's main garden, but
scattered through the bush; each house having its own gama
'small garden' around it. A typical anda is about 1.5 metres in
height, 2 metres wide, and 3.5 metres long, with a dirt floor
that has a scooped-out fireplace in the middle.

2.4.4 Some artifacts. Essential artifacts for Huli under-
takings are the stone axe, aju, and the hardwood digging stick,
keba. String is made by rolling tree fibres together, and is
used to bind the axe head to the haft. It is also used for a
variety of other purposes, one of them being to make the woven
string bags, nu, carried by men and women alike. Men weave it
into an apron or sporran to cover their genitals, using sprigs
of leaves to cover the buttocks. Most men wear a manda 'wig',
woven from human hair, and most have a danda 'bow' and timu 'ar-
row/s' for hunting and for warfare.

Women dress in hurwa 'skirts', made from dried reeds and,
like men, will frequently carry a dalu tu 'raincape' in their
bags. Women seldom smoke, and those that do use pipes made
of bamboo (mundu be), just as the men do. Other important art-
ifacts are the tabage 'drum', played by dancers, and the gāwā
'mouth bow' and hirijule 'jaws harp', mentioned in 2.3.2.5.

2.4.5 Animal husbandry. The most important domesticated
animal is the pig, nogo. It is easily cared for, being allowed
to roam free during the day, or simply left tethered to a clump
of grass while its owner is busy in the garden. At night, pigs
are herded into a separate part of the woman's house, into a
pen called a golia, and there shut in and fed on sweet potato.
Other animals domesticated for food are chickens, which were introduced by white people, and cassowaries, although the latter are regarded as exceptional, since they do not play a significant role in the Huli economy. Dogs are kept for hunting purposes, or as household pets, and are not considered to be edible meat.

2.5 SOCIAL BEHAVIOUR

The social behaviour of the Huli cannot be described in detail here, and I shall concentrate on brief descriptions of the behavioural patterns of women and of men, and on the notion of taga 'loss of face'.

2.5.2 wali A woman's daily round involves herding the pigs, looking after the children, and weeding and gathering food from her garden. She prepares food for herself and her children by baking sweet potatoes in hot embers, or steaming them in an oven made by heating stones and then placing the food on them before covering them over with banana leaves and earth. She works away little by little at tasks such as rolling string and making it into pig ropes or string bags, and at making skirts for herself and for her daughters.

She spends much time socializing with other women, establishing a network of relationships and dependencies through casual barter and exchange, or through simple phatic communion. She acquires knowledge of gamu in this way, and uses it as the needs arise. She may also practice on and become skilled in playing the gāwā or the hirijule.

She joins the other women of her kindred to wail and mourn at burial ceremonies, and may become a leader of dugu chants.
She is similarly present and involved at clan and subclan rituals, and will expect her husband to give her vegetables and pig meat cooked in the long earthen ovens dug out for the occasion by the menfolk.

Her daughters receive no formal education from her or from the other women of her group, but copy their mother and assist her from an early age with the domestic chores. When her daughters reach puberty they will be instructed briefly by their mother or by older women on the need to hide during menstruation, and on the gamu to be used to secure a strong husband and to protect him when he is away hunting or at war. They will begin to notice young men, especially the haroli, whom they will see from time to time at ceremonies and celebrations.

A girl may become a man's first or second wife, and will usually leave her subclan to join his. She will have her own house, to which her husband never comes, and will meet him in the bush to consummate their union. Older women will assist her at childbirth and supply advice on the gamu and other measures necessary for childbearing.

2.5.3 agali A young Huli boy leaves his mother's house when he is about nine years old and goes to live with his father and male relatives. He ceases to accept food cooked by women, and begins to learn from his father important things like gardening, hunting, cooking, and warfare. He learns who his enemies are and where the subclan and clan boundaries lie.

He learns to respect and obey the older men, who reward him for minor services and generally protect him, giving him food and shelter when he needs them. He gradually and informally begins to acquire skills, and in his early teens will begin
to make his own garden and look after himself. He will be given small pigs by friends, and will either herd them himself or get his mother or sisters to herd them for him.

He may or may not become a haroli, and if he does he will have to rely on his network of relationships within his subclan when arranging for his garden and pigs to be cared for while he is away. In return for this care he is expected to pay pigs and food.

While with the haroli his knowledge of sacred myths, lore and gamu is deepened. He learns how to conduct himself in a manly way, to put up with unusual privations, and to negotiate the difficult and sometimes dangerous task of surviving in the dense bush. He is taught the strategies necessary to combat the evil influences of women, and how to weave the upward-curving manda 'wig' that is worn by the haroli.

When he leaves the bachelor cult he becomes a warrior, returning to his subclan but ready to join in warfare between other subclans, even when he has no personal interest in the matters under dispute, for to be brave and daring is to earn esteem. Thus he becomes involved in the chain of conflict and revenge that is endemic in Huli society. He will not be significant in subsequent peace negotiations, but will attend the mourning feasts for those killed. He will not be allowed to remain for the evening courting parties that follows these feasts, at which only married men and unmarried women may be present.

Indeed, he will not have much influence in these affairs, nor in decision making at subclan level, but will follow the decisions and directions laid down by older men. He will also join hunting parties that from time to time go to the high bush.
to seek game and to harvest pandanus nuts, and will learn the 
tajanda bi 'bush language' used by his subclan to confound the 
dama and dinini.

He will soon marry, having little part in the negotiations 
over the bridewealth, but being responsible for assembling the 
number of pigs eventually decided upon. If he cannot meet the 
price he has to rely on his kinsfolk and friends to assist him, 
and will incur debts that he must eventually repay in full. But 
he will not be pressed to make repayments, and within the deli­
cate and complex web of interpersonal relationships will remain 
always to some degree in debt, with others always to some de­
gree in debt to him, for the rest of his life.

He may begin to specialize in certain forms of gamu, pay­
ing pigs to others for the knowledge they impart. If he pursues 
his specializations, he may eventually become acknowledged as a 
manaji, and in his turn will begin to command fees for his ser­
vices.

Generally, his interests expand and his individual initi­
ative begins to develop as he starts to reside multilocally and 
to participate in the affairs of a number of subclans simultan­
eously. When conflicting claims arise amongst these subclans, 
he may adopt a neutral position by withdrawing to another place 
or he may espouse the cause of one particular group (cf Glasse 

As his wealth increases he has to acquire more and larger 
gardens for his pigs, which in turn means more wives to take 
care of these assets. More demands will be made on him for as­sistance, and he will become recognized as a homogo. He becomes 
an important man, known beyond the confines of his own clan, 
and he will begin to wield an influence throughout a wide area.
Such a homogo has to have considerable interpersonal skills, knowing the right things to say and the correct registers to select when addressing people. Others, less endowed with these talents, will achieve influence in the other modes of leadership outlined in 2.3.2. specializing in the registers associated with these pursuits. (Cf Glasse 1968: 135-136; Peters 1975: 1-17; Cheetham 1979: 88-89.)

2.5.4. taga This word can be glossed as 'shame' or 'loss of face', and, together with turu 'well-being' or 'maintenance of face', is central to a behavioural norm that says one should avoid inducing taga in another and foster his/her turu. Failure to observe the prohibitive aspect of the norm can have serious consequences, since taga always has to be repaired or assuaged.

If the taga is private, then the experiencer can normally be compensated in private. However, if taga is caused publicly, the aggrieved party will usually seek some form of public redress, such as a moot at which the compensation can be fixed (eg Goldman 1980: 219-220). If taga is experienced by whole subclans, the compensation claimed can be high, and war may ensue if the claim is not met.

turu is seen as a condition that each person should be allowed to maintain in himself or herself. To ensure that one does not destroy this condition in another by causing taga, even accidentally, requires circumspection in a society where most words and actions are in the public domain. To foster turu in another requires dara 'empathy' or 'sympathy', and certain associated skills.

Brown and Levinson have proposed a universal,
highly abstract notion of 'face' which consists of two specific kinds of desires ('face-wants') attributed by interactants to one another: the desire to be unimpeded in one's actions (negative face) and the desire (in some respects) to be approved of (positive face). (1987: 13)

Given that every utterance is potentially face-threatening for both speaker and hearer, the speaker employs a range of politeness strategies to cope with this problem (Brown & Levinson 1987 67 et seq). These include whether or not to do the face-threatening act (FTA); whether to do it off record (ambiguously) or on record (unambiguously); whether to to it baldly (explicitly and clearly) on record or to redress the hearer's positive face (positive politeness) or negative face (negative politeness).

This fairly comprehensive description provides a template for surveying a speech community's politeness strategies. It is possible to cross-reference it to the broad categories of Huli taga-avoidance (face saving) strategies and turu-fostering (face giving/maintaining/enhancing) strategies.

**taga-avoidance** may address the hearer's positive or negative face. It is operative, for example, in the use of **bi jobjage** 'veiled talk' (cf 10.5.3.13) - circumlocutions and covert references - when airing grievances, and in the careful use of softeners, such as the enclitic (-) **be** (cf 5.5.1), when addressing people one is not sure of, or who are evidently more powerful than oneself. This latter category includes older people of both sexes.

**turu-fostering** strategies usually attend to the negative face of the hearer, and include prompting devices such as supportive anaphoric bridging (cf 4.3.2.2;12.2.1:1), and also affirming utterances such as

\[
\text{agali hegeneme bajwa ore birida} \\
\text{man tongue-ERG well very do-2S-SIMP PAST-MOD} \\
\text{you're not just a talker: you've acted on what you said}
\]
I feel empathy with you
(said on coming upon someone enjoying a sunset)

Included under turu-fostering are strategies to repair taga, which may be used to signal supportive acceptance of the hearer even when the taga was not caused by the speaker. Thus,

ah, I feel empathy with you/ sorry for you
(said when the hearer fell off his motorbike)

can be seen as a repair strategy.

Besides humans, dama and dinini also have to be taken into account. If they are offended, they will feel not taga, but wrath. However, their negative face can be addressed and they can be made to feel turu by propitious behaviour.

The question of politeness strategies is a fascinating one, and deserves a study in its own right. The work of Piirainen-Marsh and Marsh (1987) illustrates that such an undertaking requires a careful analysis of a very considerable amount of authentic data. In this present thesis this matter cannot be given such detailed attention, but it is taken up again in the sections cited above, and in the exploration of texts in chapter 12.
2.6 NEIGHBOURS & PUTATIVE MIGRATIONS

The people of the Gubari-Wabia area (cf map p.2) regard their homeland as having been bequeathed to them by a common putative male ancestor called Huli (cfr Glasse 1968: 20). According to their myths, the brothers of Huli — Duna, Obena, Hewa and Duguba — founded the neighbouring tribes, to whom the Huli consider themselves to be related in some way.

This notion of the primacy of Gubari-Wabia, and of its being the originating locus of the Huli people is fairly widespread, and acknowledged by Huli clans even in the outer regions of Huli territory. Wabia in particular is often designated by other Huli clans as being Huli ore 'true Huli', and many oral traditions tell of migrations from there to other loci.

The traditions suggest that there have been migrations from Wabia southwest into the Gumu area, south towards Gudubu, and across the Doma Peaks into Magarima and Kandep. Migration also seems to have occurred just north of Gubari into the Gambe, and thence across into the Goloba area. From Goloba, migratory strands can be traced into the high western swamplands and then down through the Hanimu valley into the area around Gumu. Another strand extends from Goloba down to Burani and environs, while a third follows the eastern bank of the Tagali river down to Tani and Hiwanda.

There is some linguistic evidence supporting these claimed migrations in that Huli dialects seem to follow the same geographical boundaries. The map overleaf shows Huli isolects, indicating phonological, morphological and lexico-semantic variations; putative migrations are shown by arrows.

2.6.1 Isophones. A major phonological boundary extends along
Figure 2:

Isolects and migrations

KEY:
- --- isophone
- --- A-B isophone
- --- isomorph

- ➤ putative migration

- • Important Hull locus
- ✯ mountain peak
- ➔ river

PAPUA NEW GUINEA

Huli

Hull locus

Mountain peak

River

Isophone

A-B isophone

Isomorph

Putative migration

Important Hull locus

Mountain peak

River

PAPUA NEW GUINEA
the isophone which divides dialect A from dialect B. Speakers of dialect A front and raise the phoneme /a/ to non-allophonic [e] when it occurs in the penultimate syllable of inflected verbs, whereas speakers of dialect B realize it as one of the phoneme's allophones.

Within dialect A there are further divisions. Speakers of A2 tend to aspirate word-initial vowels - very likely under the influence of Duna, whose speakers in the Goloba-Gelabo area show a similar tendency. Many A1 and A2 speakers also substitute [p] for [y] (cf 3.10.1.4) in certain word-medial environments. Speakers of A3, besides aspirating word-initial vowels, also tend to replace word-initial stops with their corresponding fricatives, while speakers of Bl do not aspirate initial vowels, but do tend to substitute [s] for [p:] and [?] for [b] in word-initial positions.

2.6.2 Isomorphs. The lines encircling dialects A1 and B3 are isomorphs. Dialect A1 differs from other Huli dialects in that verb forms which in other dialects are Precautionary (5.4.6) or Permissive (5.4.8) become Imperative Future (5.2.15) in this dialect. While there does not seem to be any obvious explanation for this there is a ready explanation for the process that sets up the B3 dialect.

In this dialect, there is a tendency for speakers to omit word-final vowels. It seems likely that this could be due to the influence of Wola language speakers, with whom the Huli of the Magarima area share a land boundary, and with whom they intermix and intermarry. Wola is related to the Mendi language family, in which final vowels are usually deleted.
2.7 CONCLUSIONS

It seems reasonable to suggest that personal well-being and the esteem of others are important values in Huli society. They are attained through acquisition of wealth and of leadership status, which in their turn come through the mastery of practical skills and of the strategies needed to influence both supra-human beings and other members of society. This mastery depends heavily on knowledge of and proficiency in certain registers and genres of the language.

Social power and prestige are not inherited but acquired, and positions of leadership depend on a person's ability to articulate genres such as gamu, or registers such as damba bi, and the services connected with these positions usually command fees. Hence, leadership leads to increased wealth, which in turn generates more prestige and power, which then produce further increases of wealth ..... and so on. Clearly, non-hereditary social structures are integral components of the Huli economic system.

At the same time, hereditary social structures are also bound up with the values of personal well-being and social esteem. For society to remain in equilibrium, kinship and sub-clan ties, and the mutual obligations these entail, must be preserved. The responsibility for this rests largely with the older men, who are normally the ones with most wealth and influence.

It is interesting that the dual concerns over personal autonomy and group acceptance are reflected in the taga-turu norms and the avoidance and fostering strategies that are encoded even in the morphology of the language.

The rôle of women is a minor and subservient one, and they
are excluded from positions of significant influence and social power. They, too, need to master certain linguistic and practical skills in order to maintain their social status and fulfil the expectations of society.

This picture of traditional Huli society is basically the same throughout the land in which the Huli people dwell, and through which they see themselves to have diffused in migratory waves from a single originating locus. Neighbouring language groups are regarded as related in some mysterious, half-explained way, but, except in peripheral areas such as the northwest and southeast, are inconsequential in every life.

The perturbation consequent upon the introduction of Tok Pisin and English is discussed in Chapter 11. Before coming to that I would like to present a description of the phonology and grammar of the language.
3.1 INTRODUCTION

There are thirty-nine Huli phonemes, twenty of them being obstruents. Of these obstruents, those that carry the specification [-continuant] form a series whose members include segments that are [+nasal], segments that are [+round], and others that have both of these specifications.

Rounding and pre-nasalization are found among the obstruents that are [+cont], and phonemic rounding is also present in the series of glides.

The phonemes are set out in figure 3 below, the first six lines being [-cont] obstruents, the next three [+cont] obstruents, and the eleventh and twelfth lines glides.

\[
\begin{array}{cccccccc}
 p & t & k & j & h & I & j & n \\
 b & d & g & r & n & m & n & l \\
 m_b & n_d & \eta_g & \eta_j & \eta_k & \eta_n & \eta_l & \eta_m \\
 b^w & d^w & g^w & \eta_j^w & \eta_n^w & \eta_l^w & \eta_m^w & \eta_k^w \\
 m_b^w & n_d^w & \eta_j^w & \eta_n^w & \eta_l^w & \eta_m^w & \eta_k^w & \eta_g^w \\
 i & u & \ddot{I} & \ddot{u} & \ddot{a} & \ddot{e} & \ddot{o} & \ddot{a} \\
 e & o & \ddot{I} & \ddot{u} & \ddot{a} & \ddot{e} & \ddot{o} & \ddot{a} \\
\end{array}
\]

Figure 3: The phonemes
3.1.1 The major classes of Huli segments are obstruents, liquids, nasals, glides and vowels. They are distinguished by specification of the features [consonantal, syllabic, sonorant, nasal, continuant], as in table 1 below.

<table>
<thead>
<tr>
<th></th>
<th>obstruents</th>
<th>liquids</th>
<th>nasals</th>
<th>glides</th>
<th>vowels</th>
</tr>
</thead>
<tbody>
<tr>
<td>consonantal</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>syllabic</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>+</td>
</tr>
<tr>
<td>sonorant</td>
<td>-</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>continuant</td>
<td>+</td>
<td>-</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
</tbody>
</table>

Table 1: Specification of major classes of segments

3.1.1.1 At this point it will be useful to make some observations concerning the features [nasal], [aspiration] and [tense].

3.1.2 [+]nasal] Huli has prenasalized plosives that contrast with non-prenasalized plosives and with nasals. Examples are:

- [m\text{bu:}] peel
- [bu:] liver
- [mu:] sand
- [n\text{de:}] then
- [de:] eye
- [ne:] tooth
- [\text{n}\text{gi:}] give
- [\text{gi:}] arm
- [\text{ni:}] sun
- [\text{\text{n}\text{gi:}}] grown cold
- [\text{\text{n}\text{b}\text{\v{c}ne}}] chosen
- [\text{\text{\v{c}ne}}] relative
- [\text{a\text{\v{c}ba}}] soot
- [\text{ad\text{\v{c}e}}] armpit
- [\text{an\text{\v{na}}}] species of tree
- [\text{agi}] when
- [\text{ani}] where

3.1.2.1 I shall follow the suggestion of McCawley (Chomsky &
Halle 1968: 317, footnote) and regard prenasalized plosives as obstruent nasals, distinguished from members of the class 'nasal' by the specification [-son]. Similarly, segments that undergo environment induced nasalization will be specified as [+nasal] without implying that they are also [+son]. The feature specifications of nasals and obstruent nasals are given in table 2.

<table>
<thead>
<tr>
<th></th>
<th>obstruent nasals</th>
<th>nasals</th>
</tr>
</thead>
<tbody>
<tr>
<td>consonantal</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>syllabic</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>sonorant</td>
<td>-</td>
<td>+</td>
</tr>
<tr>
<td>nasal</td>
<td>+</td>
<td>+</td>
</tr>
</tbody>
</table>

Table 2: Specification of obstruent nasals and nasals

3.1.3 [aspiration] There is an opposition between aspirated and unaspirated segments that carry the specifications [+cons, -syll, -son, -nasal, -cont], as shown in the examples:

\[\text{[pʰiː]} \text{ stake} \quad [\text{tʰuː]} \text{ boundary} \quad [\text{kʰɛː]} \text{ you are} \]
\[\text{[piː]} \text{ word} \quad [\text{ɡuː]} \text{ sugar} \quad [\text{kɛː]} \text{ leg} \]

3.1.3.1 Ladefoged (1982: 47-48, 130-134) describes aspiration as the voicing lag that follows the articulation of a segment, and notes that the degree or intensity of the aspiration is in correspondence with the delay of voice onset. Prior to this, Chomsky and Halle had suggested specifying the phonetic features [voicing, tenseness, glottal constriction, (heightened) subglottal pressure] to describe aspiration (cf Chomsky & Halle 1968: 326-329).
3.1.3.2 There are not enough data about aspiration in Huli to make it possible to describe its intensity or to specify the list of features given by Chomsky and Halle. Hence, the phonological term [aspiration] has been adopted as a cover feature, indicating delay of voicing onset in respect to the release of the articulation (cf Ladefoged 1982: 256, 258), prescinding from the question of more precise specification.

3.1.4 [tense] Maddieson & Ladefoged (1985) have raised serious questions about the place of [tense] among the inventory of phonetic features. They present data from Jingpho, Hani, Yi and Wa - four non-Chinese languages spoken in Southern China - that suggest that this feature needs to be understood as language specific. Although their data base is too restricted to allow them to make strong claims, they suggest that

...while the terms "lax" and "tense" may sometimes be a useful shorthand in a linguistic description, it is necessary to spell out exactly what is to be understood by them in each case. (1985: 59)

3.1.4.1 In the case of Huli, the feature [tense] is useful in the description of vowels. Those that are closer to the periphery of the vowel space are considered to be [+tense], while the less peripheral ones are specified as [-tense]. The full specification of Huli vowels is set out in tables 8 and 9.

3.1.4.2 The difference between [+tense] and [-tense] vowels is more than that of location within the articulatory vowel space. For instance, [+tense] vowels can occur in isolation as whole words, while [-tense] vowels cannot; only [-tense] vowels can occur in final position in vocalic glides. Examples illustrating these differences are:

\[i:\] 1S pronoun \[e:\] garden \[u:\] chant
3.1.4.3 These matters concerning features will be taken up again as they occur. I will leave them for now, and pass on to the description of Huli non-syllabic segments, beginning with the class 'obstruents'.

3.2 OBSTRUENTS

3.2.1 Non-continuant obstruents and their feature specifications are set out in table 3. These segments will be discussed in turn.

|     | p   | pʰ | pʰw | b   | bʰ | bʰw | m   | mʰ | k   | kʰ | kʰw | d   | n   | nʰ | nʰw | g   | ɣ   | ɣʷ | ɣʷw |
|-----|-----|----|-----|-----|----|-----|-----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| high| -   | -  | -   | -   | -  | -   | -   | -  | -   | -   | -   | -   | -   | -   | -   | -   | -   | -   |
| cor | -   | -  | -   | -   | +  | +   | +   | +  | +   | +   | +   | +   | +   | +   | +   | +   | +   | +   |
| voice| -   | -  | +   | +   | +   | +   | +   | +  | +   | -   | -   | -   | +   | +   | +   | +   | +   | +   |
| nasal| -   | -  | -   | -   | +  | +   | -   | -  | +   | -   | -   | -   | -   | -   | +   | +   | +   | +   |
| round| -   | +  | -   | -   | +  | +   | +   | +  | -   | -   | +   | -   | +   | -   | +   | -   | +   | +   |
| aspir| +   | -  | -   | -   | -  | -   | +   | -  | -   | -   | -   | +   | -   | -   | +   | -   | +   | +   |

Table 3: Non-continuant obstruents

3.2.1.1 [p] This is produced with a forward positioning of the lips. It occurs word-initially, where it is in opposition to [pʰ], and word-medially, where, with some speakers, it is in free-variation with [b]. Examples are:

[pə:] hit
[pʰə] nest, hide
[piɾʰə] sit
[puɾi] liver
[ʰapə] slime cabbage
[kʰapə] type of arrow
3.2.1.2 \([p^h]\) occurs in word-initial position. Speakers push their lips forward as they articulate this segment, frequently releasing the occlusion with friction, so that \([p^h]\) is in free variation word-initially with the segment \([\emptyset]\). Examples are:

\([p^h\alpha\beta\varepsilon]\) fence  \([p^h\alpha\mu\gamma]\) (I) go
\([p^hI\zeta\varepsilon\nu]\) ten  \([p^h\mu:\]\) go

3.2.1.3 \([p^w]\) Evidence for the existence of this segment is limited to the occurrence:

\([p^w\alpha\eta]\) hornbill

3.2.1.4 \([b]\) is the voiced counterpart of \([p]\), occurring in word-medial position. The degree of voicing can vary considerably, from full to partial, designated here by \([b]\), to \([p]\) (cf 3.2.1.1). This segment is always contiguous with vowels that are \([+\text{high}]\), and is in free variation with \([\emptyset]\) in the environment

\[
\begin{array}{c}
V \\
[+\text{high}] \\
[-\text{back}] \\
\end{array} \quad \begin{array}{c}
V \\
[-\text{back}] \\
\{[-\text{tense}]\}
\end{array}
\]

Examples:

\([\alpha\i\upsilon\i\upsilon\alpha]\) reed grass  \([\i\beta\alpha\i\gamma\i\mu]\) initiate
\([\u\beta\i\gamma\i\alpha\i\varepsilon]\) species of bird  \([\h\alpha\beta\i\varepsilon\alpha]\) slime cabbage

3.2.1.5 \([b^w]\) is the labialized counterpart of \([b]\). It occurs in word-medial position, limited to the environment

\[
\begin{array}{c}
V \\
[+\text{round}] \\
[-\text{tense}] \\
\end{array} \quad \begin{array}{c}
V \\
[+\text{low}] \\
\end{array}
\]

-38-
Examples:

\[\text{mb\textsuperscript{W}a}\] marriageable \[\text{hub\textsuperscript{W}a}\] wrapping
\[\text{mb\textsuperscript{W}a}\] feral \[\text{hmb\textsuperscript{W}a}\] cockatoo

3.2.1.6 \[\text{mb}\] is the prenasalized counterpart of \[\text{b}\], and occurs initially and medially in words. In initial position the degree of nasalization varies with different speakers, while medially the degree of voicing varies.

Examples:

\[\text{mbI\textsuperscript{Y}a}\] one \[\text{mb\textsuperscript{A}a}\] species of frog
\[\text{mb\textsuperscript{O}nce}\] skull \[\text{hmb\textsuperscript{E}}\] stomach

3.2.1.7 \[\text{mb\textsuperscript{W}}\] This segment is found mainly in the speech of dialect Al (cf 2.6.1). It occurs in medial position, following a vowel that is [+round]. The examples below illustrate this segment from items collected in Al dialect and contrasted with other dialects:

<table>
<thead>
<tr>
<th>Al</th>
<th>gloss</th>
<th>other dialects</th>
</tr>
</thead>
<tbody>
<tr>
<td>[d\textsuperscript{mb\textsuperscript{W}a}]</td>
<td>yellow</td>
<td>[a\textsuperscript{mb\textsuperscript{U}wa}]</td>
</tr>
<tr>
<td>[\textsuperscript{h}m\textsuperscript{b}\textsuperscript{a}\textsuperscript{I}]</td>
<td>string apron</td>
<td>[\textsuperscript{h}a\textsuperscript{mb\textsuperscript{a}\textsuperscript{I}C}]</td>
</tr>
<tr>
<td>[ku\textsuperscript{mb\textsuperscript{W}a}]</td>
<td>shade</td>
<td>[ku\textsuperscript{mb\textsuperscript{a}}]</td>
</tr>
</tbody>
</table>

3.2.1.8 \[\text{t}\] This segment is dental rather than alveolar in articulation, the apex of the tongue being placed on the back of the upper teeth. It occurs in word-initial position, and, in some compound lexical items, it may be in free variation with its voiced counterpart, [d], word-medially. Examples:

\[\text{\textsuperscript{h}a\textsuperscript{ng\textsuperscript{C}}}\] cowrie shell \[\text{\textsuperscript{t}ib\textsuperscript{a}}\] chop down
\[\text{\textsuperscript{t}\textsuperscript{E}}\] eye \[\text{\textsuperscript{t}\textsuperscript{ama}}\] spirit
\[\text{\textsuperscript{h}\textsuperscript{t\textsuperscript{a}\textsuperscript{C}}}\] dirt \[\text{\textsuperscript{h}\textsuperscript{hi\textsuperscript{h}u}}\] vine fibres
3.2.1.9 \([t^h]\) is the aspirated counterpart of \([t]\), occurring in initial and medial positions. In the latter case it constitutes an internal word boundary: the juncture where two words compound to make a third, new, word. In dialect A2 it is in free variation with \([s]\) word-initially. Examples:

- \([t^hɔγɔ]\) bridge  
- \([t^həiə]\) shame  
- \([t^ha^ni]\) swordgrass

3.2.1.10 \([t^w]\) This initial position segment is of infrequent occurrence, and is produced by rounding and narrowing the labial orifice in the articulation of \([k]\). Examples:

- \([t^wɛ:]\) retch  
- \([t^wa:]\) howl  
- \([t^wi:]\) twitter  
- \([t^wania]\) break into

3.2.1.11 \([t^h^w]\) is the labialized counterpart of \([k^h]\), and like that segment is of infrequent occurrence. It is found only in word-initial position. Examples:

- \([k^h^wɛ:]\) splutter  
- \([k^h^wa^mibu]\) species of vine  
- \([k^h^wa\ddot{a}:]\) cheek  
- \([k^h^wI:]\) species of bird

3.2.1.12 \([d]\) occurs in word-medial position, being articulated by forming an occlusion with the apex and front of the tongue and the upper back area of the teeth. Examples:

- \([adɔγɛ]\) armpit  
- \([p^h^ωdagi]\) pointed roof  
- \([ɛdɛ]\) there  
- \([madanɛ]\) miserly, mean

3.2.1.13 \([n^d]\) is the prenasalized counterpart of \([d]\), and occurs in word-initial and word-medial pos-
itions. In initial position, the degree of nasalization varies from speaker to speaker, while medially there is considerable range in the degree of voicing. Examples:

\[ ^{nad}\text{i} \] wedge \[ ^{rad}\text{di} \] ground, soil

\[ ^{nad\text{ba}} \] tree sap \[ ^{ka\text{nd\text{oma}}} \] sweet potato species

3.2.1.14 \[ ^{n\text{d}w} \] The evidence for this segment is slight. It occurs initially and medially in words, as shown in the examples:

\[ ^{n\text{d}w\text{\text{g}}} \text{:} \] croak \[ ^{\text{d}n\text{\text{w}ang\text{\text{g}}} \] owner

\[ ^{n\text{d}w\text{\text{a}}} \] species of banana plant

3.2.1.15 \[ \text{k} \] is produced by raising the tongue body to form an occlusion with the velum. It occurs initially and medially in words, being in free variation with its voiced counterpart in the latter position. Examples:

\[ ^{\text{kana}} \] ditch \[ ^{\text{kam\text{g}}} \] cane grass

\[ ^{\text{ki:}} \] arm \[ ^{\text{k\text{g}:}} \] leg

\[ ^{\text{IkIni}} \] son \[ ^{\text{hiki}} \] crosswise

3.2.1.16 \[ k^{h} \] is the aspirated counterpart of \[ k \]. It occurs word-initially and, indicating an internal word boundary, word-medially. Examples:

\[ k^{h\text{\text{\text{c}}} :} \] I am \[ k^{h\text{\text{aju}}} \] thievery

\[ k^{h\text{\text{uni}}} \] bone \[ k^{h\text{\text{g}}} :} \] untruth

\[ y\text{ak}\text{\text{h\text{un\text{di}}} \] star \[ k^{h\text{\text{\text{ajak}\text{\text{g}}} \] cockroach

3.2.1.17 \[ k^{w} \] occurs initially and medially in words, being the labialized counterpart of \[ k \]. Examples:

\[ k^{w\text{\text{a}}} :} \] hollow \[ t\text{\text{uk}\text{\text{w}}} \] uproot

\[ k^{w\text{\text{\text{\text{I}}} :} \] glittering \[ k^{h\text{\text{\text{uk\text{\text{w}}} \] pluck

- 41 -
3.2.1.18 \( [k^hW] \) is the labialized counterpart of \([k^h]\), and occurs in word-initial and word-medial positions. It occurs only infrequently, and when it appears in medial position it indicates an internal word boundary.

Examples:

- \([k^hWa:]\) species of tree
- \([k^hWi]k^hW\) dispute
- \([\text{\textcopyright}k^hW\text{\textcopyright}i]\) burial pall

3.2.1.19 \( [g] \) This is the voiced counterpart of \([k]\). It occurs in word medial position, contiguous with vowels that carry the feature specification \([+\text{high}]\), and also in the environment

\[
V_{\text{low}} V_{\text{low}}
\]

Examples:

- \([m^g\xi]\) mockery
- \([a^g\xi]\) what?
- \([t^g\xi]\) species of sweet potato
- \([n^g\xi]\) nettle

3.2.1.20 \( [g^W] \) is the labialized counterpart of \([g]\). It occurs word-medially, in the same environment as that given for \([bw]\) in 3.2.1.4. Examples:

- \([k^hO^g^Wa]\) wrong
- \([m^g^Wa]\) tree oil
- \([p^hug^Wa]\) swamp
- \([\text{\textcopyright}g^Wan\xi]\) ancestor

3.2.1.21 \( [\eta^g] \) This the prenasalized counterpart of \([g]\), occurs initially and medially. Examples:

- \([\eta^g\xi]\) sweet smelling
- \([\eta\xi]\) foul smelling

3.2.1.22 \( [\eta^g^W] \) is the labialized counterpart of \([\eta^g]\), occurring in initial and medial positions. In
the latter case it is always preceded by a vowel that carries the specification [+round]. Examples:

\[ ^{\text{[ŋg}^w_{i:}]} \text{ nose} \quad ^{\text{[p}^h_{u}g^w_{a}]} \text{ soot} \]
\[ ^{\text{[ŋg}^w_{a}]} \text{ gathering} \quad ^{\text{[t}^h_{n}g^w_{ia}]} \text{ paddle} \]

3.2.2 Continuant obstruents and their feature specifications are set out in Table 4. They will be described in turn.

<table>
<thead>
<tr>
<th></th>
<th>( \phi )</th>
<th>( \beta )</th>
<th>( j )</th>
<th>( j^w )</th>
<th>( x )</th>
<th>( x^w )</th>
<th>( x_{\text{n}} )</th>
<th>( k )</th>
<th>( n )</th>
</tr>
</thead>
<tbody>
<tr>
<td>high</td>
<td>-</td>
<td>-</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>back</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>low</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>+</td>
</tr>
<tr>
<td>anterior</td>
<td>+</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>voice</td>
<td>-</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>nasal</td>
<td>-</td>
<td>-</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>round</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>+</td>
<td>-</td>
<td>+</td>
<td>-</td>
</tr>
</tbody>
</table>

Table 4: Specification of continuant obstruents

3.2.2.1 \( \text{[f]} \) This segment has been noted in 3.2.1.2 as occurring word-initially in free variation with \( \text{[p}^h_{\text{]}} \). It is produced by speakers who push their lips forward and release the bilabial occlusion with friction. Examples:

\[ ^{\text{[f}u_{:}]} \text{ go} \quad ^{\text{[f}a_{\text{a}}g_{a}]} \text{ door} \]
\[ ^{\text{[fi}l_{\text{y}}a]} \text{ ten} \quad ^{\text{[f}c_{\text{g}}g_{\text{co}}]} \text{ knot} \]

3.2.2.2 \( \text{[\( \beta \]} \) is the voiced counterpart of \( \text{[f]} \), occurring in word-medial position. It is in free variation with \( \text{[b]} \) in the environment given in 3.2.1.4, and in complementary distribution with it in the environment.
Examples:

[iʃi] salt [aʃi] yesterday
[aʃa] father [aʃi] stranger

3.2.2.3 [j] occurs in word-initial and word-medial positions. It is produced by raising the tongue body so that the blade forms a constriction with the palate, and then forcing air between the two while moving the tongue forward. With many speakers the tongue begins in a forward position, the blade being close to the alveolar ridge.

In word-initial position and in the environment [-high] ______ [-high]

friction can be slight to non-existent, and [j] is frequently in free variation with [y]. Word medially, [j] never follows a vowel that has the specification [+nasal], and is in complementary distribution with [y] in this environment (but see below, 3.2.2.4, for further discussion of this point).

Examples:

[Ijɾ] 1D pronoun [jəl̥omə] (a) pouring
[jɾi] cassowary [waʃ-aʃe] wax

3.2.2.4 [ŋj] This segment is found only in the lexical words [arŋjɾ] and [Irŋjɾ], which can both be glossed as "mother". It is to be noted that in both cases the initial vowels are nasalized, so that it is possible to analyse the segment as an instance of environmentally induced nasalization. However, as noted above in 3.2.2.3, there are no other instances of [j] following a nasal segment, while the existence of [ŋ] is attested in dialects A1 and A2 (cf 3.4).
3.2.2.5 \([j^w]\) This is another segment that appears in one
or two frequently occurring morphemes, but
otherwise lacks a wide distribution in the language. It is
found only word-medially, as in the examples

\[
\text{[baj}^w\text{a}] \quad \text{good} \quad \text{[Iaj}^w\text{a}] \quad \text{3-say-PAST}
\]

\[
\text{[p}^h\text{Ij}^w\text{a}] \quad \text{3-go-PAST} \quad \text{[pij}^w\text{a}] \quad \text{3-do-PAST}
\]

3.2.2.6 \([x]\) is produced by raising the tongue body to form
a constriction with the velum. It occurs medially in words of more than two syllables in the environment

\[
\begin{array}{cc}
V & V \\
[-\text{high}] & [-\text{tense}] & [-\text{high}] & [-\text{tense}]
\end{array}
\]

where it is in free variation with its voiced counterpart, \([\chi]\).

It also occurs in free variation with \([\gamma]\), \([\chi]\) and \([\zeta]\) in the
bound morpheme /go/ (cf 5.5.2).

Examples:

\[
\text{[h}^h\text{axa}^j\text{i}] \quad \text{a river} \quad \text{[axa}^j\text{i}] \quad \text{where?}
\]

\[
\text{[a}^\chi\text{x}^\chi\text{n}^\chi\text{i}] \quad \text{that} \quad \text{[xa}^j\text{a}^j\text{i}] \quad \text{man}
\]

3.2.2.7 \([\gamma]\) occurs in word medial position in the same en-
vironments as and in free variation with \([x]\),
\([\chi]\) and \([\zeta]\) - as above (3.2.2.6).

Examples:

\[
\text{[a}^\gamma\text{a}] \quad \text{cloak} \quad \text{[e}^\gamma\text{a}] \quad \text{bird}
\]

\[
\text{[a}^\chi\gamma\text{a}] \quad \text{where?} \quad \text{[\gamma}^\chi\text{j}] \quad \text{this}
\]

3.2.2.8 \([\chi]\) occurs word-medially. It is produced by rais-
ing the tongue body to form a constriction in
the post-velar or uvular region. It is in free variation with
its voiced counterpart \([\zeta]\), and with \([x]\) and \([\gamma]\) in the bound
morpheme /go/ (cf 5.5.2), its other occurrences being limited
to the environment

-45-
Examples:

[kαχaŋje] new  
[khεχε] (you) are  

3.2.2.9 [χ^w] The existence of this segment has so far been verified only in the term [χ^wε]ni, which is a lexical item meaning "sweet smelling" in the tajanda register of communities living on the south-western ridges above the middle Tagali valley.

3.2.2.10 [b] is the voiced counterpart of [χ], and is heard only in the bound morpheme /go/, where it is in free variation with the segments listed above in 3.2.2.6. The friction produced is slight. Examples:

[khεb] (you) are  
[wb^b] this  
[khεb] I am

There is some evidence for the existence of labialized [b] in the utterance [tεb^w] and its variant [tεb^w], both of which can be glossed as 'many'. However, many speakers produce this word without constriction, the glide alone being articulated.

3.2.2.11 [h] is a pharyngeal fricative, occurring word-initially and word-medially. It is subject to environment induced nasalization when contiguous with a nasal vowel. Examples:

[haβane] fat  
[hn]a] sweet potato  
[ha:] go

[ŋh^b]go] strength  
[ŋubi] shrub  
[ŋɔnɛ] spirit stone
3.3 LIQUIDS

The series of Huli liquids and their distinguishing feature specifications is given below in Table 5. Note that all segments share the feature [+voice].

<table>
<thead>
<tr>
<th></th>
<th>J</th>
<th>J^w</th>
<th>L</th>
<th>L^w</th>
</tr>
</thead>
<tbody>
<tr>
<td>anterior</td>
<td>-</td>
<td>-</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>lateral</td>
<td>+</td>
<td>+</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>round</td>
<td>-</td>
<td>+</td>
<td>-</td>
<td>+</td>
</tr>
</tbody>
</table>

Table 5: Specification of liquids

3.3.1 [J] is produced by lowering the tongue body and curling the apex back behind the alveolar ridge. The airstream passes over the sides of the tongue as it is flapped onto the ridge.

This segment occurs initially and medially, and is subject to environment induced nasalization when contiguous with nasal vowels. Examples:

- [uŋə] again
- [huLi] Huli
- [JEbaŋə] snake
- [kuJoBa] red clay
- [tʃʌJiə] stone
- [mʌIə] let's go

3.3.2 [J^w] occurs initially and medially in words, and is the labialized counterpart of [J]. It does not enjoy a wide distribution. Examples:

- [a^wabi] species of frog
- [Ou^wa] Honey Eater
- [pau^wa] dull sound
3.3.3 [ʃ] occurs in word-medial position. It is produced by lowering the tongue body and flapping the apex of the tongue up to the alveolar ridge and back again. Examples:

[ʔulu] rodent [ʔaliga] track

[paʃt] (I) hit [kaʃtle] squabble

3.3.4 [ʃʷ] is the labialized counterpart of [ʃ], occurring in word-medial position. It is common in the bound morpheme [ʃʷa] (cf 5.2.6) Examples:

[ʔuluʷa] skirt [ʔaligaʷa] rafter

[kanɔl̩aʷa] drain [laʃʷa] say-3-PRES

[ibal̩aʷa] come-3-PRES

3.4 NASALS

Huli nasals are specified as a class by the features [+cons, -syll, +son, +nasal]. The series is given below in table 6, showing the feature specifications that distinguish the segments.

<table>
<thead>
<tr>
<th></th>
<th>m</th>
<th>n</th>
<th>n</th>
<th>ƞ</th>
</tr>
</thead>
<tbody>
<tr>
<td>anterior</td>
<td>+</td>
<td>+</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>coronal</td>
<td>-</td>
<td>+</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>back</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>+</td>
</tr>
</tbody>
</table>

Table 6: Specification of nasals

3.4.1 [m] occurs initially and medially in words. The bilabial occlusion is formed with the lips forward from the teeth. The velum is raised slightly after the relea-
se of the occlusion, so that segments following [m] are usually conditionally nasalized. The co-occurrence of this segment with [b] is described in 3.2.1.6 and 3.2.1.7. Examples:

[mæŋ] wasp  [maŋɡa] laziness
[ɛmɛŋɛ] little  [ɛhɔmɔ] food

3.4.2 [n] is articulated by raising the tongue and forming an occlusion in the dental-alveolar region. This segment occurs initially and medially, its co-occurrence with [d] having been noted in 3.2.1.13 and 3.2.1.14. Examples:

[naŋ] fungus  [pʰini] root
[ŋɛ:] tooth  [punǐ] liver

3.4.3 [ŋ] occurs in word-medial position. It has been noted as forming a complex phone with [j] (cf 3.2.4). It is present in dialects A1 and A2 as a simple phone in lexis which, in other dialects, manifest the complex phone [ŋj]. Segments following [ŋ] are always conditionally nasalized. Examples:

[ɛmɛŋɛ] little  [ŋaŋɔ] woodcock
[Jamipɔ] let's talk  [pʊlumajɔ] let's do (it)

3.4.4 [ŋ] occurs only preceding segments that are specified as [+cons, -syll, -son, -cont, +high, +voice]. Examples have been given in 3.2.1.21 and 3.2.1.22.

3.5 GLIDES

There are two segments within the class glides, specified as [-cons, -syll, +son, -nasal, +cont]. These are [y] and [w], distinguished by the former's being [-back, -round] and the latter's being [+back, +round]. Both segments are [+high],
the tongue body being raised, and [+voice].

3.5.1 [y] is a palatal glide, occurring in word-initial and word-medial positions. Initially, it is in free variation with [j], while medially these two segments are in free variation in the environment

\[
\begin{array}{c}
V \\
[\text{-high}] \\
[\text{-low}] \\
[\text{-nasal}] \\
V
\end{array}
\]

With the exception noted in 3.2.2.4, [j] never follows a segment that has the specification [+nasal], and [y] is in complementary with it in this environment, being itself conditionally nasalized. Examples:

- [yaʃi] cassowary
- [yoʃe] crooked
- [mäyäbu] raincape

3.5.2 [w] occurs initially and medially, the lips being well rounded. Its co-occurrence with segments that are [+cons,-son,-cont], and with segments that are [+cons +son, +cont] has been described in 3.2 and 3.3. Examples:

- [wəna] fish
- [käwä] mouth bow
- [waʃi] woman
- [aʊwi] spirit stone

3.6 OTHER SEGMENTS

The segments described above are widespread and are to be found in nearly all dialects. An example of a segment that is prevalent in one dialect but rare in others is the continuant [s], which in dialect A2, particularly in the Bari Valley, is the usual substitute for [tʰ] in the environment.
|       | p  | ph | b  | b'w | m  | m'w | h  | h'w | k  | k'w | x  | x'w | f  | l  | s  | η  | η'w | θ  | j  | j'w | x  | η  | η'w | θ' | ñ  | ñ'w | ñ' | ſ  | ſ'w | θ'w | θ''w | m | n  | n' | y  | w  |
|-------|----|----|----|-----|----|-----|----|-----|----|-----|----|-----|----|----|----|----|-----|----|----|----|----|----|-----|----|-----|----|----|-----|----|----|----|----|----|----|----|----|----|----|----|----|
| consonantal | +  | +  | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   |
| syllabic | +  | +  | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   |
| sonorant | +  | +  | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   |
| high | +  | +  | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   |
| back | +  | +  | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   |
| low | +  | +  | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   |
| anterior | +  | +  | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   |
| coronal | +  | +  | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   |
| voice | +  | +  | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   |
| continuant | +  | +  | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   |
| nasal | +  | +  | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   |
| round | +  | +  | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   |
| lateral | +  | +  | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   |
| aspiration | +  | +  | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   | +  | +   |

Table 7: Distinctive features matrix of non-syllabic segments
A variant of this is used by speakers in the Burani area, many of whom produce, in the same environment - and in place of \[t\] - the segment \[t^S\], which has the distinguishing features [+strident, +delayed release], as in
\[
[t^S\text{Sia}] \text{ possum} \quad [t^S\text{SImbuni}] \text{ big}
\]

### 3.7 SUMMARY OF NON-SYLLABICS

Before describing segments that are [-cons, +syll], it is useful to summarise [-syll] segments and their feature specifications in tabular form. This is done in table 7, given on the previous page. It will be noted that infrequently occurring dialectal phones, such as \[t^S\], are not included in this table, which is concerned with phones that are candidates for phoneme status.

### 3.8 VOWELS

Huli phonological segments specified as [-cons, +syll, +son, +cont] can be subdivided by specification of the feature [nasal]. Table 8 shows the feature specifications of oral vowels, which will be described in detail before passing on to a description of nasal vowels. Vowels in monosyllabics are always lengthened.

#### 3.8.1 Oral vowels

##### 3.8.1.1 [i] Most non-nasal syllabic segments occur initially, medially and finally in words. [i] is no
<table>
<thead>
<tr>
<th>high</th>
<th>I</th>
<th>e</th>
<th>e</th>
<th>a</th>
<th>o</th>
<th>A</th>
<th>e</th>
<th>U</th>
<th>u</th>
</tr>
</thead>
<tbody>
<tr>
<td>+</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>low</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>+</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>back</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>tense</td>
<td>+</td>
<td>-</td>
<td>+</td>
<td>-</td>
<td>+</td>
<td>-</td>
<td>+</td>
<td>-</td>
<td>+</td>
</tr>
<tr>
<td>round</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>+</td>
<td>-</td>
<td>+</td>
<td>+</td>
</tr>
</tbody>
</table>

Table 8: Specification of non-nasal syllabic segments

exception, although there are certain environments in which it cannot occur. These are set out below.

1.

```
[+cons]
[+back]
[+cont]
```

2.

```
[+cons]
[+back]
[+cont]
```

3.

```
[+cons]
[-back]
[+round]
```

4.

```
[+cons]
[+back]
[+cont]
```

In word-medial position, this segment can occur preceding the [+syll] segments [a] or [A]. It is in free variation with [I] in the environment,

```
[+cons]
[+son]
[+high]
[+syll]
```

Examples:

- [ibu] come
- [ija] 1D1 Prn
- [mina] catch
- [higa] straight
[piabɛ] work  ['miə] take/give
[iʃi] hair  or  [Iʃi] hair
[mini] name  or  [mIni] name

3.8.1.2 [i] occurs word-initially and word-medially in free variation with [i] in the environments indicated in 3.8.1.1. It occurs in the environment,

\[
\begin{array}{c}
+\text{cons} \\
-\text{son} \\
+\text{high} \\
-\text{back}
\end{array}
\quad -
\begin{array}{c}
+\text{cons} \\
-\text{son} \\
+\text{high} \\
-\text{back}
\end{array}
\]

and in the vocalic glide [ʌɪ]. Examples:

[ɒInIni] spirit  [IIIli] custom
[jajIjə] (he) said  [bəI] oak tree

3.8.1.3 [e] can occur as an utterance on its own, and also in the environments,

\[
\begin{array}{c}
+\text{syll} \\
+\text{low} \\
-\text{tense} \\
-\text{cons} \\
-\text{syll} \\
-\text{back}
\end{array}
\quad -
\begin{array}{c}
+\text{cons} \\
+\text{round}
\end{array}
\]

In other positions, initial, medial and final, it is in free variation with [ɛ], which is the more usual form in normal speech. It is excluded from the environments,

1. \[
\begin{array}{c}
+\text{cons} \\
-\text{son} \\
-\text{low} \\
-\text{ant} \\
+\text{cont}
\end{array}
\]

2. \[
\begin{array}{c}
+\text{cons} \\
+\text{round}
\end{array}
\]

3. \[
\begin{array}{c}
+\text{cons} \\
+\text{round}
\end{array}
\]

Examples:
3.8.1.4 [ɛ] occurs initially, medially and finally in words. It is in free variation with [e], with the exceptions already noted in 3.8.1.3. It is excluded from the same environments as [e], with the exception that it can occur contiguous with segments that carry the specifications [+cons, +high, +back, +round]. It occurs in the vocalic glide [œə], where it is reduced to schwa in normal speech. It is in free variation with [œ] in the environment,

```
[+cons]
+high
-back
+cor
+cont
```

Examples:

| [tɛgɛ]   | only         | [ŋɡwɛ:] | worm     |
| [wena]   | fish         | [bɛ:]   | bamboo   |
| [waœa]   | echo         | [kɛə]   | clear sky|
| [pijɛ]   | (he) went or | [pijœ]  | (he) went|

3.8.1.5 [œ] occurs in all positions. It is in free variation with [a] in stressed syllables in the environment,

```
[-syll]        [-syll]  [+syl]
+STRESS        [+high]  [-back]
```

and also in the environments,

```
[-syll]        [+high]
+back          +nasal
```

Its occurrence in free variation with [œ], and its occurrence in the vocalic glide [œə], have been noted in 3.8.1.4.
3.8.1.6  [a] is a low central vowel, occurring in all positions. It occurs in the vocalic glide [æ], as has already been noted in 3.8.1.4. With many speakers it is also in free variation with [ʌ] in the environment,

\[
\begin{array}{c}
\text{[+syll]} \\
\text{[+tense]} \\
\text{[+high]} \\
\text{[+back]} \\
\text{[=cont]}
\end{array}
\]

and can be found in free variation with [ʊ] in the environment

\[
\begin{array}{c}
\text{[+cons]} \\
\text{[+round]}
\end{array}
\]

although its occurrence in this position is not well attested. Its occurrence in free variation with [ə] has been described in 3.8.1.5 above. Examples:

\[
\begin{align*}
\text{[ŋɔŋ bo]} & \quad \text{fighting stick} \\
\text{[ɔnɡ]} & \quad \text{outside} \\
\text{[mʊɡə]} & \quad \text{will take/give} \\
\text{[ə]} & \quad \text{who?} \\
\text{[ŋə]} & \quad \text{(he) said}
\end{align*}
\]

3.8.1.7  [ʊ] occurs in free variation with [a], in the environments noted above in 3.8.1.6. Many speakers of dialect A produce only [ʊ] in these environments. Examples:

\[
\begin{align*}
\text{[ŋɛŋ wə]} & \quad \text{I shall say} \\
\text{[ŋɛŋ wə]a} & \quad \text{good!} \\
\text{[pɔŋŋ ʊŋ wə]a} & \quad \text{pass/cross} \\
\text{[mɔŋ wə]a} & \quad \text{cockerel}
\end{align*}
\]

3.8.1.8  [ʌ] occurs in free variation with [a], as indicated in 3.8.1.6. Some speakers of dialect A2
seem particularly to favour this phone over [a]. Examples:

\[ \text{[t\text{\textsuperscript{\textipa{h}}\text{\textsuperscript{\textipa{u}}}}k\text{\textsuperscript{\textipa{W}}}]} \text{ pull up} \quad \text{[\hi\text{\textsuperscript{\textipa{i}}w\text{\textsuperscript{\textipa{A}}}]} \text{ sago}} \\
\text{[ku\text{\textsuperscript{\textipa{m}}\text{\textsuperscript{\textipa{b}}}a\text{\textsuperscript{\textipa{W}}}]} \text{ shade} \quad \text{[in\text{\textsuperscript{\textipa{A}}}]} \text{ 1Pl Prn}}

3.8.1.9 [ɔ] occurs in all positions and also as a complete utterance on its own. Examples:

\[ \text{[ɔ\text{\textsuperscript{\textipa{}}}]} \text{ (a) call/shout} \quad \text{[k\text{\textsuperscript{\textipa{h}}\text{\textsuperscript{\textipa{a}}}}\text{\textsuperscript{\textipa{ng}}}c]} \text{ club/stick} \\
\text{[ɔ\text{\textsuperscript{\textipa{}}}e\text{\textsuperscript{\textipa{}}}]} \text{ wife} \quad \text{[\text{\textipa{m}}\text{\textsuperscript{\textipa{a}}b\text{\textsuperscript{\textipa{n}}}c\text{\textsuperscript{\textipa{}}}]} \text{ digging stick}}

3.8.1.10 [U] occurs medially and finally in words, in sequence with syllables whose vowels are [-tense], and also in the vocalic glide [aU]. Examples:

\[ \text{[aU]} \text{ now, today} \quad \text{[aU}\text{\textsuperscript{\textipa{I}}\text{\textsuperscript{\textipa{e}}}]} \text{ withered} \\
\text{[\text{\textipa{h}}\text{\textsuperscript{\textipa{m}}\text{\textsuperscript{\textipa{b}}}\text{\textsuperscript{\textipa{U}n}i\text{\textsuperscript{\textipa{i}}}]} \text{ large} \quad \text{[k\text{\textsuperscript{\textipa{a}}}\text{\textsuperscript{\textipa{U}n}i\text{\textsuperscript{\textipa{i}}}] new}}

3.8.1.11 [u] occurs in all positions, and can occur on its own as a complete word. It is excluded from the environment,

\[ \text{[+cons} \\
\text{+back} \\
\text{+cont} \\
\text{-lateral]} \]

Examples:

\[ \text{[u\text{\textsuperscript{\textipa{}}}]} \text{ shout} \quad \text{[u\text{\textsuperscript{\textipa{U}u\text{\textsuperscript{\textipa{J}}}uba\text{\textsuperscript{\textipa{}}}]} \text{ shrub species}} \\
\text{[m\text{\textsuperscript{\textipa{b}}}u\text{\textsuperscript{\textipa{}}}]} \text{ peelings} \quad \text{[k\text{\textsuperscript{\textipa{h}}\text{\textsuperscript{\textipa{u}}}j\text{\textsuperscript{\textipa{J}}}ama\text{\textsuperscript{\textipa{}}}]} \text{ dour, forbidding}}

3.8.2 Nasal vowels exist in opposition to oral vowels. The latter, when contiguous with segments specified [+nasal], are conditionally nasalized, the degree of nasalization varying from speaker to speaker. Segments such as these, evidencing environment induced nasalization due to either progressive or regressive assimilation of this feature from a contiguous segment, will be classified in this study as 'nasalized', but not as 'nasals' (cf 3.1.1; 3.4; 3.10.2).
In opposition to oral vowels that are potentially 'nasalized' there is a series of 'nasal' vowels that can occur in the environments,

\[
\begin{align*}
&\{ [+\text{cons}] \} \\
&\{ [+\text{son}] \} \\
&\{ [+\text{nasal}] \} \\
&\{ [-\text{voice}] \}
\end{align*}
\]

Examples of minimal pairs involving opposition between oral and nasal vowels are:

- [bʌ] banana [bʌ] spreading
- [tɛɪ] whistle [tɛɪ] swim
- [kʰɛ] 2s-be [kʰɛ] untruth
- [ŋʌ] have [ŋʌ] go
- [pʊɛ] will do [pʊɛ] broken

The table below gives the series of nasal vowels and their feature specifications. In this series, [ə] is [əround].

<table>
<thead>
<tr>
<th>̃</th>
<th>̃</th>
<th>̃</th>
<th>̃</th>
<th>̃</th>
<th>̃</th>
<th>̃</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>I</td>
<td>e</td>
<td>e</td>
<td>a</td>
<td>ù</td>
<td>ù</td>
</tr>
<tr>
<td>high</td>
<td>+</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>low</td>
<td>-</td>
<td>-</td>
<td>+</td>
<td>+</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>back</td>
<td>-</td>
<td>-</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>tense</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>+</td>
<td>+</td>
<td>-</td>
</tr>
</tbody>
</table>

Table 9: Specification of nasal vowels

These segments will now be described in turn.

3.8.2.1 [I] occurs in any position, and also on its own as a complete word. In this latter case [I] is
often in free variation with [i] in normal (fast) speech.

Examples:

\[
\begin{align*}
&[\text{p}^h\text{i}: \text{p}^h\text{s}:] \text{ slander} & & [\text{kul}^\text{i}^\text{y}]:] \text{ swing} \\
&[\text{t}^\text{i}: \text{t}^\text{o}:] \text{ sparks} & & [\text{t}^\text{o}^\text{w}^\text{i}:] \text{ twitter} \\
&[\text{i}:] \text{ 1S/2S} & & [\text{Ina}] \text{ 1S/2S-ERG}
\end{align*}
\]

3.8.2.2 \[ \text{i} \] This segment occurs in the vocalic glide \[ [\text{R}^\text{R}] \], and appears medially and finally in words. Examples:

\[
\begin{align*}
&[\text{k}^\text{h}^\text{o}] \text{ praise} & & [\text{k}^\text{o}] \text{ tiredness} \\
&[\text{b}^\text{R}^\text{R}] \text{ cast aside} & & [\text{d}^\text{a}^\text{b}^\text{R}^\text{y}^\text{a}^\text{R}^\text{g}a] \text{ species of bird} \\
&[\text{m}^\text{R}^\text{R}^\text{R}] \text{ mother}
\end{align*}
\]

3.8.2.3 \[ \text{e} \] occurs in all positions. It can also occur in the vocalic glide \[ [\text{R}^\text{R}^\text{R}] \], and as a word on its own. Examples:

\[
\begin{align*}
&[\text{t}^\text{R}^\text{R}^\text{e}] \text{ flying squirrel} & & [\text{e}:] \text{ yes} \\
&[\text{t}^\text{R}^\text{R}^\text{w}^\text{R}^\text{e}] \text{ species of bird} & & [\text{h}^\text{e}^\text{w}^\text{a}] \text{ species of tree}
\end{align*}
\]

3.8.2.4 \[ \text{e} \] occurs in the vocalic glide \[ [\text{R}^\text{R}] \], exemplified in 3.8.2.2, and is also present in the vocalic glide \[ [\text{R}^\text{R}^\text{R}] \].

3.8.2.5 \[ \text{a} \] occurs initially, medially and finally in words. It also occurs in the vocalic glide \[ [\text{R}^\text{R}] \], while its presence in \[ [\text{R}^\text{R}^\text{R}] \] has already been noted (3.8.2.3; 3.8.2.4). Examples:

\[
\begin{align*}
&[\text{a}^\text{y}^\text{O}] \text{ species of frog} & & [\text{h}^\text{a}^\text{i}^\text{O}] \text{ breathless} \\
&[\text{k}^\text{a}^\text{w}^\text{a}] \text{ mouth bow} & & [\text{m}^\text{b}^\text{a}^\text{i}^\text{S}] \text{ let's go}
\end{align*}
\]

3.8.2.6 \[ \text{O} \] occurs in medial and final positions in words. Examples:
3.8.2.7  [-ui] occurs in the vocalic glide [ui] in medial and final positions. Examples:

-[jiaUhe ] withered  [phiaUu] shaking
-[hau]  dust  [naU] collapsed

3.8.2.8  [ui] This segment can occur as a word on its own, or in any position in a word. Examples:

-[u:] folksong  [ho:U] clear
-[umU] drowsiness  [pu:] break

3.8.3  Vocalic glides, diphthongal and triphthongal, of [+syll] segments have already been met in the preceding sections. They will be discussed further here, and oral diphthongs and triphthongs, along with their nasal counterparts, will be described and exemplified in a way that allows them to be seen in contrast.

3.8.3.1  [ui] This glide can occur by itself as a complete word. It occurs commonly in medial and final positions in nominal derivations, but its occurrence in initial position is exemplified in only lexical item from the Al dialect.

3.8.3.2  [ui] can occur on its own as a word. Like [ui], its oral counterpart, it occurs word-initially in only one instance, and is otherwise found in nominal items.

3.8.3.3  [au] can occur as a complete word or utterance, or in word-final position.
3.8.3.4 [aU] occurs in final position, following a segment that has the feature [-voice].

3.8.3.5 [aCa] can occur as word by itself, and also in medial and final positions in words.

3.8.3.6 [aCa] occurs as a word on its own, or in word-final position following a segment that is [-voice].

It does not enjoy a wide distribution.

3.8.3.7 Examples of vocalic glides:

- [aI] who?
- [pCa] quite beaten
- [dCaE] palm tree

- [aU] [fCa]
- [aU] here!
- [hCaU] limp
- [tCaU] scrotum

3.9 SUMMARY OF SYLLABICS

Table 10, overleaf, summarises the distinctive features of syllabic segments.

3.10 OTHER ARTICULATORY FEATURES

Ladefoged defines secondary articulation as
Table 10: Distinctive features matrix of syllabic segments

<table>
<thead>
<tr>
<th></th>
<th>i</th>
<th>I</th>
<th>e</th>
<th>ɛ</th>
<th>ɐ</th>
<th>ʌ</th>
<th>ʊ</th>
<th>ʊ̃</th>
<th>ʊ̈</th>
<th>ʌ̃</th>
<th>ʌ̈</th>
<th>ɐ̃</th>
<th>ɐ̈</th>
<th>ʊ̃</th>
<th>ʊ̈</th>
</tr>
</thead>
<tbody>
<tr>
<td>high</td>
<td>+</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>-</td>
<td>+</td>
</tr>
<tr>
<td>low</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>+</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>+</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>back</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>tense</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>+</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>+</td>
<td>-</td>
</tr>
<tr>
<td>nasal</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>round</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>+</td>
</tr>
</tbody>
</table>

Table 10: Distinctive features matrix of syllabic segments
an articulation with a lesser degree of closure occurring at the same time as another (primary) articulation. (Ladefoged 1981: 210)

and in his discussion of palatalization, velarization, pharyngealization and labialization likens them to 'added vowel-like articulations'. However, he notes that these terms are also used to describe the processes by which primary articulations are modified and changed, usually because of the influence of contiguous segments.

Although he does not include nasalization in his discussion it seems to me that, for the purposes of this present study - given the analysis of Chomsky & Halle (1968) and the observations of McCawley (cf 3.1.1) - this feature could usefully be discussed at the same time as those more usually considered to be secondary articulations.

3.10.1 Nasalization

3.10.1.1 The series of obstruent nasals has been noted in section 3.1.2, and individual segments have been described in context in 3.2.1. The oppositions between nasal and non-nasal obstruents is exemplified in the following:

| [pI(article)Ya] | sit | [m^bI(article)Ya] | one |
| [paba] | along with | [pa^mba] | before |
| [tɛ:] | eye | [n^dɛ:] | then! |
| [t^ada] | recede | [t^a^nda] | bow |
| [kɛ:] | leg | [g^gɛ:] | 2S-possess |
| [kugu] | type of nut | [ku^ngu] | fight |

(Obstruent nasals that are [+round] are discussed in 3.10.3.)

It will be seen that the opposition in initial position involves both [voice] and [nasal], while in medial position it involves only the feature [nasal].

-63-
Segments that are [+son, +cont], such as oral vowels, vocalic glides, [ɹ] and [y], tend to be susceptible to nasalization when contiguous with a segment that is [+nasal]. The pharyngeal obstruent [ŋ], which is [-son, +cont], behaves in a similar manner.

3.10.1.2 [ɹ] There is some evidence that this segment assimilates the feature [+nasal] progressively, and that this usually causes progressive assimilation of this feature in the next segment, which is always [+syll]. Examples:

\[t̩ɪɹ̩] stone  \quad \text{[pimæɹ̩̩] let's do it (LP)}
\[mɒɹ̩] let's go (LD)  \quad \text{[hæɹ̩̩] tiredness}

The progressive nature of this assimilation seems to be supported by items such as

\[kʰuɹ̩ɹ̩] pat

while it is interesting to note that verbal groups such as

\[t̩ɹ̩: ɹ̩a:] swim  \quad \text{[pʊ: ɹ̩a:] break}

illustrate that [ɹ] does not assimilate the feature [nasal] across word boundaries.

3.10.1.3 [ŋ] usually occurs word-initially, and assimilates the feature [nasal] regressively, as in

\[ŋa:] go  \quad \text{[ŋaվ] tiredness}

but there is evidence of progressive assimilation, also, across word boundaries in derivational nominals such as

\[ŋaɹ̩ɹ̩] spread out/ diffuse

3.10.1.4 [y] normally exhibits progressive assimilation, as in

\[mɹ̩ɹ̩ɹ̩] raincape  \quad \text{[ɹ̩ɹ̩] species of frog}

With some speakers, especially those of dialect A, the follow-
ing segment then progressively assimilates nasalization, thus:

\[ \text{māyābu} \] raincape \[ \text{āyō} \] species of frog

Other speakers of dialect A tend to substitute \([p]\) for \([y]\) in these environments, thus:

\[ \text{mānābu} \] raincape \[ \text{ānō} \] species of frog

3.10.2 Palatalization

3.10.2.1 In general terms this involves the movement of the tongue body towards the palatal region, resulting in what Chomsky & Halle (1968: 305-306) call a subsidiary articulation that superimposes an \([i]\)-like quality on the basic consonantal articulation, and what Ladefoged (1982: 210) calls the addition of a high front tongue position to another articulation.

3.10.2.2 Segments that are \([+\text{cor}]\) are susceptible to such palatalization in the environment,

\[
\begin{align*}
\text{[+syll]} & \quad \text{[+syll]} \\
\text{[+high]} & \quad \text{[+low]} \\
\text{[-back]} & \quad \text{[+back]}
\end{align*}
\]

The assimilation is progressive, as in the examples:

\[ \text{[Joīe}bi\text{L}a] \] (he) will say \[ \text{ibi\text{y}a} \] (he) comes
\[ \text{[p\text{h}agid\text{y}a]} \] arm band \[ \text{[p\text{h}id\text{y}a]} \] fall

3.10.2.3 The syllabic segments in the palatalization environment given above can occur in the same sequence without an intervening consonant, and speakers tend in normal speech to diphthongize them, thus:

\[ \text{[kia\text{m}b\text{e}]} \] hard \[ \text{[pia\text{g}g\text{o}]} \] dog
\[ \text{[p\text{g}agia]} \] plank \[ \text{[piab\text{e}]} \] work

In deliberate, citation, speech, each syllable is pronounced distinctly

\[ \text{[ki]+[a]+[m\text{b}\text{e}]} \quad \text{[pi]+[a]+[g\text{g}\text{o}]} \]
which discourages analysing such items as incorporating palatalized consonantals, as in the transcriptions:

*\([k^\gamma a^m b\epsilon]\)  *\([p^\gamma a^\eta g\omega]\)
*\([h^\eta a^g a]\)  *\([p^\gamma a b\epsilon]\)

3.10.2.4 It seems plausible to suggest that consonantals become palatalized progressively, not regressively, and that apparent regressive palatalization is due to the tendency of contiguous [i] and [a] towards diphthongization. When a consonantal segment that is [+cor] comes between these segments, the tendency towards a glide results in the consonantal being palatalized.

3.10.2.5 A useful general phonological rule can be formulated:

\[+\text{cons} \rightarrow [+\text{high}<\text{-back}>] / [+\text{syll}] \\
[+\text{cor}] \\
[-\text{nasal}] \rightarrow [+\text{high} <\text{-back}>] / [+\text{syll}] \\
[-\text{high}] \\
[-\text{back}] \rightarrow [+\text{low}] #\]

3.10.3 Labialization

3.10.3.1 This is the addition of noticeable lip-rounding to the primary articulation of a syllabic segment. The subsidiary rounding in Huli is moderate rather than extreme or complete (cf Chomsky & Halle 1968:309), and is indicated in phonetic transcription by the superscript \([^\wedge]\). The extent of labialization can be seen in the table below.

<table>
<thead>
<tr>
<th>(p[^\wedge])</th>
<th>k[^\wedge]</th>
<th>g[^\wedge]</th>
<th>m[^\wedge]</th>
<th>(d[^\wedge])</th>
<th>n[^\wedge]</th>
<th>g[^\wedge]</th>
<th>i[^\wedge]</th>
<th>l[^\wedge]</th>
<th>j[^\wedge]</th>
<th>(\chi[^\wedge])</th>
<th>(m[^\wedge])</th>
</tr>
</thead>
</table>

Table 11: Labialized segments
The segments shown in brackets are very infrequent, the evidence for their existence being illustrated by the following:

[pʰaIʰa] hornbill  [ɔmʰa] species of grub
[pʰa˧˩a] place name  [tɛ˨˩a] many

3.10.3.2 Segments that are specified

[+cons  
  α son  
  +voice  
  -αcont]

are susceptible to progressive assimilation of the feature [round] in the environment,

[+syll] —— [+syll]  # #

Examples:

[ʔəbʱˌabɨ] greedy  [pʰaUˤʔa] folding
[pʰugʰa] swamp  [ʔuʊʔa] skirt

3.10.3.3 The segment specified as

[+cons  
  -son  
  +high  
  -voice  
  -cont]

is susceptible to the same process of labialization in the environment,

[+syll]  —— [+syll]  -high  +back

Examples:

[ʔukʰa] lift up  [ʔʰukʰa] pluck

3.10.3.4 Segments that are specified

[+cons  
  α son  
  β voice  
  α cont  
  β nasal]
are subject to labialization in the environment,

## [+syll]

Examples:

\[ t^W^G_e: \] retch \hspace{1cm} [k^H^W_a:] species of nut
\[ k^W^G^a^n_e ] hollow \hspace{1cm} [g^W^G^a:] farewell

3.10.3.5 The general rule for assimilation/feature spreading in Huli is that its motivation is progressive. This makes it possible to suggest that in the last example of 3.10.3.4 a segment with the feature [+round] has been lost. This is supported by data from dialect A, in which a [+back, +round] segment precedes the initial obstruent nasal, thus:

\[ w^G^w^a:] farewell

3.11 PHONEMIC INTERPRETATION

3.11.1 Environment induced non-primary articulations are non-phonemic, but other non-primary articulations figure in contrasting minimal and near-minimal pairs and groupings such as:

- \[ p^H^a:] thigh \hspace{1cm} [g^W^i:] nose
- \[ p_a:] hit \hspace{1cm} [g_i:] give
- \[ n_a:] have/stay \hspace{1cm} [n_i:] sun
- \[ t^a:] shine \hspace{1cm} [a_i:] what
- \[ t^H^a:] emit \hspace{1cm} [a^G^i:] when
- \[ k^H^i:] court \hspace{1cm} [a^H^d^a^n_e] owner
- \[ k_i:] two \hspace{1cm} [a^H^d^a^n_e] wrapping
- \[ k_i:] hand \hspace{1cm} [adagudi] tickle
- \[ w_i:] penis \hspace{1cm} [awa^\_c] near
- \[ n_i:] sweep
Within the pattern of free variation and complementary distribution that has been described in 3.1 - 3.10, it is possible to propose that the phonemes of the language are those set out in figure 3.

Obstruent nasals (3.1.1-2, 3.10.1.1) are analysed as complex phonemes, as are other segments with phonemic non-primary articulations. The question of orthographic representation of these phonemes is discussed in 3.12.

3.11.2 Realization of phonemes

3.11.2.1 /p/ is realised as either [ŋ] or [pʰ] in the environment ## X

3.11.2.2 /b/ has the following realizations:

--- > [p] / ## VX

--- > { [b] [p] } / [+high] [+back] [−tense]

--- > { [b] [p] } / [+high] [−back] [−tense]

--- > [β] / [−high] [−tense]

3.11.2.3 /mb/ is always realized as [mb].

3.11.2.4 /bw/ is always realized as [bw].

3.11.2.5 /mbw/ is always realized as [mbw].
3.11.2.6 /t/ is realized as follows:

\[ [t^s_A] \text{ or } [s] / \# \quad {}^V \]

DIALECT A

\[ \rightarrow [t^h_A] \text{ in all other environments.} \]

3.11.2.7 /d/ has the following realizations:

\[ \rightarrow \rightarrow [t^h_A] / \# \quad {}^V \]

\[ \rightarrow \rightarrow \{[d]\} / V \quad {}^V \]

3.11.2.8 /nd/ is always realized as [nd].

3.11.2.9 /t^w/ is always realized as [t^h^w].

3.11.2.10 /d^w/ is always realized as [t^w].

3.11.2.11 /nd^w/ is always realized as [nd^w].

3.11.2.12 /k/ is always realized as [k^h].

3.11.2.13 /g/ has the following realizations:

\[ \rightarrow \rightarrow [k] / \# \quad {}^V \]

\[ \rightarrow \rightarrow \{[k]\} / [\# \quad {}^V \]

\[ \rightarrow \rightarrow \{[g]\} / [\# \quad {}^V \]

\[ \rightarrow \rightarrow \{[x]\} / [\# \quad {}^V \]

\[ \rightarrow \rightarrow \{[\gamma]\} / [\# \quad {}^V \]

3.11.2.14 /ng/ is always realized as [ng].
3.11.2.15 /k^w/ is always realized as [kh^w].
3.11.2.16 /g^w/ is always realized as [k^w], except as in 3.2.2.9.
3.11.2.17 /ŋg^w/ is always realized as [ŋg^w].
3.11.2.18 /j/ is realized as follows:

\[ \begin{align*}
\text{----> } [y] & / [+nasal] \text{ ----> } [\emptyset \text{nasal}] \\
\text{----> } \{ [y] \} & / \{ [-high] \} \text{ ----> } [-high] \\
\text{----> } [j] & \text{ in all other environments}
\end{align*} \]

3.11.2.19 /ŋj/ is always realized as [ŋj].
3.11.2.20 /j^w/ is always realized as [j^w].
3.11.2.21 /h/ is always realized as [h].
3.11.2.22 /m/ is always realized as [m].
3.11.2.23 /n/ is always realized as [n].
3.11.2.24 /ŋ/ is always realized as [ŋ].
3.11.2.25 /i/ is always realized as [ι].
3.11.2.26 /i^w/ is always realized as [ι^w].
3.11.2.27 /ɛ/ is always realized as [ɛ].
3.11.2.28 /ɛ^w/ is always realized as [ɛ^w].
3.11.2.29 /w/ is always realized as [w].
3.11.2.30 /i/ is realized as follows:

\[ \begin{align*}
\text{----> } [i] & / \text{ ----> } C \text{ ----> } V \\
\text{----> } [I] & / [+son] \text{ ----> } [+high]
\end{align*} \]
[I] \rightarrow \{ \begin{array}{c}
+\text{low} \\
+\text{back}
\end{array} \}
\begin{array}{c}
-\text{son} \\
+\text{high} \\
+\text{back}
\end{array}
\rightarrow [i] \text{ in all other environments}

\text{3.11.2.31} \ /e/ \text{ is realized as follows:}

\begin{array}{c}
## \\
\rightarrow [e] \begin{array}{c}
+\text{low}
\end{array} \\
\left\{ \begin{array}{c}
-\text{tense}
\end{array} \right\} \\
\begin{array}{c}
-\text{back}
\end{array}
\rightarrow [\varepsilon] \text{ when contiguous with a segment that is } [+\text{cons}, +\text{high}, +\text{back}, +\text{round}]
\rightarrow [e] \text{ or } [\varepsilon] \text{ in all other environments}

\text{3.11.2.32} \ /a/ \text{ has the following realizations:}

\begin{array}{c}
\rightarrow [a] \text{ or } [\text{I}] \begin{array}{c}
+\text{high} \\
-\text{back} \\
-\text{nasal}
\end{array} \quad \begin{array}{c}
+\text{high} \\
-\text{back} \\
-\text{nasal}
\end{array}
\end{array}
\rightarrow [a] \text{ or } [\text{I}] \begin{array}{c}
+\text{high} \\
\text{\underline{+\text{STRESS}}} \\
-\text{back}
\end{array}
\begin{array}{c}
\begin{array}{c}
+\text{high}
\end{array} \\
\text{\underline{+\text{nasal}}}
\end{array}
\rightarrow [\text{x}] \text{ or } [\varepsilon] \begin{array}{c}
\end{array}
\begin{array}{c}
+\text{cont}
\end{array} \\
\rightarrow [\text{x}] \text{ or } [\varepsilon] \begin{array}{c}
+\text{high}
\end{array} \\
\text{\underline{+\text{cont}}}
\rightarrow [a] \text{ or } [\text{A}] \begin{array}{c}
+\text{high} \\
-\text{back}
\end{array} \\
\rightarrow [a] \text{ or } [\text{阳}] \begin{array}{c}
+\text{high} \\
\text{\underline{+\text{cont}}}
\end{array} \\
\rightarrow [a] \text{ or } [\text{阳}] \begin{array}{c}
\end{array} \\
\begin{array}{c}
+\text{round}
\end{array}
--- [a] in all other environments

3.11.2.33 /u/ is realized as follows:

\[ \begin{array}{c}
V \\
\rightarrow [U] / [+low] \\
\rightarrow [u] in all other environments
\end{array} \]

3.11.2.34 /o/ is always realized as [ɔ].

3.11.2.35 /i/ is realized as follows:

\[ \begin{array}{c}
V \\
\rightarrow [I] / [+low] \\
\rightarrow [i] in all other environments
\end{array} \]

3.11.2.36 /e/ is always realized as [ɛ].

3.11.2.37 /a/ is realized as follows:

\[ \begin{array}{c}
V \quad V \\
\rightarrow [æ] / [+nasal] [+nasal] \\
\rightarrow [a] in all other environments
\end{array} \]

3.11.2.38 /u/ is realized as follows:

\[ \begin{array}{c}
V \\
\rightarrow [U] / [+low] \\
\rightarrow [u] in all other environments
\end{array} \]

3.11.2.39 /o/ is always realized as [ɔ].

3.12 ORTHOGRAPHY

3.12.1 The above phonemic interpretation suggests that there are thirty-nine Huli phonemes, and it is possible to represent these orthographically with 18 letters and one diacritic. The
letters are abdeghijklmnoprtuw, and the dia­
critic is the tilde, ~. The relationship of these symbols to the
phonemes is set out in table 12.

<table>
<thead>
<tr>
<th>symbol</th>
<th>signal/relationship to phoneme</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>represents /a/</td>
</tr>
<tr>
<td>b</td>
<td>/b/</td>
</tr>
<tr>
<td>d</td>
<td>/d/</td>
</tr>
<tr>
<td>e</td>
<td>/e/</td>
</tr>
<tr>
<td>g</td>
<td>/g/</td>
</tr>
<tr>
<td>h</td>
<td>/h/</td>
</tr>
<tr>
<td>i</td>
<td>/i/</td>
</tr>
<tr>
<td>j</td>
<td>/j/</td>
</tr>
<tr>
<td>k</td>
<td>/k/</td>
</tr>
<tr>
<td>l</td>
<td>/l/</td>
</tr>
<tr>
<td>m</td>
<td>1. signals the non-primary articulation [m] when preceding b: i.e., mb = /mb/; 2. elsewhere represents /m/.</td>
</tr>
</tbody>
</table>
| n      | 1. signals the non-primary articulation [n] when preceding d: i.e., nd = /nd/; 2. signals [n] when preceding g: i.e., ng = /ng/; 3. signals [n] when preceding j: i.e., nj = /nj/; 4. elsewhere, represents /n/.
| o      | represents /o/               |
| p      | /p/                           |
| r      | /r/                           |
| t      | /t/                           |
| u      | /u/                           |
| w      | 1. signals the non-primary articulation [w] when following a segment that is specified [+cons]: i.e., Cw = Cw ; 2. elsewhere, represents /w/. |
| ~      | 1. signals a [+nasal] when over a vowel; 2. signals palatalization when over n, i.e., ā = /n/. |

Table 12: Orthography
3.12.2 This orthography differs from the one currently used by most people literate in Huli. The received orthography (RO) is that devised by W.M. Rule in 1954-55 (Rule 1977), and is used in vernacular literacy teaching and in major publications such as the New Testament (Bible Society of Papua New Guinea 1983).

3.12.3 The RO differs from the one I have suggested in that it uses 'y' in place of 'j'; signals nasal vowels by underlining, , not by a tilde; allows consonantal digraphs to represent obstruent nasals, but excludes trigraphs by signalling secondary labialization with 'u' or 'o'. It does not include a symbol for /p/, and indicates falling tones with an acute accent, rising tones with a grave (contrary to this orthography, which reverses these signals - cf 4.2.3).

3.12.4 I shall use the orthography suggested in table 12 as the preferred orthography (PO), since it seems to me to accommodate better the phonemic interpretation given in 3.11.

3.12.5 This concludes the description of Huli segmentals, and establishes a basis from which to proceed to a description of the supra-segmentals, which I am treating under prosodies.
CHAPTER 4

PROSODIES

This term is used broadly, to cover features of the language such as tone - which some phoneticians would treat under the chapter on segmentals - and also features such as intonation and vowel harmony, prosodies in the Firthian sense.

4.1 SYLLABLES

The formula for Huli syllable structure, derived from a consideration of the phonemes underlying the PO, is $C^1 V^3 C^0 V^1$ as can be seen from the examples:

a.ga.li man /a.ga.li/
da.nda bow /da.n^nda/mbi.ra.ga darkness /mbi.ra.ga/
gaea sunshine /gaea/

The data show that vowels can occur in sequences that are not glides, while there are no words that end in consonantal segments - although exceptions to this are found in the B3 dialect, where final vowels are deleted by some speakers.

Huli syllables are accordingly interpreted as consisting of an optional consonantal onset followed by a nucleus of one or
more vowels.

Mingographic evidence suggests that in diphthongal glides the morae can differ in prominence (cf Fig.31, appendix A), but these, along with geminate vowels that occur in monosyllabics, are here analysed as single peaks of prominence.

4.2 TONES

4.2.1 Although tone is phonemic in Huli, it carries a low functional load. In connected speech, it rarely appears to be crucial, but there are contrasting monosyllabic and disyllabic diads and triads in the language. A sample list of such items was drawn up, and a survey conducted among men and women in 22 Huli locations. 35 participants contributed speech samples, which included non-contrasting polysyllabic items. The details of the survey are given in appendix A: it is sufficient here to note the general conclusions.

4.2.2 Tone is problematic and warrants further investigation. The data collected so far show that there are four tones (tonemes) available for use, but that they are not employed in a uniform or consistent manner across the language group. Some speakers do not use pitch to discriminate between certain homophones, while others do. Among the latter there is considerable variation in the way the four tones are used, perhaps reflecting differing dialectal systems.

4.2.3 However, a point of near unanimity is that there are indeed four contrasting tones, which are:

Tone 1 (falling) : grave (à)
Tone 2 (rising) : acute (á)
4.2.4 In the light of the criteria proposed by Pike (1948), this could be interpreted as a contour system. Foley (1986:63-64) doubts if there are any genuine tonal systems in Papuan languages, which he believes are better interpreted as having pitch-accent systems, citing Fore (Scott 1978) as an example. However, the minimal pairs he uses to illustrate his point are all polysyllabic, and when he comes to consider Awa (Loving 1973) with its monosyllabic minimal pairs he reckons it is a possible candidate for consideration as a tonal language (although he concludes that it probably is not one).

4.2.5 While the toneme system requires fuller investigation, the data to hand indicate that it is part of a wider system of pitch movement associated with language at discourse level. This will become clear in the course of the following description of intonation, based mainly on data from the Gumu area.

4.3 INTONATION

4.3.1 Intonation can be described as the systematic patterning of prosodic features such as pitch, pitch-movement, loudness and length (cf Coulthard 1985: 96-98). Coulthard, following Brazil (cf Brazil, Coulthard & Johns 1980), notes that it is the contrasts, not the absolute values, of the associated acoustic phenomena that are important for a consideration of intonation.

4.3.2 Huli speakers encode information in units, each of which carries an intonation contour similar to one or other of the
tones 1 to 4 (cf 4.2.3). The intonation itself functions as a device for encoding some of the information carried by the unit, typically relating the information unit to other units or to information already stated or understood.

4.3.2.1 Intonation 1, corresponding to tone 1 (F), is usually found on the final information unit of an utterance, and also on a unit that functions as a tag. As a tag, it reactivates or recalls information, or clarifies the preceding information unit or cluster of units. As the final unit of an utterance, it usually signals the piece of information that the hearer is being particularly asked to attend to. When intonation 1 occurs across a complete utterance, the speaker is usually indicating that the assertions's polarity is certain. (Examples of intonation 1 and of the other intonations are to be found in 4.3.3.)

4.3.2.2 Intonation 2, corresponding to tone 2 (R), occurs across units that are anaphoric in reference and that precede the main information unit. This anaphoric bridge is important in that it may function as a device that elicits/allows supportive interaction in dialogue, occurring on the first of element adjacently linked utterances (cf 12.3). Interestingly, this intonation signals certain not uncertain polarity, contrary to the generalization that rising tones indicate uncertain and falling tones certain polarity (cf Halliday 1967).

4.3.2.3 Intonation 3 is a conflation of 2, 1 and 2 : RFR. It occurs on units that precede the main information unit and that are cataphoric in orientation. Units that carry this intonation are typically purposive or hypothetical clauses.

4.3.2.4 Intonation 4 corresponds to tone 4 (RF), and generally
signals the main information unit, the one to which other units in an utterance are referred or linked. It is also the intonation that most usually prevails across an utterance, and as such may modify or perturb the intonation contours of the information units that cluster within it.

4.3.3 Examples of utterances embodying these information units and their intonation contours are given below. The thick line represents the overall contour of the utterance, the thin line the intonation contour of the information unit.

4.3.3.1 Intonation 4 as an overall intonation across an utterance, and, simultaneously, as the main information unit:

\[\text{a)} \quad \text{I pu mopene} \]
\[\text{I rope CAUS-go-EX DEF} \]
\[\text{I rope to get went} \]
\[\text{I went to fetch rope.} \]

\[\text{b)} \quad \text{I biabe bule poro} \]
\[\text{I work do-PURP go-1S-SIMP PRES} \]
\[\text{I work to do go/am going} \]
\[\text{I'm on my way to work.} \]

4.3.3.2 Intonation 2 as an anaphoric bridge. In a) it is followed by a main information unit, carrying intonation 4; in b) by an utterance-final information unit; in both examples, intonation 4 occurs across the complete utterance:

\[\text{a)} \quad \text{aba Mbili ibijagola Migili handarima.} \]
\[\text{father Bill come-3-PAST-ADV Migili see-1P-PAST} \]
\[\text{father Bill when-he-came Migili we saw} \]
\[\text{when Father Bill came, we visited Migili.} \]

\[\text{b)} \quad \text{handalu dai birima.} \]
4.3.3.3 Intonation 3, the cataphoric deixis, across an initial information unit. In each example it is followed by a main information unit with intonation 4, each utterance having an intonation 4 general contour:

a) pu dewame togo wabilimu.  
rope many-ERō bridge make-2P-FUT IMP  
ropes many-with bridge make  
make a bridge using a lot of ropes

b) Huli pole garo* wedi* hene.  
Huli go-PURP car wait be/have-EX DEF  
Huli in-order-to-go car wait (I) had  
I waited for a car to go to Huli

4.3.3.4 Intonation 1 across a tag information unit, following a main information unit (intonation 4):

4' abe I garo* wedi* lo hene; Huli pole Iowa.  
yesterday IS car wait say-STM have-PAST Huli go-PURP say-CONS  
yesterday I car wait to-utter had. Huli to-go having-said  
yesterday I waited for a car, having decided to go to Huli

4.3.3.5 A tag unit (intonation 1) following an utterance with an intonation 4, comprising a cataphoric deixis (intonation 3) that precedes a main information unit (intonation 4):

Huli pole garo* wedi* hene; goti* lo pole.  
Huli go-PURP car wait have-PAST court utter-PURP go-PURP  
Huli to-go car wait had court to speak in-order-to-go  
I waited for a car to go to Huli, having decided to go to court

4.3.3.6 Intonation 1 across an utterance, signalling certain
polarity:

a) 1
naibule  bira
NEG-come-PURP make/do-3-SIMP PRES
not-to come  (he) makes
he won't come

b) 1
ladaba
utter-2D/P-IMP PRES

4.3.4 In connected speech, tones can be perturbed as they are mapped onto the intonation contour of the information unit in which the occur. For example, the place name Huli is produced in isolation by Gumu dwellers as tone 3 (L), but is perturbed to tone 2 (R) at the beginning of intonation 4 (RF) or intonation 3 (RFR), or to tone 1 (F) at the beginning of intonation 1 (F). In the examples below, double slashes indicate the boundaries of the intonation contour in question.

a) Huli 3 ---> 2

3
// Huli pole // hondo haja.
Huli go-PURP wait have-3-PAST
he waited to go to Huli.

b) Huli 3 ---> 1

1
hondo hene, // Huli pole Iowa.//
wait have-PAST Huli go-PURP utter-CONS
he waited, having said he'd go to Huli.

4.3.4.1 Generally, at least one accented syllable in an information unit is given prominence, and this can be another source of tone perturbation. In the examples given below, prominent syllables are preceded by a caret; information units are placed between double slashes; and the numerals indicate tones, not intonation contours.

a) pu 3 ---> 2

2 2 4
^I ^pu mopene
IS rope CAUS-go-EX DEF
I went to get rope
b) \( \text{abe 1} \rightarrow 3 \)
\( \text{ani 3} \rightarrow 1 \)

\[
\begin{array}{cccc}
3 & 1 & 1 & 4 \\
\wedge \text{abe} & \wedge \text{ani} & \text{haribe} \\
\text{yesterday 2S where be-2S-SIMP PAST-Q} \\
\text{where were you yesterday?}
\end{array}
\]

4.3.4.2 However, when more than one information unit occurs in an utterance, a speaker will typically accord salience to the one that he/she wishes to foreground. This is achieved by stepping up the pitch and increasing the loudness of the prominent syllable of that unit, other units being given a secondary prominence. Consider the following examples, in which a shadowed caret indicates a primary stress. Mingograms of these utterances can be found in appendix B.

\[
\begin{array}{cccc}
4 & 3 & 4 \\
\text{rope many-ERG bridge make-2P-FUT IMP} \\
\text{ropes many-with bridge make} \\
\text{make a bridge using a lot of ropes}
\end{array}
\]

In a), the hearers' attention is focussed on the speaker's wanting them to use lots of rope; and in b), it is the speaker's waiting for a car that is foregrounded.

4.3.4.3 What is happening here is that the language is being ordered in such a way that it draws the hearer's attention to pieces of information that the speaker wants him/her to focus on. The principal device being used is that of giving prominence to an accented syllable, a device that involves perturbing the tone of the item being given salience. This is one of the
factors contributing to tone perturbation — others being the pitch contours of utterances and information units — and that underline the low functional load that tonemes carry as discriminators between items that are otherwise homophonous.

4.3.5 Across larger stretches of discourse, the inter-relationship of tones and intonation becomes clearer, although the need for more attention to this area does not need stressing.

4.3.5.1 Consider the texts below, the first of which is part of a bi te 'folk tale' (2.3.2.5), while the second is a piece about women and pig-ropes, written by a newly literate teenage girl. Numerals indicate intonation contours, and double slashes the beginning of information units.

4
a) // ai ^alebe, laja.
EXC like-Q say-3-SIMP PAST
ah like-what (he) said
Ah, what was it like?, he said.

// agali mbira ^ogoria haja.
man one here-LOC be/have-3-SIMP PAST
man a towards here was
There was a man right here.

1
// ai nde
EXC EXC
ah right
Yes, that's it.

3
// ^mbiru, // Hela-^Obene pole, Iowa,
once Hela-Obene go-PURP say-CONS
one day Hela-Obene in-order-to-go having said
One day, having said he'd go to Obene country,

4
// ^tabage manda bija.
drum head made/do-3-SIMP PAST
drum thought (he) did
He prepared a drum.

3
b) // nogo ^hende // ^walime baga. // ^walime, // nogo
4.3.5.2 The first text is somewhat unusual in that it would normally be sung or chanted (cf 10.5.3.8), and thus the intonation contours would be perturbed by the constraints of performance. While this example was read aloud from a primer, it retains some of the characteristics of bi te, in particular the use of large information units. Intonation 4 is used to introduce the text, and the introduction is concluded by the use of intonation 1, signifying that this is to be taken as the starting point. 'mbiru' and 'Hela- ... Iowa' provide examples of cataphoric reference.

4.3.5.3 Text b) begins with an intonational contour that is a cataphoric deixis, and includes three examples of intonation 2 functioning as an anaphoric bridge. The unit 'lalu baga' exemplifies a tag-like conclusion to an utterance, while the concluding 'ogoni' has intonation 1, signalling certitude of polarity.

4.3.5.3 Further exemplification of the functions of informa-
tion units and their associated intonation contours can be seen in chapter 12. A more complete description will have to await the collection of a very considerable amount of uncontaminated data - a formidable requirement today, when social change and language change are happening so quickly (cf chapter 11).

4.4 VOWEL HARMONY

4.4.1 There is a powerful vowel harmony rule operative across non-suffixed free morphemes,

\[ V \rightarrow [\text{high}] / [\text{low}] C \]

which says that high and mid vowels cannot occur in contiguous syllables.

4.4.1.1 This may be a characteristic common to languages of the Trans-New Guinea phylum. Franklin notes of Kewa that low non-central and high vowels do not occur in contiguous syllables separated by a consonant (1971: 12) and that the sequences *CeCi, *CeCu, *CoCi and *CoCu had not been observed. Likewise, Ingemann records in his word list (1960: 2) that Ipili-Paiyala has the same sort of vowel harmony constraints, although they tend to disappear in careful speech.

4.4.1.2 My Witu wordlist is similar to Franklin's (1975) in reflecting the same kind of phonotactic pattern, while published wordlists of Sau and Fasu (Franklin 1975), Foe and Pole (Rule 1977), Pawaia (Trefry 1969; 1972), Nembi (Tipton 1982), and my own collected wordlists for Nembi, East and West Kewa, Det, Pomberel and 8 Mendi dialects all show the same vowel
harmony rule to be operative.

4.4.1.3 Similarly, the lists given by Scott (1978), which go beyond the Highlands, indicate the same phonotactic constraints in Gende, Siane, Yabiyfua, Asaro, Gahuku, Benabena, Kamano, Yate, Yagaria, Fore, Gimi, Awa, Ayuana, Gadsup and Tairora.

4.4.1.4 One of Huli's significant neighbours, Duna, behaves in the same way. This is interesting, since Duna has quite a low lexical correspondence with Huli (about 18%), and is not closely related, being a member of the Central South New Guinea stock, in which, together with Bogaya, it is ranked as a family (Wurm 1982).

4.4.1.5 It may be, then, that this vowel harmony system is operative quite widely in non-Austronesian Papuan languages: certainly, its presence in Huli is not exceptional. As manifest in Huli, the system illustrates both types of primary vowel harmony distinguished by Aoki (1968, cited in Hyman 1978: 233). Partial vowel harmony is the more pervasive, manifest in assimilation to the height of a contiguous vowel, while complete vowel harmony is present in reduplication (cf 4.4.3).

4.4.1.6 As will be seen, the Huli system is interesting but lacks the complexity of some of the systems found outside Papuan languages - such as those in Javanese (Yallop 1982b); Finnish and Hungarian (Vago 1973); Akan (Stewart 1967), Ewe (An-sre 1963), Igbo (Carnochan 1973), and other African languages.

4.4.2 Table 13 sets out the (V)CV sequences that occur in non-affixed free morphemes. The table reads from left to right, with the segments set out in the overhead horizontal axis sub-
<table>
<thead>
<tr>
<th></th>
<th>p</th>
<th>b</th>
<th>mb</th>
<th>t</th>
<th>d</th>
<th>nd</th>
<th>k</th>
<th>g</th>
<th>ng</th>
<th>h</th>
<th>m</th>
<th>n</th>
<th>l</th>
<th>r</th>
<th>w</th>
<th>j</th>
</tr>
</thead>
<tbody>
<tr>
<td>ØCi</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>iCi</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>iCu</td>
<td>-</td>
<td>+</td>
<td>-</td>
<td>+</td>
<td>-</td>
<td>+</td>
<td>-</td>
<td>+</td>
<td>-</td>
<td>+</td>
<td>-</td>
<td>+</td>
<td>-</td>
<td>+</td>
<td>-</td>
<td>+</td>
</tr>
<tr>
<td>iCa</td>
<td>-</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>iCe</td>
<td>-</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>?</td>
<td>?</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>?</td>
<td>?</td>
<td>-</td>
</tr>
<tr>
<td>iCo</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>CiØ</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>?</td>
<td>+</td>
</tr>
<tr>
<td>ØCu</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>uCu</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>?</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>uCe</td>
<td>-</td>
<td>+</td>
<td>-</td>
<td>+</td>
<td>-</td>
<td>+</td>
<td>-</td>
<td>+</td>
<td>-</td>
<td>+</td>
<td>-</td>
<td>+</td>
<td>-</td>
<td>+</td>
<td>-</td>
<td>+</td>
</tr>
<tr>
<td>uCa</td>
<td>-</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>uCo</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>CuØ</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>ØCe</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>?</td>
<td>?</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>?</td>
<td>+</td>
</tr>
<tr>
<td>eCe</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>-</td>
<td>+</td>
<td>+</td>
<td>-</td>
<td>+</td>
<td>-</td>
<td>+</td>
<td>-</td>
<td>+</td>
<td>-</td>
<td>+</td>
<td>-</td>
<td>+</td>
</tr>
<tr>
<td>eCo</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>+</td>
<td>-</td>
<td>+</td>
<td>-</td>
<td>+</td>
<td>-</td>
<td>+</td>
<td>-</td>
<td>+</td>
<td>-</td>
<td>+</td>
<td>-</td>
<td>+</td>
</tr>
<tr>
<td>eCa</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>eCi</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>eCu</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>CeØ</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>ØCo</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>oCo</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>oCe</td>
<td>-</td>
<td>+</td>
<td>-</td>
<td>+</td>
<td>-</td>
<td>+</td>
<td>-</td>
<td>+</td>
<td>-</td>
<td>+</td>
<td>-</td>
<td>+</td>
<td>-</td>
<td>+</td>
<td>-</td>
<td>+</td>
</tr>
<tr>
<td>oCa</td>
<td>-</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>oCi</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>oCu</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>CoØ</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>ØCa</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>aCa</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>aCi</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>aCu</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>aCe</td>
<td>-</td>
<td>+</td>
<td>-</td>
<td>+</td>
<td>-</td>
<td>+</td>
<td>-</td>
<td>+</td>
<td>-</td>
<td>+</td>
<td>-</td>
<td>+</td>
<td>-</td>
<td>+</td>
<td>-</td>
<td>+</td>
</tr>
<tr>
<td>aCo</td>
<td>-</td>
<td>+</td>
<td>-</td>
<td>+</td>
<td>-</td>
<td>+</td>
<td>-</td>
<td>+</td>
<td>-</td>
<td>+</td>
<td>-</td>
<td>+</td>
<td>-</td>
<td>+</td>
<td>-</td>
<td>+</td>
</tr>
<tr>
<td>CaØ</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
</tbody>
</table>

Table 13: Phonotactic constraints
stituting for the 'C' slot in the configurations given on the
right hand vertical axis.

4.4.2.1 The indicator " + " shows that the configuration is
attested as occurring, while the indicator " - " shows that it
has not yet been found. The question mark, " ? ", indicates that
the configuration is doubtful and not well attested.

4.4.2.2 Thus the first configuration on the vertical axis, 0Ci,
occurs as 0pi, 0bi, 0mbi, etc., but the sequence *0ri has not yet
been found. Similarly, the second configuration on the vertical
axis, iCi, can be realized as imbi, etc., but not as *iti, *iki
or *ihi.

4.4.2.3 As regards doubtful items, iCe, for example, has been
recorded as realized in ibendege 'type of moss' and also in gaju-
dimbereni 'cave', but the former occurs more usually as ibandege,
suggesting that its iCe sequence is a dialectal or even an idio-
lectal variant, while the latter belongs to the register used in
the high bush (cf 2.5.3), and is of rare occurrence.

4.4.2.4 It will be noticed that the sequences listed in the
table are all of the variety (V)CV - that is, syllables whose
vowels are separated by a consonant. A further constraint is that
vocalic glides are excluded from the 'V' slot.

4.4.2.5 What emerges from the data is the sparse to non-occur-
rence of syllable sequences such as *iCe, *iCo, *uCe, *uCo, *eCi,
*eCu, *oCi and *oCu. Some examples of sequences that do occur
are given below:

<table>
<thead>
<tr>
<th>kuni</th>
<th>ange</th>
<th>irigijidi</th>
</tr>
</thead>
<tbody>
<tr>
<td>bone</td>
<td>bund</td>
<td>type of fungus</td>
</tr>
</tbody>
</table>
4.4.2.6 The phoneme /a/ may co-occur with any other vowel in sequence, and some examples of this are included in the short list given above. The cover feature [tense] (cf 3.1.5) is of some assistance at this point, since it is possible to propose two general rules,

1) \[ V [+\text{low}] \rightarrow [-\text{tense}] / C [-\text{low} \text{[tense]}] C \]  
2) \[ V [+\text{low}] \rightarrow [\text{tense}] / # (C) C [-\text{low} \text{[tense]}] \]

4.4.2.7 The first rule says that when /a/ occurs in word-final syllables, its value for [tense] is opposite to that of the preceding vowel, if that vowel is [-low]. The second rule states that when /a/ occurs in a word-initial syllable, it has the same value for [tense] as a [-low] vowel in a following syllable. These rules are illustrated by the items given below in phonetic transcription, which include relevant examples from 4.4.2.4:

1) \[ ku^m\text{b}a] \] shade \[ hi\text{wa] sago \]
   \[ \text{aba] laughter [ke}^{\text{2}}\text{a] anger \]
2) \[ j^{\text{2}}\text{wi] tomorrow [ang}^{\text{2}}\text{] bund \]
   \[ ka^{\text{2}}\text{n}d\text{e}^{\text{2}}b\text{a] vision [ab}^{\text{2}}\text{] yesterday \]

4.4.2.8 When high and mid vowels occur in syllables in the same word, they are always separated by a syllable whose 'V' slot is filled by /a/. Examples:
4.4.2.9 However, most of these items are not simple unbound morphemes, but compound words, and the function of /a/ in these cases is twofold: it forms a bridge between [-low] vowels that have disparate specifications for [high], and it indicates internal word boundaries. These functions are illustrated by the examples:

<table>
<thead>
<tr>
<th>English</th>
<th>Huli</th>
</tr>
</thead>
<tbody>
<tr>
<td>bird hair feathers</td>
<td>egari</td>
</tr>
<tr>
<td>scoop hole shallow pit</td>
<td>korali</td>
</tr>
</tbody>
</table>

In each case, /a/ is realized as [a], according to the rule,

\[
\begin{align*}
V_{[-\text{high}]} & \rightarrow [\text{-tense}] / \\
V_{[+\text{low}]} & \\
\end{align*}
\]

which states that when /a/ occurs in a syllable that is separated from each of its contiguous syllables by [+cons] segments, and the vowels of the contiguous syllables have opposing values for the feature [high], it is specified as [-tense] (cf 7.2.4).

4.4.2.10 Thus it can be seen that an important function of /a/ is that of bridging morpheme and internal word boundaries. It helps to clarify that Huli vowel harmony is basically a suprasegmental property, its essential domain of operation being across syllables and even across morpheme boundaries, involving sharing or copying the specification of the
feature [high], or the regressive/progressive assimilation of the value ascribed to the cover feature [tense].

4.4.2.11 However, the feature [tense] does not figure in the vowel harmony system beyond what has already been described, and assimilation across morpheme boundaries is concerned centrally with the feature [high].

4.4.3 Assimilation across boundaries.

4.4.3.1 Hyman (1975:196) suggests that different boundaries seem to have different 'strengths', and the stronger the boundary the greater its ability to block phonological processes. He considers the morpheme boundary to be weaker than the full word boundary, with the internal word boundary somewhere in between.

4.4.3.2 Yallop, in his study of Javanese vowels, notes instances in which phonological process are blocked by morpheme boundaries (Cf Halim et al 1982:302), and this level of boundary can also render vowel harmony inoperative in Huli. However, bound inflectional morphemes generally activate the process, while some instances of it being seemingly blocked are governed by rules that are semantically rather than phonologically based.

4.4.3.3 Progressive assimilation across morpheme boundaries is exemplified by /-go/ and /-ne/, respectively the determiner (DET) and definitive (DEF) suffixes. When the DET is added as a first-place suffix to a verb stem to produce the iterative adjunct (cf 5.2.3), /o/ undergoes progressive assimilation according to the rule,
Examples of this are:

la + go
utter-STM DET

bi + go
do-STM DET

pu + go
go-STM DET

Examples:

he + ne
be-STM DEF

hiri + ne
roast-STM DEF

pe + ne
go-STM DEF

(Note that verb stem changes are set out in 5.1.3, 5.1.4, etc.)

4.4.3.5 However, when /-go/ functions as a deictic, it always retains the specification [+back]. Except for this modification, it follows the rule given in 4.4.3.3, as is shown in the examples:
udu + go -> udu +gu
up over the ridge DET up over the ridge there
= udugu
up there over the ridge

ni + go -> ni + gu
down below DET down below there
= nigu
down below there

o + go = ogo
here DET this (here)

ede + go = edego
across the dip DET there across the dip

4.4.3.6 For some speakers, especially those of A dialect, the vowel harmony discussed immediately above disappears in careful speech, and the deictic suffix is always realized as /-go/. Recall that Ingemann (1960) has recorded similar instances of vowel harmony dissolving in deliberate speech among the Ipili-Paiyala (4.4.1 above).

4.4.3.6 Morpheme boundaries block regressive vowel harmony, except in the case of the verb inflections of the Simple Present (cf 5.2.1), which induce lowering of the stem final vowel of class 2 verbs (cf 5.1.1). The rule governing this regressive process is:

\[
\begin{align*}
V^{+\text{high}} & \quad \longrightarrow \quad [-\text{high}] / X C \\
& \quad \text{STM} \quad \text{SUFX}
\end{align*}
\]

\[
\begin{align*}
C^{+\text{son}} & \quad [-\text{high}] & \quad [-\text{low}] \\
& \quad \text{cor} \quad \#
\end{align*}
\]

4.4.3.6.1 This rule says that a stem final high vowel is lowered to mid when a suffix is added that consists of [X] followed by a mid vowel. Examples are:

bi + ro = bero
make/do-STM 1S-SIMP PRES I make/do

mi + ro = mero
take/give-STM 1S-SIMP PRES I take/give
4.4.3.7 This regressive process is more apparent in the case of the disyllabic verb stem, ibi- 'come'. Application of the above rule suggests an initial lowering of the stem-final vowel:

\[
\text{ibi} + \text{re} \rightarrow \text{*ibere}
\]

Further vowel harmony regression would then produce the standard form,

\[
\text{ibere} \rightarrow \text{ebere}
\]

through application of the rule,

\[
V^{+\text{high}} \rightarrow V^{-\text{high}}
\]

which spreads the lowering to the first stem vowel.

4.4.3.8 Counter harmony can also occur when the DEF suffix \(=\text{ne}\) is added to a verb form. Consider the examples:

\[
\begin{align*}
\text{hale ke} + \text{ne} & = \text{hale keni} \\
\text{ear EV}=2S \text{ DEF} & = \text{ear you ought to be} \\
\text{you should listen} & \\
\text{abe ibiri} + \text{ne} & = \text{abe ibirine} \\
\text{yesterday come}=2S=\text{SIMP PAST} \text{ DEF} & = \text{you should have come yesterday} \\
\text{dalimu larimi} + \text{ne} & = \text{dalimu larimine} \\
\text{loudly utter}=2P=\text{SIMP PAST} \text{ DEF} & = \text{you should have spoken loudly} \\
\text{agali bare} + \text{ne} & = \text{agali bareni} \\
\text{man hit/kill}=2S=\text{SIMP PRES} \text{ DEF} & = \text{you should kill the man}
\end{align*}
\]

4.4.3.8.1 In each case a counter harmony rule is operative
which says that the suffix vowel takes on a value for [high] that is the opposite of the stem-final vowel's specification for that feature, thus:

\[
\begin{array}{c|c|c}
V & STM & SUFX \\
\hline
[-high] & \rightarrow & [-\sim{high}] / X [\sim{high}] \\
[-low] & \rightarrow & [C] \\
[-back] & \rightarrow & [C] \\
\end{array}
\]

4.4.3.9 This is one of those interesting examples in Huli where vowel height, the salient feature in the vowel harmony system, seems to be semantically rather than phonologically motivated, the resulting form signalling modulation. Other instances where harmony or lack of it is significant are indicated by the examples,

<table>
<thead>
<tr>
<th>STS</th>
<th>PREP</th>
<th>FORMS</th>
</tr>
</thead>
<tbody>
<tr>
<td>bu make/do-STM + le PURP</td>
<td>bulé</td>
<td>that he may do it</td>
</tr>
<tr>
<td>bu make/do-STM + li PREC</td>
<td>buli</td>
<td>lest he do it</td>
</tr>
<tr>
<td>bi make/do-STM + lo FERM</td>
<td>bilo</td>
<td>let him do it</td>
</tr>
</tbody>
</table>

4.4.3.9.1 The second example is the exceptional one, conforming to harmony rules across a morpheme boundary. While the first and third examples show positive modal concord - affirming a possible action - the second signals negative modality.

4.4.3.10 Of the rules outlined in the last two sectors it it needs to be said that although they are restricted in scope they are of frequent occurrence. As part of the general description of Huli vowel harmony, they illustrate that vowels tend to assimilate, progressively and also regressively, to height: mid and high vowels cannot occur in consecutive syllables in unbound morphemes.

4.4.3.11 This concludes the section on vowel harmony, and
also the chapter on prosody. The next chapter will begin a new section, describing verbs, with particular attention being given to verb morphology.