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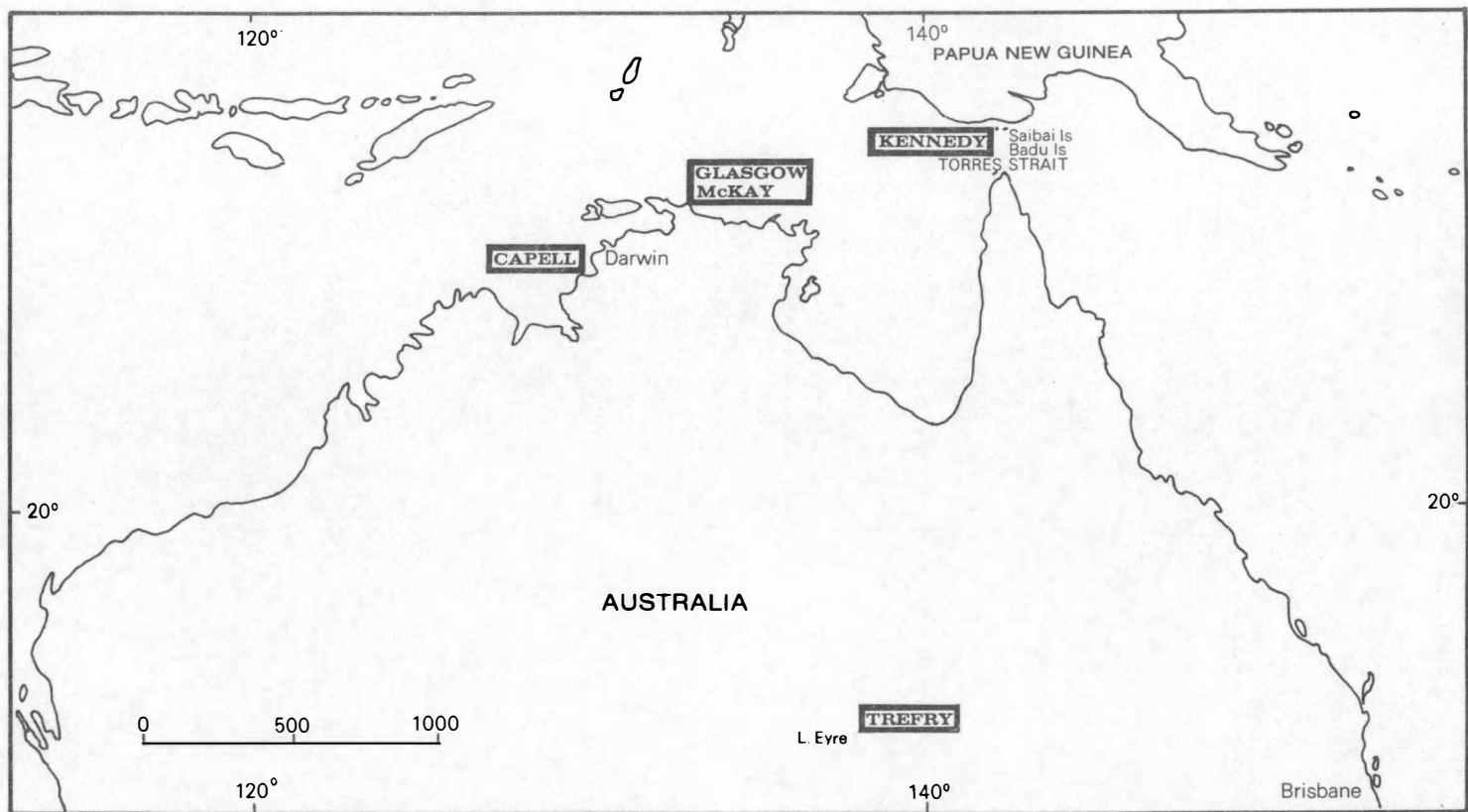
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Location of language areas referred to by the authors



## BURARRA WORD CLASSES

Kathleen Glasgow

### 0. INTRODUCTION

The purpose of this paper is to define the word classes of the Burarra language as an aid to dictionary labelling, further analysis to be completed (particularly phrase and sentence), and translation work.

Five criteria have been employed in determining the Burarra word classes: (a) semantics, (b) derivation, (c) derivation potential for other word classes, (d) inflection and (e) distribution in paragraph, sentence, clause and phrase.

By these criteria Burarra words belong to nineteen different word classes: nouns, temporals, temporal relators, locatives, directionals, possessed body parts, descriptives, pronouns, demonstratives, kin terms, verbs, adverbs, restricted adverbs, aspect words, mood words, indeterminates, conjunctions, attention words and interjections.

There are also four generic classes within the nouns and eight morphological classes of verbs distinguished by criterion (d) above. There are four distribution classes of verbs distinguished by criteria (d) and (e). A subclass of intransitive verbs may occur as auxiliaries.

Number in the Burarra pronominal system is according to minimal, unit augmented and augmented categories, as described in section 10.1. The traditional terms – singular, dual and plural – used in earlier papers have, however, been retained in the example glosses.

Burarra is a language of Arnhem Land. There are approximately 600 speakers whose homelands are in the Blyth and Cadell River area and who also live at Maningrida.

My husband, Dave Glasgow, and I are indebted to the Burarra people for their friendship and help since 1962, when we commenced work in their language. We are also grateful to the Gunavidji people for allowing us to live and work at Maningrida.

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## 0.1 Abbreviations and symbols

1	1st person
2	2nd person
3	3rd person
acc	accompaniment prefix
asp	aspect
Aux <sub>1</sub>	auxiliary one verbs
Aux <sub>2</sub>	auxiliary two verbs
<sub>s</sub> Aux	stative auxiliary verbs
caus	causative
cl	classifier
comp	compound
conj	conjunction
cont	continuous
ctf	contrafact
dat	dative
deriv	derivational
descr	descriptive
dir	direction prefix
dl	dual
ex	excluded person, in verb prefixes, which excludes the hearer in the minimal (singular) category and either the hearer or speaker in augmented (dual and plural) categories
excl	exclusive person which excludes the hearer in minimal (singular) non-verbs
fem	feminine
fut	future
imperf	imperfect
in	included person, in verb prefixes, which includes both speaker and hearer
incl	inclusive person which includes both speaker and hearer in minimal (singular) non-verbs
indeter	indeterminate
intr/i	intransitive (the shorter abbreviation is used in the appendix)
lit	literally
masc	masculine
mnr	manner
n	noun



neg	negative
nom	nominative
num	number
O	object
obliq	oblique (versus nominative pronoun)
perf	perfect aspect
pers	person
phr	phrase
pl	plural
poly-syll	poly-syllabic
poss	possessive
pred	predicate
pref	prefix
prn	pronoun
prob	probability, the aspect series which occurs with non-past. (All examples of aspect not marked 'prob' belong to the completive aspect series which occurs with past tense.)
punct	punctiliar aspect
recip	reciprocal
redup	reduplicated
reflex	reflexive
rep	repetition suffix
s/sg	singular (the shorter abbreviation is used in the glosses)
st	stative
subjunc	subjunctive
t/tr	transitive (the shorter abbreviation is used in the appendix)
vb	verb
voc	vocative
' <i>/italics</i>	meanings
'	primary
"	secondary stress
+	obligatory
±	optional
∅	zero affix
→	'becomes' (in examples of derivations)
}	brackets areas neutralised or included in the expression pointed to
( )	enclose implied meaning or optional portion of utterance
/	occurs between alternate forms or meanings

- a grammatical device separating prefix from stem
- : occurs between meaning components of a single morpheme
- ? unidentified morpheme meaning
- . divides morphemes in examples

## 1. THE WORD

The Burarra word may be defined as a stem or stem-affix string potentially bounded by pause. Primary word stress normally occurs on the first syllable of the first root in the stem. A secondary stress occurs on the first syllable of subsequent roots in reduplicated and compound stems, although primary and secondary stress may be reversed in deliberate speech. Primary stress is shown in the following examples by a single quote mark; secondary stress is shown by a double quote mark.

1. 'japarndiya *sing*
2. an-gu'japarndiya *clapping sticks (lit. that with which one sings)*
3. 'bala *lid, roof, house*
4. 'bungga *fall down*
5. ngu-'bala''bunggabiya *my eyelids are closing*

Descriptives derived from demonstratives are an exception, in that primary stress occurs word initial, on the prefix, unless over-ridden by clause stress.

6. 'nyiburr-guna *we (excl) here*
7. nyiburr-'guna *we (excl) are HERE*

The conjunctions rrapa *and* and rraka *and so* do not have word stress.

## 2. SPECIAL SUFFIXES

There are two special suffixes in Burarra which have wide distribution across word class boundaries, -ya 'realis' and -pa 'repetition'.

### 2.1 Realis suffix

The following are examples of the realis suffix -ya and the classes of words with which it may occur freely and optionally.

Descriptives:

1. an-ngardapa + -ya → an-ngardapiya  
*one (an- class) realis he's the only one*
2. gun-guna + -ya → gun-guniya  
*this one realis this is the one, now*

Pronouns:

3. nipa + -ya → nipiya  
*he realis he's the one*

Demonstratives:

4. gata + -ya → gatiya  
*that place known to you realis that's the place*

Aspect words:

5. gipa + -ya → gipiya  
*already realis that's it! you've got it right!*

Mood words:

6. minja + -ya → minjiya  
*if realis that's so!*

On verbs -ya is not optional, but instead it functions as the classifier and/or derivational suffix for the reflexive class of verbs, becoming part of the stem.

7. wepa + -ya → wepiya  
*wash it realis wash yourself*

It could be said that the derivational suffix here and the special suffix above are two separate morphemes. However, it seems reasonable to consider them the same, the subject being specified as recipient of the action in the resulting reflexive verb.

## 2.2 Repetition

The repetition suffix -pa occurs optionally and freely on all verbs. The following sentence from a text describing a pelican 'spearing' and eating fish with his beak is a good example.

1. A-rranapa, a-barrapa, a-wulebanapa.  
*He kept spearing them, he kept eating them, he finished them up.*

In combination with the auxiliary verb workiya do habitually a different shade of meaning results.

2. a-nirrapa a-workiya  
*he lives forever (lit. he lives repeatedly he does habitually)*

On other classes of words -pa does not function as a suffix, but is part of the stem. Again, it could be argued that this is a different morpheme. However, the semantic relationship is clear in some cases. For example, the concepts of 'further distance', 'simultaneity' and 'comparison', expressed in the examples below by the demonstrative, aspect and mood words respectively have a feasible semantic relationship to 'repetition'. Also, in view of the strong Aboriginal value of belonging, rather than individualism, it seems likely that the recurring partial -pa on kin terms and nominative pronouns is related to the concept of repetition. For example, nipa *he* feasibly carries the connotation *he (also) in contrast to others*, and mampa nuya *his mother* feasibly carries the connotation *mother (also) in relation to him*. Evidence for this can be seen in the way possessed body parts are referred to generically. Except when referring to someone's head specifically, the body part 'head' is always referred to as bama arr-jirra *yours and my head*. The following are examples of -pa and the different word classes where it occurs not as a suffix, but as part of the stem.

Kin terms:

3. gula + -pa → gululapa  
*mother's brother* (voc form) rep *(your) maternal uncle*

Nominative pronouns:

4. ngay + -pa → ngaypa  
 1s rep *I/me*

Demonstrative:

5. ga + -pa → gapa  
*place* rep *there further away*  
 (cf. gata *there in sight* and gaba *there out of sight*, section 11, Table 4)

Aspect words:

6. waya + -pa → waypa  
*certainty* (mood word) rep *at the same time as* (lit. *certainty also*)

Mood words:

7. minja + -pa → minypa  
*isn't it/if* rep *isn't it also/like*

### 3. NOUNS

Nouns<sup>1</sup> are an open class of words representing tangible objects and perceivable phenomena, and also a few abstracts such as marr *soul* and gurrurta *kinship love*, and some terms which classify people according to age, moiety or kinship role, for example gapula *old person*, yawarriny *single man*, marlu(ga) *person of Jowunga moiety*, mori *person of Yirrechinga moiety*, an-jirrpungapa *father one* and awurr-bureybureygu *father and sons*.

Nouns which classify people according to kinship role are distinguished from kin terms by the obligatory presence of a descriptive or person-number prefix (see description of derived nouns below) co-occurring with the obligatory absence of other pronominal reference (compare section 12. Kin terms).

Nouns belong to four generic classes. The class of the noun is overtly marked only on derived nouns, which have as part of their stem the 3rd person singular descriptive prefix an-, jin-, mun- or gun- according to their class. There are a few exceptions, however, where the class of the derived noun is different from that indicated by the descriptive prefix component of the stem, as in example 5 below.

1. an- + mu + jaruk → an-mujaruk  
 descr pref acc *story messenger* (an- class)
2. jin- + ngamangama → jin-ngamangama  
 descr pref *breast/milk young girl* (jin- class)
3. mun + banda → mun-banda  
 descr pref *lower leg type of yam* (mun- class)
4. gun- + gu- + rrema → gun-gurrema  
 descr pref acc *hammer (vb) stone* (gun- class)  
 (lit. *thing to hammer with*)

5. mun- + ngokngok → mun-ngokngok  
 descr pref onomatopoeic sound of owl owl (an- class)

Noun class is shown primarily by agreement in the following ways. Firstly, nouns may take the accompaniment prefix, which agrees with the class of the noun, taking the form ana-, ji-, mu- or gu- accordingly.

6. ana-galamang *with an axe*  
 7. ji-marnga *(burnt) by the sun/in the sun*  
 8. mu-lipalipa *by canoe/in the canoe*  
 9. gu-bala *in/on the house*

Secondly, descriptives are obligatorily prefixed in agreement with the class of the noun modified, by either the accompaniment prefix described above or by the descriptive prefix, which takes the form an-, jin-, mun- or gun- accordingly.

10. galamang an-rrartka *the axe is sharp/the sharp axe*  
 11. manakarda jin-jaranga *the geese are many/the many geese*  
 12. balaja mun-molamola *the food is good/the good food*  
 13. janguny gun-baykarda *the story is long/the long story*

Thirdly, the person prefixes on verbs agree with the noun class of 3rd person singular intransitive subjects and transitive objects, taking the form a-, jiny-, mu- or gu-.

14. gornabola a-rrana *he speared a wallaby*  
 15. marnga jiny-bungguna *the sun went down*  
 16. balaja mu-yalpurda *he/she is cooking the food*  
 17. yorr gu-bungguna *the rain fell down*

Noun class agreement is summarised in Table 1 below.

Noun class	an	jin	mun	gun
Noun class marker on descriptives	an-	jin-	mun-	gun-
Accompaniment prefix on nouns and descriptives	ana-	ji-	mu-	gu-
Person-Number prefix on verbs	a-	jiny-	mu-	gu-

Table 1: Noun class agreement

The membership of nouns in the four noun classes is based on Burarra mythology and world view. The an- class includes human males, many animals, the moon and metal objects. It could be glossed as 'masculine'. The jin- class includes human females, animals not in the an- class and the sun. It could be glossed as 'feminine'. The mun- class includes foods other than meats (which are classed according to their animal source), spearshafts,

clothing, bedding, paper, pens etc. It could be glossed as 'domestic'. The gun- class includes wood (generic, although there are specific trees in each noun class), water, fire, places, houses, and furniture. It could be glossed as 'general'.

Nouns may be non-derived stems or they may be derived from non-derived nouns, possessed body parts, locatives, temporals, verbs or descriptives.

18. an- + rrakal → an-dakal  
 descr pref *white clay war*
19. an- + mu- + rrakal → an-murrakal  
 descr pref acc *white clay warrior*
20. awurr- + {an} -burey + {an} -burey + -gu → awurr-bureybureygu  
 3 pl (*axe*) *handle* (*axe*) *handle* *father and sons*
21. an- + gelama → an-gelama  
 descr pref *ear forked pole*
22. jin- + bu + wupa → jin-buwupa  
 descr pref deriv pref *inside feminine spirit who lives in the ground*
23. an- + wolawola → an-nolawola  
 descr pref *sometime a type of spirit*
24. an- + gu- + jarrcha → an-gujarrcha  
 descr pref acc *carve knife (lit. one with which to carve)*
25. an- + darr + baykarda → an-darrbaykarda  
 descr pref ? *long spirit who makes lightning*

Nouns of non-derived stems have derivation potential for nouns, as seen in examples 18 and 19 above, and for descriptives, temporals, adverbs and mood words, as follows.

26. an- + delipa → an-delipa  
 descr pref *little child little (an- class)*
27. yi- + rrawa → yi-rrawa  
*away camp yesterday*
28. burr- + gorlk → burr-gorlk  
 mnr pref *swag with belongings*
29. marr + -ka → marrka  
*soul ? try*

Nouns may manifest the following clause-level tagmemes and predicate phrase tagmemes, which are described by Glasgow and Garner (1980): Subject, Object, Benefactive, Indirect Object, From, Location-Instrument, and Vocative; modifier of Intransitive, Intransitive Stative and Transitive Stative Predicate Phrases; and head of the Descriptive Predicate Phrase.

#### 4. TEMPORALS

Temporals manifest the clause-level tagmeme, time (Glasgow and Garner 1980), expressing either ordinal relationship or point in time. Duration is not expressed by temporals, but rather by descriptives, adverbs or verbs as shown in the following examples.

1. gun-jaranga arr-ni barra  
descr pref-*many* ls incl-*be*:subjunc fut  
*you and I will stay many (days)*
2. yarta ngu.na-bo.na  
*temporarily* ls excl-*toward-go*.perf  
*I came for a short time*
3. ngu-mungbuy.pa barra ngu-boy  
ls excl-*finish*.rep:subjunc fut ls excl-*go*:subjunc  
*I will go forever*
4. awurri-ji.rra.pa ngu-ni  
3dl-*be*.punct.rep ls excl-*be*:subjunc  
*I will stay two (days)*

Habitual is expressed by the auxiliary verb *workiya do habitually* (see section 13), and repeated action is expressed by the repetition suffix *-pa* on verbs (see section 2). *Dawn guna-gepa*, is also a verb.

Temporals include words for first, last, first time at a place, long ago, yesterday, today, tomorrow, sometime, morning, mid-day, evening and night. They may be non-derived stems, simple or reduplicated, or they may be derived from nouns, possessed body parts, demonstrative compounds or compounds of temporal plus demonstrative.

5. ngulam *morning, tomorrow*
6. ngulam + ngulam → ngulamngulam  
*morning morning early morning*
7. yi- + rrawa → yi-rrawa  
*away camp yesterday*
8. ana- + munya → ana-munya  
acc *darkness night*
9. mu- + guya → muguya  
acc *nose first*
10. barra + -wa → barrwa  
*tail bone similar last, next*
11. gu- + ga + gapa → gu-gagapa  
acc *place place further away first time at a place*
12. ngulam + gaba → ngulamgaba  
*morning there out of sight early morning*
13. ana-munya + gaba → ana-munyangaba  
*night there out of sight early morning*

Temporals are uninflected. They have derivation potential for nouns and descriptives.

14. an- + wolawola → an-nolawola  
descr pref *sometime type of spirit*
15. gun- + geka → gun-geka  
descr pref *today new (gun- class)*

## 5. TEMPORAL RELATORS

There are two temporal relators which occur in Relator-Axis Time Clauses (Glasgow and Garner 1980, section 4.4). They are nuwurra *afterwards*.... and waypa *at the same time as*.... Nuwurra may possibly be derived from the conjunction wurra *but, or*. Waypa is derived from the mood word waya *certainly* by the addition of the repetition suffix -pa.

These temporal relators are uninflected and do not have derivation potential for other word classes.

The following are examples of temporal relators in Relator-Axis Time Clauses. Example 3 shows a Concurrent Time Clause embedded in a Subsequent Time Clause (Glasgow 1981).

1. waypa                                barra ji-gabi  
*at the same time as fut 3s:away-there out of sight:realis*  
*when (the sun) will be over there*
2. nuwurra    ngulam  
*afterwards morning*  
*afterwards (it will be) morning (a typical farewell)*
3. nuwurra    waypa                                barra a-bengga  
*afterwards at the same time as fut 3s-arrive(non-past subjunc)*  
*afterwards when he arrives*

## 6. LOCATIVES

Locatives are a small class of words which express relative position, such as 'high', 'low', 'inside', 'outside', 'near', 'far', 'in between', and one term which covers both 'on the shoreline' and 'in the middle of the water'. The concepts 'on the other side of' and 'on this side of', however, are not expressed by locatives, but by phrases such as the following.

1. gu-gapa                gu-rrarnba  
*acc-there far acc-thigh, shore*  
*on the far side of*
2. gu-guta                gu-rrenji.ya  
*acc-this side of 3s-be:on.cont*  
*on this side of*

Locatives may take the accompaniment prefix expressing 'in', 'on' or 'at'. Locatives are distinguished from nouns semantically, and by their different distribution and the fact that they may not be modified by descriptives. Locatives may manifest the clause-level tagmemes Descriptive Predicate, Indirect Object, From (ablative) and Location-Instrument (Glasgow and Garner 1980).

Locative stems may be simple, reduplicated, or compound. They may be non-derived or derived from other locatives or from possessed body parts or adverbs.

3. bulay                far
4. bulay + bulay → bulaypulay  
*far                far                very far*
5. wupa                under



6. wupa + na + -na → wuparnana  
*under see perf inside*
7. waykin *high place*
8. gu- + mu- + waykin → gu-muwaykin  
 descr pref acc *high place in a specific high place*
9. gochula + -wa → gochulawa  
*abdomen similar shoreline, middle of the water*
10. gu- + mu + gochulawa → gu-mugochulawa  
 acc acc *shoreline/middle of the water in a boat in the water*
11. yi- + gu- + rrepara → yi-gurrepa  
*away acc foot near*
12. gu- + werra + -pa → gu-werrapa  
 acc *poorly rep deserted place*

Locatives have derivation potential for descriptives and nouns.

13. an- + yarlanga → an-yarlanga  
 descr pref *outside naked (an- class)*
14. jin- + bu- + wupa → jin-buwupa  
 descr pref deriv pref *under a feminine spirit under the ground*

## 7. DIRECTIONALS

There are two directional words. They are uninflected and do not have derivational potential for other word classes.

Gurda *toward* occurs only in Transitive Predicate Phrases where subject and object are non-singular, and in Intransitive Predicate Phrases where there is a non-singular subject or object (Glasgow and Garner 1980). Where subject and object are only singular, *toward* is expressed by the first order verb prefix na- (see section 13.1). Both gurda and na- define the verbal action as being toward the locational focus of the context. Gurda seems to be derived by contraction from the demonstrative-derived descriptive gun-narda *that one near you* (gun- class). Examples of gurda as it occurs with non-singular and na- as it occurs with singular follow.

1. awurr-bo.na gurda nula  
 3pl-go.perf *toward* 3s:dat prn  
*they came here to him* (in which 'here' refers to the location of the story,  
 not the speaker)
2. a.na-na.na a-ni  
 3s:3s.*toward-see*.perf 3s-be:perf  
*he was this direction watching him* (in which 'this direction' refers to the  
 location of the person being watched,  
 the focal point of the story)

Wenga *from* is non-derived and occurs as the relator in the From Phrase which manifests the From Tagmeme and Descriptive Predicate. (Glasgow and Garner 1980).

3. gu-gata                    wenga  
acc-*there* known from  
from that known place/time
4. yina            gaya wenga  
interrog place from  
where from

Wenga *from*, like gurda *toward*, is also paralleled by a first order directional prefix on non-imperative verbs, *y-* *away* (see section 13.1), which occurs with singular subject and/or object in the Transitive and Intransitive Predicate Phrases. For reasons of redundancy or collocational clash wenga and *y-* do not co-occur. Wenga is also paralleled by the directional prefix *yi-* *away* which occurs on demonstratives (see section 11).

The first order directional verb prefixes *y-* *away* and *na-* *toward* obligatorily co-occur with an overt person-number prefix and therefore do not co-occur with the zero singular imperative prefix (see section 13.4).

## 8. BODY PARTS (OR STATIVE NOUNS)

Burarra possessed body parts are elsewhere referred to as stative nouns (Glasgow and Garner 1980), because when functioning as nouns they obligatorily occur as modifier in an Intransitive Stative Predicate Phrase.

1. bama + ngu-ji.rra + nguna-bu.na  
head 1s-be.punct 3s/2s:1s-hit.perf  
Intr St Pred Phr        Tr Pred Phr  
*it/he/she/you hit me on the head*

In this construction, as modifier in Intransitive Stative Predicate Phrase, possessed body parts may manifest Subject, Object and Location-Instrument. Possessed body parts may also occur as modifier in Transitive and Intransitive Predicate Phrases.

2. bama + ngu-yina.nga  
head 1s excl-say.imperf  
Intr Pred Phr  
*I thought/said to myself*
3. bama + nguna-yerrnji.nga  
head 3s:1s-throw.imperf  
Tr Pred Phr  
*I have a headache*

Possessed body parts include head, hair, eye, ear, forehead, nose, mouth, cheek, tongue, teeth, neck, throat, voice, shoulder, arm, hand, chest, abdomen, rear, thigh, shin and foot.

Possessed body parts do not include eyeball, eyebrow, skin, whiskers, fat, ribs, liver, genitals, fingernails and toenails, which are regular nouns instead.

Possessed body parts are not only attributed to people and animals, but idiomatically to all sorts of objects, including intangible objects such as 'story' (see example 5 below), wherever it is convenient for describing the parts.

4. gochula + gu-ji.rra  
*abdomen* 3s:gun- class-be:punct  
*centre of the camp*
5. banda + gu-ji.rra  
*shin* 3s:gun- class-be.punct  
*main point of a story*
6. bama + mu-ji.rra  
*head* 3S:mun- class-be.punct  
*lid of a bottle*

Certain possessed body parts are also associated with certain kinship relationships. These are employed in sign language or used verbally to refer to a relative. For example, forehead refers to grandparents or grandchildren; cheek refers to mother-in-law; upper arm refers to father and father's sister or conversely paternal offspring, niece or nephew; abdomen refers to child; knee or thigh refers to mother or mother's brother; hip refers to mate; lower leg refers to brother/sister.

Possessed body parts are non-derived and uninflected. They occur in predicate phrases as described above. They have derivation potential for nouns, descriptives, locatives, temporals (ordinal), and occur as the first component in compound verbs and are reduplicated as adverbs. Examples of these follow.

7. an- + gelama → an-gelama  
 descr pref *ear* *forked pole*
8. an- + murna → an-murna  
 descr pref *hand* *big/important* (an- class)
9. yi- + gu + rrepara → yi-gurrepa  
*away* acc *foot* *close* (lit. *a distance away by foot*)
10. mu- + guya → muguya  
 acc *nose* *first*
11. barra + -wa → barrwa  
*rear* *similar* *last*
12. bama + na → bamana  
*head* *see* *guard someone*
13. bama + bama → bamapama  
*head* *head* *crazy*
14. murna + murna → murnamurna  
*hand* *hand* *handshake*

## 9. DESCRIPTIVES

Although descriptives have the same form as some derived nouns, i.e. descriptive prefix plus stem (see section 3), and often occur without the overt manifestation of the nouns they modify, descriptives are distinguished from nouns in that they modify a wide range of nouns and are not themselves modified. Nouns, however, specify a particular class of objects and may be modified by descriptives.

Descriptives are an open class of words which refer to the size, shape, colour, age, physical characteristics and mental attitudes, which are the properties of the nouns they modify.

Burarra descriptives are mostly derived stems, perhaps all derived stems, but those for which derivation has not been identified are, as yet, considered non-derived, e.g. gun-baykarda *long* (gun- class). Descriptives may be derived from possessed body parts, nouns, pronouns, demonstratives, temporals, verbs, adverbs and aspect words.

1. an- + murna → an-murna  
descr pref *hand big*
2. an- + delipa → an-delipa  
descr pref *child little*
3. mun- + ngaypa → mun-ngaypa  
descr pref *I mine*
4. gun- + gata → gun-gata  
descr pref *there in sight that one there in sight*
5. gun- + geka → gun-geka  
descr pref *today new*
6. jin- + bacha + -rra → jin-bachirra  
descr pref *fight punct cheeky, angry*
7. mun- + werra → mun-nerra  
descr pref *poorly bad*
8. an- + mola → an-mola  
descr pref *again well/friendly*

For a display of all descriptives derived from demonstratives see section 11, Table 5.

Descriptive stems may also be reduplicated or compounded.

9. gun- + mola + mola → gun-molamola  
descr pref *again again good*
10. an- + balma + barra → an-balbarra  
descr pref *finished tail bone short*

Non-derived descriptives, which are few, have derivation potential for nouns. An-darrbaykarda *the spirit who makes lightning* is an example which has already been given in section 3. (See gun-baykarda *long* above.)

The inflection of descriptives has been described in section 3, Nouns, as the obligatory occurrence of either the descriptive or accompaniment prefix on all descriptives and in agreement with the class of the noun modified. The realis suffix -ya also occurs on descriptives, as described in section 2.

Descriptives have an even wider distribution in Burarra than do nouns. Although they do not occur as modifier in the Intransitive Predicate Phrase, where nouns may occur, they do occur, as nouns do, expressing Subject, Object, Benefactive, Indirect Object, From, Location-Instrument, Vocative, modifier of the Intransitive Stative and Transitive Stative Predicate Phrases and head of the Descriptive Predicate Phrase. As well, descriptives express Time (both specific and durative), and Mood may be expressed by the descriptive gun-burral *true*.

## 10. PRONOUNS

Burarra free pronouns are non-derived stems built from sixteen or so morphemes. It is not the purpose of this paper to discuss the possible meanings of these morphemes. This was done in an earlier paper (K. Glasgow 1964a). In the same paper, based on the presence of *i* or *y* stem medial in the nominative only, pronominal case is described as nominative versus oblique, in which oblique includes causative, accusative and possessive case. This distinction remains convenient for the display of the various case forms. In the present paper, however, the term 'dative' replaces 'accusative' and the term 'causative', although it remains, is seen to pertain to '1st person involvement'.

There is a distinction between inclusive and exclusive in 1st person pronouns. In the earlier paper (Glasgow 1964a) number expressed in the pronouns was described as singular, dual and plural, in which 1st person singular exclusive is 'I', but 1st person singular inclusive is 'you and I'. However, Graham McKay's number categories (1978) for Rembarrnga and Djeebbana are an apt description for Burarra also, and have been incorporated alongside the traditional terms, which are retained for convenience in cross referencing in the larger description of the language. That is, 'minimal', 'unit augmented' and 'augmented' parallel 'singular', 'dual' and 'plural' respectively. The minimal/augmented categories are described as "a system based upon a minimal number appropriate to each person category, appropriately augmented by the addition of one or more" (McKay 1978).

There is a feminine/non-feminine distinction in the unit augmented number category. The feminine forms are signalled by the morpheme *-rriny-* and the resulting morphophonemic change of the following *t* to *j*. By orthographic device this appears as *-rrinj-*.

## 10.1 Nominative pronouns

The nominative pronouns are shown in Table 2.

	1st Person		2nd Person	3rd Person
	incl (minimal)	excl (minimal)		
Minimal (singular)	ngarripa	ngaypa	nginyipa	nipa
Unit aug- mented (dual)				
non-fem		ngatipa	ana-gotipa	bitipa
fem		ngarrinjipa	ana-gorrinjipa	birrinjipa
Augmented (plural)		ngayburrpa	ana-goyburrpa	birripa

Table 2: Nominative pronouns

Note that the inclusive/exclusive distinction only occurs in Minimal 1st Person. It is this minimal category which also serves as a pattern for distinctions in the demonstratives and kin terms.

Nominative pronouns may manifest Descriptive Predicate Phrase Head, and the Subject, Object and Benefactive Tagmemes. They have derivation potential for descriptives which define the ownership of the noun they modify.

1. mun- + ngaypa → mun-ngaypa  
    descr pref 1s:nom *my/mine*

All nominative pronouns derive to descriptives as in the above example, except for nipa 'minimal 3rd person' which derives irregularly to the following forms.

2. mun-nigipa *his/hers*
3. (bambay) mun-nika (*old woman*)'s

Nominative pronouns are uninflected except for the realis suffix -ya (see section 2).

## 10.2 Oblique pronouns

The oblique pronouns, which include possessive, dative and causative case forms, are shown in Table 3. In the oblique pronouns the feminine/non-feminine distinction, as well as occurring in the unit augmented category, also occurs in the minimal 3rd person forms, where it is manifested by different stems.

The possessive pronouns are uninflected and occur in the Kinship Phrase with 3rd person inclusive kin terms (see section 9).

1. nganyapa acha  
    *father* 3s:fem:poss  
    *her father*

The dative pronouns obligatorily take a first order 'benefactor' suffix, which is -la in the minimal and unit augmented categories and zero in the augmented category. A 2nd order suffix, -wa 'specific', occurs obligatorily in the augmented category, and optionally in the minimal and unit augmented categories emphasising the benefactor as distinct from the subject or object. Dative pronouns may express 'oblique' in all predicate phrases. This position is termed 'benefactor' by Glasgow and Garner (1980), but is referred to here as 'oblique' (see paragraph 1 of this section), since it is not only expressed by dative pronouns, which carry the meaning 'benefactor', but it is also expressed by causative pronouns (see example 6 in the following paragraph, which discusses causative pronouns).

2. a-gonji.nga apula  
    3s-call out.imperf 3s:dat  
    *he called to me*
3. janguny a-wu.na burruwa  
    *story* 3s:3s-give to.perf 3pl:dat  
    *he gave him a message for them*

Causative case is contrastively marked only in 'mono-focal' pronouns (K. Glasgow 1964a), that is, pronouns which differ from ego in only one aspect, either person or number. These forms take the prefix ng- '1st person involvement' (cf. recurring partial on 1st person nominative pronouns, Table 2). For pronouns further removed in person and number from ego, the causative forms are the same as the possessive forms. Causative pronouns occur both in the Kinship Phrase, as the possessive pronouns do, and expressing 'oblique' in predicate phrases, as dative pronouns do. The use of causative pronouns sometimes results in obscene connotations.

Number	Case	1st Person		2nd Person	3rd Person	
		incl	excl		non-fem	fem
Minimal (singular)	Poss	arrku	apa	nggu	nuya	acha
	Dat	arrkula/ arrkulawa	apula/ apulawa	nggula/ nggulawa	nula/ nulawa	achila/ achilawa
	Caus	ngarrku	ngapa	nggu	nuya	acha
Unit Augmented (dual)	Poss	non-fem	ata	ana-gota	buta	
		fem	arrinja	ana-gorrinja	burrinja	
	Dat	non-fem	atila/atilawa	ana-gotula/ ana-gotulawa	butula/ butulawa	
		fem	arrinjila/ arrinwilawa	ana-gorrinjula/ ana-gorrinjulawa	burrinjula/ burrinwilawa	
	Caus	non-fem	ngata	ana-gota	buta	
		fem	ngarrinja	ana-gorrinja	burrinja	
Augmented (plural)	Poss	arrburra		ana-gorrburra	burra	
	Dat	arrburrwa		ana-gorrburrwa	burrwa	
	Caus	ngarrburra		ana-gorrburra	burra	

Table 3: Oblique pronouns

4. mampa ng.apa  
*mother* 1st person involvement.1s excl  
*my mother* (this usage is acceptable)
5. mampa ng.acha  
*mother* 1st person involvement.3s:fem  
*her mother, involving me* (this usage considered obscene)
6. a-ngiwja ng.apa  
 3s-beg:perf 1st person involvement.1s excl  
*he propositioned me* (obscene)
- Contrast: a-ngiwja apula  
 3s-beg:perf 1s excl;dat  
*he begged me (for something)* (acceptable usage)

It is probably the minimal 3rd person non-feminine causative pronoun form which occurs in the close-knit phrases *wurpa nuya except also* and *ngaypa nuya me too* in the sense of an external cause (see Glasgow 1981b, section 3.9).

## 11. DEMONSTRATIVES

There are nine demonstratives in Burarra. As mentioned in Section 10, these may be conveniently described in terms of the minimal (singular) pronominal distinctions. The demonstratives with their meanings are shown on the pronominal grid in Table 4.

Basic meaning	1st Person		2nd Person	3rd Person
	incl	excl		
<i>here, now</i>	ngunjurta <i>here where you and I are</i>	ngunyuna <i>here where I am</i>	ngunyunarda <i>here near you</i>	ngunyunaga <i>this place here</i>
<i>there</i>	gata <i>there in sight</i>		ganarda <i>there near you</i>	gaba <i>there out of sight</i>
<i>another, further</i>	gawata <i>another place specific to there</i>			gapa <i>there far</i>

Table 4: Demonstratives

The demonstratives are non-derived stems built on the morphemes *nguna toward* 1s, *ga place*, *narda near you*, *ta known*, *in sight*, *ba unknown*, *out of sight*, *wa specific*, and *pa repetition*.

A tenth and restricted demonstrative, *gaya place is* is formed by the addition of the realis suffix *-ya* to the morpheme *ga place*. *gaya* obligatorily co-occurs with the mood word *yina* 'interrogative' in close-knit phrases which function as indeterminates and are therefore listed along with the indeterminate words in section 18 (examples 18 and 20).



The nine demonstratives in Table 4 optionally take two affixes – the directional prefix *yi-* *away* (from the focal point), as in *yi-gata away there in sight or known to you*, and the realis suffix *-ya*, as in *gatiya that's where*. These nine demonstratives may express the clause level tagmemes Indirect Object, From and Location-Instrument (Glasgow and Garner 1980).

Descriptives derived from and corresponding to the demonstratives in meaning, e.g. *gun-gata the one there in sight or known to you*, etc., are shown in Table 5. The hyphen indicates the obligatory occurrence of the appropriate descriptive or accompaniment prefix (see section 3, examples 1 and 2). The resulting 2nd person descriptives *an-narda*, *jin-narda*, *mun-narda* and *gun-narda* *that one near you or known to you*, the form depending on the class of the noun being described, optionally contract to *arda*, *jurda*, *murda* and *gurda* respectively. As a fixed contraction *gurda* is the directional word *toward* (the focal point) described in section 7.

Basic meaning	1st Person		2nd Person	3rd Person
	incl	excl		
<i>this</i>	-guta <i>this side of</i>	-guna <i>this</i>	-narda <i>that near you/ known to you</i>	-gunaga <i>this one here</i>
<i>that</i>	-gata <i>that one there in sight</i>		-ganarda/-garda <i>that one there near you</i>	-gaba <i>that one out of sight</i>
<i>another, further</i>	-gawata <i>one near to/ specific to that one</i>			-gapa <i>that one far away</i>

Table 5: Demonstrative-derived descriptives

The demonstrative *gaya place is* derives, as well, to the descriptive *-gaya placed*, which has restricted distribution as follows: obligatorily co-occurring with the mood word *yina* 'interrogative' *gaya* manifests Descriptive Predicate (Glasgow and Garner 1980) in a Simple Sentence (Glasgow 1981b, section 4.1b); obligatorily co-occurring with the accompaniment prefix *gu-*, *-gaya* occurs in an indeterminate phrase (see section 18, example 20) which may manifest the first Base of the Indeterminate Merged Sentence (Glasgow 1981b, section 4.2.3); or optionally co-occurring with the accompaniment prefix *gu-*, *-gaya* occurs in a close-knit phrase which may manifest the relator of the sentence level Reference Margin (Glasgow 1981b, section 3.13, examples e and h).

1. *yina an-ga.ya*  
interrog descr pref-*place*.realis  
*where is he*
2. *gu-ga.ya wenga*  
acc.*place*.realis from  
*where from*

3. gun-ga.ya                      gata  
 descr pref-*place*.realis *there*  
*the one placed there*

As well as deriving to descriptives, demonstratives also have derivation potential for temporals.

4. ana-munya + gaba                      → ana-munyangaba  
*night                      there out of sight                      morning*
5. gu- + ga                      + gapa                      → gu-gagapa  
 acc *place                      there far                      first time at a place*

## 12. KIN TERMS

There is a rich inventory of kin terms in Burarra, expressing actual and classificatory relationships between people, although dogs may sometimes also be included.

There are different forms for each relationship depending on the pronominal viewpoint, paralleling the pronominal system as it is found in the minimal (singular) free pronouns and demonstratives (see sections 7 and 8). 1st person inclusive kin terms are used vocatively, including speaker and hearer. 1st person exclusive kin terms speak of 'my' relative, excluding the hearer. 2nd person kin terms speak of 'your' relative. 3rd person kin terms refer to someone else as related to either 1st, 2nd or 3rd person.

One term, worlangura *yours and my brother/sister*, fits in the 1st person unit augmented category. 3rd person non-minimal relationships are expressed by derived nouns (see section 3. Nouns) such as awurriny-berrkuwa *married couple* and awurr-bureybureygu *father and sons*, rather than kin terms.

Some kin relationships and some of the forms which express them are displayed on pronominal grid in Table 6. Although all forms expressing a particular relationship are not necessarily shown, wherever no form is shown none has been recorded and it may be concluded that that particular relationship does not receive that particular pronominal focus. Where there is no 1st person exclusive focus, the 3rd person focus form is used instead, e.g.:

1. an-ngaypa                      walkur  
 descr pref-1s nom prn *man's or brother's offspring*  
*my son/my brother's son*

Where there is no 2nd person focus, either the 1st person inclusive focus form or 3rd person focus form may be used, e.g. worla (*your*) *brother* or worlapa *nggu brother to you*.

In Table 6 it may be seen that 1st person inclusive kin terms are the simplest. 1st person exclusive kin terms are prefixed with nguna- or nguji- *my* masculine and *my* feminine respectively. There are a greater variety of 2nd person kin terms, because a speaker must use the appropriate term considering his relationship both to the hearer and the person referred to. 3rd person kin terms obligatorily carry pronominal reference, usually on oblique pronoun, possessive or causative (see section 10). The following is an example of a 3rd person kin term as it occurs with a possessive pronoun.

Relationship	1st pers Incl (vocative)	1st Pers Excl ( <i>my</i> )	2nd Pers Sg ( <i>your</i> )	3rd Person ( <i>he/she related to...</i> )
<i>mother, mother's sister</i>	ama	nguj-ama	muma	mampa + obliq prn
<i>mother's brother</i>	gula	nguna-gula	gululapa	gululapa + obliq prn
<i>father, father's brother</i>	anya	ngun-anya	nyinya	nyanyapa + obliq prn an-bipa + obliq prn
<i>man's son, man's/ woman's brother's son</i>	anya walkur		nyanyapa	descr pref + nom prn + walkur
<i>man's daughter, man's brother's daughter</i>	bapa walkur	nguji-bapa		descr pref + nom prn + walkur
<i>woman's brother's daughter</i>	bapa walkur	nguji-bapa	ngawunyapa	descr pref + nom prn + walkur ngawunyapa + obliq prn
<i>father's sister</i>	bapapa	nguji-bapapa		jin-bipa + obliq prn
<i>woman's child, man's sister's child</i>	ngalanga	nguna-/nguji- + ngalanga	mu-lopa	mu-lopa + obliq prn descr pref + jawapa + obliq prn
<i>older brother</i>	japa	nguna-japa		worlapa + obliq prn
<i>younger brother</i>	worla	nguna-worla		worlapa + obliq prn
<i>sister</i>	jala	nguji-jala		jalapa + obliq prn

Table 6: Some kin terms on pronominal grid

2. worlapa            nuya  
*brother:3s incl 3s:poss*  
*his brother*

Kin terms are non-derived stems except for *mengga wife*, which is derived from the past punctiliar form of the verb *ma get*. Kin terms have derivation potential for verbs.

3. worla + worla + -cha → worlworlcha  
*brother brother cl be happy*
4. jachacha + ma + -ya → jachachamiya  
*mother's brother get cl play*

Kin terms may manifest the clause-level tagmemes Subject, Object, Benefactive and Descriptive Predicate. As well they may manifest modifier in the Transitive Stative Predicate Phrase.

### 13. VERBS

#### 13.1 Structure

The verb consists of an obligatory person-number prefix, followed by an optional direction prefix (see section 7), followed by an obligatory verb stem, followed by an optional aspect suffix, followed by the optional contrafact suffix (see section 13.7), followed by the optional repetition suffix (see section 2.2). The verb structure is expressed in the following formula:

verb = + pers-num ± dir + vb stem ± asp ± ctf ± rep.

A minimal example of the verb is: a-ga  
 3s:3s-take  
*he/she/it could take him/it*

An optimum example of the verb is: a.na-ga.nja.rna.pa  
 3s:3s/toward-take/cont/ctf/rep  
*he/she/it could have brought him/it repeatedly.*

#### 13.1.1 Verb stems

##### 13.1.1.1 Simple stems

(a) Monosyllabic verb stems include the basic concepts of standing, sitting and lying positions, *ji*, *ni* and *yu* respectively, as well as *hit bu*, *spear rra*, *give wu*, *get ma* and *take ga*. It is likely that these roots are the classifiers which occur in all other verb stems, where they undergo vowel changes in accord with the Burarra phonological patterns (Glasgow 1981a), and, in some cases, changes in the manner of consonantal articulation.

Three further monosyllabic verb stems have been noted. They are *jo scold*, *na see* and *rro burn up*. Perhaps these have been derived by vowel change from *ji*, *ni* and *rra* above.

(b) Polysyllabic simple verb stems have only two roots. The first root carries the central meaning of the stem and the second root is a monosyllabic simple verb stem which serves as classifier (see sections 13.1.1.1(a) and

13.3.2). The first root is optionally either preceded by a derivative prefix or immediately precedes the repetition suffix, which also has a derivational function. The polysyllabic simple verb stem structure is expressed in the following formula:

$$\text{polysyllabic simple verb stem} = \pm \overbrace{\text{deriv pref} + \text{root}}^{\pm} \bar{\text{r}} \text{rep} + \text{cl.}$$

A minimal example of a polysyllabic simple verb stem is:

1. yal.pa  
*cook.class*  
*cook it*

Optimum examples of polysyllabic simple verb stems are:

2. wu.le.ba  
deriv pref.*finish.cl*  
*finish/use it all up*
3. werr.pi.ya  
*poorly.rep.cl*  
*waste away, disappear*

### 13.1.1.2 Compound stems

Compound verb stems consist of two or three components, the first being a non-verbal stem (possessed body part, noun, or descriptive), and the last being a simple verb stem by definition, although some, such as kujama in example 6 below, only occur as components of compound verb stems. In compound verb stems having three components an additional stem, either non-verbal or simple verb, occurs between the first and last components. The compound verb stem structure is expressed in the following formula:

$$\text{comp vb stem} = + \text{non-vb stem} \pm (\text{non-vb stem/simple vb stem}) + \text{simple vb stem}$$

Examples 1 through 4 below are minimal compound verb stems; examples 5 and 6 are optimum compound verb stems. Note that simple transitive verb stems which do not include the optional derivative prefix (see section 3.1.1.1(a)) may take the derivative prefix when occurring as the last component in a minimal compound verb stem. Only two examples of this have been noted to date, 2 and 3 below. In these examples the derivative prefix seems to indicate a stem-level relationship of object to predicate between the first and last components.

In the examples below the component stems have not been divided into root and classifier, as the meaning is intrinsic to the whole. Vowel neutralisation, morpho-phonemic changes and elision take place in the compounding of verb stems. Sometimes a whole morpheme/syllable is elided, as in example 5 below where the classifier ja is elided from the second stem, but present in the third stem. In section 13.1.1.3 Reduplicated stems, example 1, the root go is elided from the second component stem.

1. ngana.mukcha  
*mouth.shut*  
*shut mouth*

2. murna.mu.gaypa  
*hand.deriv pref.deprive*  
*deprive someone of what he is holding*
3. barr.bu.rrima  
*tail bone.deriv pref.hold*  
*be behind something/someone*
4. bachirra.miya  
*fighty.get self*  
*be angry*
5. bim.burla.burlaja  
*backbone.curve outward.curve outward*  
*retch*
6. jurr.buray.kujama  
*trail.handle(n).get it to be*  
*whip someone (lit. get [him] to be in trail of the handle)*

### 13.1.1.3 Reduplicated stems

Verbs, nouns, possessed body parts, temporals, adverbs or directionals may be reduplicated to form verb stems with the addition of a verb classifier where there is no classifier already present in the second component (examples 2, 3, 4, 6 and 7), or where the reduplicated stem belongs to a different class than its component parts (example 5). The reduplicated verb stem structure is expressed in the following formula:

$$\text{redup vb stem} = + \text{stem} + \text{redup} \pm \text{cl.}$$

In example 1 below note that the root *go* is elided in the reduplication. Examples 3 and 4 show how a different meaning is achieved by a different classifier.

1. gorndu.rnda  
*cut.cut*  
*chop up*
2. gurda.gurda.rra  
*toward.toward.cl*  
*show someone something*
3. wurr.wurr.ja  
*man.man.cl*  
*tremble, shiver*
4. wurr.wurr.ga  
*man.man.cl*  
*rub together*
5. wola.woli.ya  
*long ago.long ago.cl*  
*swing (to and fro) from something*

6. werr.werri.ya  
*poorly poorly.cl*  
*become worse and worse*

#### 13.1.1.4 Reflexive stems

Reflexive verb stems are intransitive, and may be simple, compound or reduplicated in structure. They are usually derived from transitive verb stems by the addition of the classifier -ya (see section 2.1 Realis suffix) which carries a reflexive meaning.

1. wepa + -ya → wepiya  
*wash cl wash self*
2. bukula.bicha + -ya → bukulabichiya  
*forehead.tie cl tie something around own forehead*  
*(tie something around forehead)*

Some verb stems only occur with the classifier -ya and are intrinsically reflexive.

3. walagi.ya *dance*
4. gulolmi.ya *be rotten*

#### 13.1.1.5 Reciprocal stems

Reciprocal verb stems are reflexive intransitive verb stems derived from transitive verb stems by the addition of -chi/-chichi 'reciprocal', followed by the classifier -ya which carries a reflexive meaning (see section 13.1.1.4 Reflexive stems).

1. bu.chichi.ya  
*hit.recip.cl*  
*hit each other*
2. jurr.buray.kujama.chichi.ya  
*trail.handle(n).position something.recip.cl*  
*whip each other*

#### 13.2 Derivation potential

As seen in section 13.1.1 inclusive, simple verbs have derivation potential for compound, reduplicated, reflexive and reciprocal verbs. Simple verbs also have derivation potential for further simple verbs, and for kin terms, nouns, descriptives and mood words.

1. jawa + -ja → jawaja  
*bleed, spurt cl get up ready to go*
2. jawa + -pa → jawapa  
*bleed, spurt rep offspring of mother or mother's brother*
3. ma + ngga → mengga  
*get cont wife*

4. an- + gu- + jarrcha → an-gujarrcha  
 descr pref acc carve knife
5. an- + bacha + -rra → an-bachirra  
 descr pref fight punct *fighty, cheeky one*
6. waya + gu + ji → waygaji  
 certainty acc be:subjunc maybe

### 13.3 Classes

#### 13.3.1 Distribution classes

##### 13.3.1.1 Transitive and intransitive

Burarra verbs are either transitive or intransitive as distinguished by the transitive or intransitive person-number prefixes which they take. These are shown in Tables 7 and 8 below, as adapted from "Burarra verb prefixes", Glasgow and Kerr 1964. Note that the distinction between excluded and 2nd person occurs only in the minimal (singular) category. This neutralisation is in a different area from the neutralisation which occurs in free pronouns (see section 10, Tables 2 and 3). Therefore the use of the optional free pronoun together with the obligatory verb prefix clarifies any ambiguity. This applies also to the further neutralisation which occurs in the transitive verb prefixes, i.e. the neutralisation of non-minimal 2nd and 3rd persons (see Table 8), which leaves a contrast of minimal and non-minimal only.

	Included	Excluded	2nd Person	3rd Person
Minimal (singular)	arr-	ngu-	nyi-	{a}
Unit Augmented (dual)	arri		nyirri-	{a}birri-
Augmented (plural)	nguburr-		nyiburr-	aburr-

Table 7: Intransitive verb person-number prefixes

##### 13.3.1.2 Stative

There are stative subdivisions within the transitive and intransitive verbs. These are distinguished semantically, as well as by their different distribution. The non-stative verbs, transitive and intransitive, are open classes of words expressing 'activity', while there is only one transitive stative verb, *nega cause to be*, and there are only four intransitive stative verbs including *negiya*, the reflexive form of *nega* and the three verbs of being listed under auxiliary one in section 13.3.1.3 below. Accordingly, verbs occur as head of their respective predicate phrases in their respective clause types: transitive or intransitive, transitive stative or intransitive stative. (For a full description of Burarra clauses and predicate phrases see Glasgow and Garner 1980.)



	O B J E C T					Unit Augmented (dual)			Augmented (plural)		
	Minimal (singular)			2	3	In	Ex	3	In	Ex	3
S U B J E C T	Minimal										
	In	-	-	-	ay-	-	-	arrbu	-	-	arrbu-
	Ex	-	-	ngi	ngu-	-	ajirri-	ngujirri-	-	arr-	nguburr-
	2	-	nguna-	-	nyi-	-	njirri-	bijirri-	-	nyirr-	burr-
	3	arr-	nguna-	bi-	{a-}	ajirri-	njirri-	bijirri-	arr-	nyirr-	burr-
	Unit Augmented										
	In	-	-	-	arri-	-	-	arrbu-	-	-	arrbu-
	Ex	-	ngunabirri-	birri-	nyirri-	-	nyirrbu-	nyirrbu-	-	nyirrbu-	nyirrbu-
	3	arrbu-	ngunabirri-	birri-	{a}birri-	arrbu-	nyirrbu-	burrbu-	arrbu-	nyirrbu-	burrbu-
	Augmented										
	In	-	-	-	ngubu-	-	-	arrbu-	-	-	arrbu-
	Ex	-	ngunabu-	bubu-	nyibu-	-	nyirrbu-	nyirrbu-	-	nyirrbu-	nyirrbu-
3	arrbu-	ngunabu-	bubu-	{a}bu-	arrbu-	nyirrbu-	burrbu-	arrbu-	nyirrbu-	burrbu-	

Table 8: Transitive verb person-number prefixes

## 13.3.1.3 Auxiliary

Limited sets of verbs occur as auxiliaries in the different predicate phrase types. These draw upon eight intransitive verbs of motion and the three intransitive stative verbs of being. Auxiliaries one and two occur in the Transitive and Intransitive Predicate Phrases. Stative Auxiliary (<sub>s</sub>Aux) occurs in the Transitive Stative and Intransitive Stative Predicate Phrases.

Aux<sub>1</sub>:

ji	<i>be (standing)</i>	gomarriya	<i>circle</i>
ni	<i>be (sitting)</i>	rrigirrga	<i>walk about</i>
yu	<i>be (lying)</i>	jarl	<i>hasten</i>
boy	<i>go</i>	rrika	<i>crawl</i>
yurtcha	<i>run</i>		

Aux<sub>2</sub>:

bamba	<i>go steadily</i>	workiya	<i>do habitually</i>
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<sub>s</sub>Aux:

boy	<i>go</i>	bamba	<i>go steadily</i>
gomarriya	<i>circle</i>	workiya	<i>do habitually</i>
jarl	<i>hasten</i>		

See section 18, Indeterminates, for verbs which belong to that word class.

## 13.3.2 Morphological classes

Burarra verb stems may be divided into eight morphological classes and their subclasses according to which aspect suffixes may occur with them (see Tables 12 and 13). The classifier, which occurs stem final (see section 13.1.1.1b), tends to be the same or phonologically similar for verbs within their classes. As well, distinguishing connotations seem to belong to the classes. These are more clearly recognisable for some classes than for others. The eight verb stem classes and their subclasses are shown in Table 9, with the number of verb stems in each, out of a total of 354 used for this study (see Appendix). The predominant classifier(s), the transitive-intransitive, and other distinguishing connotations where clear are also given for each class. More than one stem is sometimes given as representative of a class or subclass to ensure that all classifiers, although not listed as predominant, are nevertheless represented.

Five of the verbs have stem allomorphs: wengga/we- *speak* and bengga/be- *arrive*, both Class IV, use the short stem form with all suffixes except probability aspect. The following verbs use the short stem forms with all suffixes: bay/ba- *eat* (Class VII), boy/bo- *go* (Class IV), yinda/yina- *do like*, *say* (Class VIII).

	Verb stem class Subclass	No. of verbs out of 354	Predominant classifier	Connotations
I.	wepa <i>wash</i> bu <i>hit</i> galiya <i>hear</i>	50 2 2	ba/pa	Transitive tendency.
II.	burninja <i>be dirty</i> wecha <i>be searching</i> ni <i>be sitting</i> (stative verb) ninya <i>be sitting</i> (non-stative)	11 3 3 1	ja/cha	All intransitive. State of being. Continuous sense (classifier has same form as continuous aspect).
III.	jarrkarra <i>lift up</i> morra <i>forget</i> wenggana <i>ask</i>	5 2 6	rra/na	Transitive tendency.
IV.	molamiya <i>recover</i> bacha <i>fight</i> garlma <i>get up</i> bungga <i>fall,</i> juwa <i>die</i> boy <i>go</i>	56 3 2 5 1	ya	All intransitive. Includes all reflexives.
V.	raka <i>sit</i> rrigirrga <i>walkabout</i> rrayka <i>fetch</i> rrika <i>crawl</i> balika <i>send</i> ga <i>take</i> bawa <i>leave</i>	27 1 10 1 4 1 3	ga/ka/wa	Predominantly transitive.
VI.	ngunja <i>mimic,</i> gornda <i>cut</i>	110	ja/cha	Transitive-intransitive. Includes verbs involving action related to a state of being. Continuous sense.
VII.	gurrma <i>put</i> wemba <i>draw water</i> jena <i>look for,</i> bay <i>eat</i>	37 1 2	ma/wa	Predominantly transi- tive. Includes verbs involving positional relationship, cutting, breaking, movement of liquid.
VIII.	ma <i>get,</i> rro <i>burn,</i> jo <i>scold</i> yinda <i>do like,</i> say	4 1	absent	Transitive-intransitive.

Table 9: Verb stem classes

## 13.4 Mood

Burarra verbs have three moods: declarative, subjunctive and imperative. The distinguishing features which express these moods in past and non-past tenses are shown in Table 10. The imperative forms of verbs are restricted to 2nd person, and are distinguished by the imperative person-number prefixes, which differ from the normal intransitive prefixes (Table 7), and in most instances from the normal transitive prefixes (Table 8) where the object is 3rd person. The imperative person-number prefixes for intransitive verbs and for transitive verbs with a 3rd person object are listed below, as shown by Glasgow and Garner 1980, with a few additions.

2nd pers sg (intr, or tr with 3rd sg O):	zero
(tr with 3rd dl O):	bijirri-
(tr with 3rd pl O):	burr-
2nd pers dl (intr, or tr with 3rd sg O) masc:	birri-
fem:	birriny-
2nd pers pl (with intr verbs):	buburr-
2nd pers pl (with tr vbs 3rd sg O):	bubu-/bubi-/buwu-
	(phonologically conditioned)
2nd pers dl or pl (tr vbs 3rd dl or pl O):	burrbu-

An exception to the use of the singular imperative zero prefix is that when a first order direction prefix (*y- away* or *na- toward*) occurs, the 'normal' second person singular prefix *nyi-* is used instead (see section 7).

## 13.5 Tense

There are two Burarra tenses, past and non-past. These are not manifested by affixes as such, but the past is signalled by the obligatory co-occurrence of completive aspect, and the non-past is signalled by the obligatory co-occurrence of barra 'future' in the declarative, and by the optional co-occurrence of probability aspect in the subjunctive. These distinguishing features of past and non-past, as well as the optional negation of the declarative, are shown in Table 10.

	PAST	NON-PAST
Declarative	+ completive ± (contrafact + gala 'neg')	+ barra 'future' ± gala 'neg'
Subjunctive	+ (completive + contrafact)	± probability
Imperative	not applicable	+ imperative prefixes

Table 10: Distinguishing features of past and non-past

Contrafact, mentioned in Table 10, is discussed in section 13.7. The repetition suffix *-pa* (see section 13.1) may also occur with all the forms of Table 10.

Past tense includes four meanings: 'long ago' and 'today past', which are usually linked with the more complete aspects, 'recently before today' and the declarative form of 'now', which are usually linked with the less complete aspects. Present declarative is part of the past concept in that the action has already begun and completive aspect obligatorily co-occurs.

Non-past tense includes all future time (declarative, subjunctive, and imperative), as well as the subjunctive forms for 'recently before today' and 'now', which are non-past in that they are not yet unrealised.

These functions of past and non-past are displayed in Table 11.

	PAST	NON-PAST
Declarative	<p>wola a-bo.na <i>long ago he-go.perf</i> <i>He went long ago.</i></p> <p>geka a-bo.na <i>today he-go.perf</i> <i>He went today.</i></p> <p>yi-rrawa a-bo.ya <i>yesterday he.go.cont</i> <i>He went yesterday.</i></p> <p>gun-guniya a-bo.ya <i>now he-go.cont</i> <i>He is going now.</i></p>	<p>a-boy barra <i>he-go future</i> <i>he will go.</i></p>
Subjunctive	<p>wola a-bo.ya.rna <i>long ago he-go.cont.ctf</i> <i>He could have gone long ago</i> <i>(but didn't).</i></p> <p>geka a-bo.ya.rna <i>today he-go.cont.ctf</i> <i>He could have gone today</i> <i>(but didn't).</i></p>	<p>yi-rrawa a-boy <i>yesterday he-go</i> <i>He could have gone yesterday.</i></p> <p>gun-guniya a-boy <i>now he-go</i> <i>He could be going now.</i></p> <p>burraya a-boy <i>soon he-go</i> <i>He could go soon.</i></p>
Imperative		<p>boy <i>go</i> <i>Go!</i></p>

Table 11: Functions of past and non-past

### 13.6 Aspect

There are four aspects which occur as suffixes on Burarra verbs. They are perfect, punctiliar, continuous and imperfect. The completive series of these four aspects occurs obligatorily on verbs in the past tense, expressing degree of completeness. The probability series of the four aspects occurs optionally on verbs in the subjunctive mood of non-past tense, expressing the extent of probability. There is a phonological correspondence between the completive and probability aspect series, as may be seen by comparing Table 12 with Table 13.

#### 13.6.1 Completive aspect series

The completive aspect series occurs with past tense as follows. Perfect defines an action as completed and final. Punctiliar defines an action as confined to a point in time. Continuous defines an action as continuing in the past, regardless of whether it has continued to the present. Imperfect defines the ultimate goal of the action as being incomplete.

There are semantic restrictions on the occurrence of these four aspects with the various verb stem classes, so that only two completive aspects occur with most verbs. Table 12 shows the completive aspect forms and their co-occurrence with the various verb stem classes and sub-classes.

From Table 12 it can be seen that the basic perfect suffix form in the completive series is -na, with the variation of -rna on the verb stem *morra forget*, and zero on Class II verb stems.

The basic punctiliar suffix form in the completive series is -rra, with the variant -rnda on the verb stem *bu hit*.

The basic continuous suffix form in the completive series is -ja, with the variant -nja on the verb stem *ga take*, and the variant -cha on the III Subclass verb stems represented by *wenggana ask*, in which the last syllable of stems receives a secondary stress. The variant zero occurs with Class IV verb stems represented by *molamiya recover* and by *bacha fight* in which the classifiers in the stems have the same form of variants as the continuous suffix. The variants -ngga and -ga occur on Class VIII and the VIII Subclass verb stem respectively.

The imperfect suffix form in the completive series is -nga.

#### 13.6.1.2 Functions of aspect in the completive series

The aspect columns in Table 12 have been arranged according to the degree of completeness progressively from left to right. The most complete aspect which occurs with a verb stem where either perfect and/or punctiliar may occur, is the one usually used when referring to 'long ago' or to 'today past', and the less complete aspect is usually used when referring to 'recently before today' or to present (see section 13.5 Tense). The reverse is true for Class VIII verbs, however, which do not co-occur with perfect or punctiliar aspect.

	Verb Stem Class Subclass	Perfect	Punctiliar	Continuous	Imperfect
I.	wepa bu galiya	-na -na -na	-rda -rnda -rra		-nga
II.	burninja wecha ni ninya	-∅ -∅ -∅ -∅	-rra -rra -rra -rra		-nga
III.	jarrkarra morra wenggana	-na -rna -na		-ja -ja -cha	
IV.	molamiya bacha garlma bungga, juwa boy	-na -na -na -na -na		-∅ -∅ -ya -ya -ya	
V.	raka rrigirrga rrayka rrika balika ga bawa		-rra -rda  -rra -rra	-ja  -ja -ja -nja -ja	-nga -nga -nga -nga -nga
VI.	ngunja, gornda				-nga
VII.	gurrma wemba jena, bay		-rra -rra -rra		-nga -nga -nga
VIII.	ma, rro, jo yinda			-ngga -ga	-nga -nga

Table 12: Aspect – stem class co-occurrences, complete series

For example:

1. gipa mu-nguyurra a-ni.∅ a-worki.ya.na  
*already beginning 3s-be.perf 3s-throw about.cl.perf*  
*Already in the beginning he was all the time*
2. geka ngu-wepa.na  
*today 1s:3s-wash.perf*  
*I washed it today.*
3. gipa yi-rrawa ngu-wepa.rda  
*already yesterday 1s:3s-wash.punct*  
*I already washed it yesterday.*
4. burdak ngu-wepa.rda  
*still 1s:3s-wash.punct*  
*I'm still washing it.*

The imperfect completive aspect may occur when referring to any past time as the time of inception. For example:

5. wola nguna-guybuk.nga  
*long ago 2s/3s:1s-show.imperf*  
*Long ago he began showing me.*
6. yi-rrana nguna-guybuk.nga  
*evening 2s/3s:1s-show.imperf*  
*(Yesterday) evening he began showing me*
7. gaba lika ngu-ninya.rra nguna-gukukuwu.nga  
*there then 1s-sit.punct 2s/3s:1s-cool.imperf*  
*Then when I sat there (yesterday), (the breeze) began to refresh me.*
8. arr-wardaji.nga  
*1s incl:3s-watch.imperf*  
*we've begun watching it (implying we're not ready to stop yet)*

When only one aspect may occur with a verb stem, it is used in all instances of past. Note that the first verb remains the same in the following examples.

9. gu.na-ga.nja a.na-bo.na  
*3s:3s.toward-take.cont 3s.toward-go.perf*  
*He brought it (and) came (long ago/today past).*
10. gu.na-ga.nja a.na-bo.ya  
*3s:3s.toward-take.cont 3s.toward-go.cont*  
*He brought it recently before today and came / He is bringing it and coming.*

In the Class V subclass represented by rrayka *fetch*, both the continuous and imperfect completive aspects may occur in all instances of past, but for semantic reasons the co-occurrence of imperfect is rare, and continuous is the usual completive aspect.

For example:

11. nginyipa marn.gi gipa ngi-guybuka.ja  
*you knowledge already 1s:2s-show.cont*  
*You know. I already showed you.*
12. gipa ngi-guybuk.nga yama ny-borrwa  
*already 1s:2s-show.imperf ability 2s:3s-consider*  
*I've already begun to show you. Why don't you consider it?*  
 N.B. The 'showing' has not yet achieved its purpose. This is a rarer usage.



Likewise, the co-occurrence of the imperfect completive aspect with Class V subclass verb stems represented by *bawa leave it* is rare.

In Class V represented by *raka sit*, depending on the connotations of the particular verb stems, at least one of the possible co-occurring completive aspects is rare. For example:

13. a-raka.ja  
3s-sit.cont  
*He was/is sitting.*
14. a-raka.rra.pa, a-garlmuna  
3s-sit.punct.rep 3s-get up.perf  
*He sat down and got right up again. (Rare)*
15. a-rak.nga a-ji.rra manikurdorrk  
3s-sit.imperf 3s-be standing broлга  
*The flock of brolgas is alighting. (Rare)*  
N.B. 'sitting' can be imperfect in this example because it refers to a whole flock.

### 13.6.2 Probability aspect series

The probability aspect series occurs with non-past tense as follows: Perfect probability defines an action as a definite prediction or as having consequence. Its basic form is -n. Punctiliar probability defines a probable action as an isolated instance or as having only temporary consequence. Its basic form is -rda. Continuous probability defines a probable action as a repetition ('again'). Its basic form is -jin. Imperfect probability, -ngan, only occurs with the stative verbs *ni be sitting*, *ji be vertical*, *yu be horizontal*, and the indeterminate verb *yinda do like, say* (see section 13.3.1), which have only an auxiliary function. Imperfect probability indicates a probable beginning. Examples of the probability aspect series and semantic connotations follow.

1. a-garlmuna  
3s-get:up.perf:prob  
*(watch out) he's going to get up*
2. rrima gala ya.pa a-garlmuna.rda  
*hold:him negative ability.also 3s-get:up.punct:prob*  
*hold him otherwise he'll get up*
3. a-gutuwu.jin  
3s:3s-pick:up.cont:prob  
*he might pick it up again*
4. gala ya.pa gun-nerra gu-ni.ngan  
*negative ability.also descr pref-bad 3s-be.imperf:prob*  
*lest it start to become bad*
5. gala ya.pa ny-yina.ngan ny-yorrpu.n  
*negative ability.also 2s-do:like.imperf:prob 2s-be:sick.perf:prob*  
*you mustn't start to get sick like that*

Table 13 shows the probability aspect forms and their co-occurrence with the various verb stem classes and subclasses. It will be seen by comparing Table 12 with Table 13 that although there is some correspondence between which completive and which probability aspects co-occur with the various verb classes, some shift also takes place. As with the completive aspects, probability co-occurrences are limited semantically.

	Verb Stem Class Subclass	Perfect	Punctiliar	Continuous	Imperfect
I.	wepa bu galiya	-n -n -n			
II.	burninja wecha ni ninya	-n -n	-rda		-ngan
III.	jarrkarra morra wenggana	-n -rn -n		-jin -jin -chin	
IV.	molamiya bacha garlma bungga, juwa boy	-n -n -n -n	-rda	-ga	
V.	raka rrigirrga rrayka rrika balika ga bawa	-n -n -n -n -n	-rda -rda -rda -rda -rda	-jin -jin -jin -njin -jin	
VI.	ngunja, gornda	-n			
VII.	gurrma wemba jena, bay	-n -n	-rda -rda		
VIII.	ma, rro, jo yinda	-n			-ngan

Table 13: Aspect – stem class co-occurrences, probability series

## 13.7 Contrafact

The 2nd order suffix -rna 'contrafact' makes the verb, specifically the completive aspect with which it obligatorily co-occurs, a 'long ago' or 'today' past unrealised possibility, which functions as past subjunctive, or co-occurring with gala 'negative' becomes past declarative. 'Recently before today' is included in the concept of non-past subjunctive, of which -rna 'contrafact' is not a component (see section 13.5). Contrafact examples are shown below along with non-past examples, which do not employ contrafact, for contrast.

1. japalana nyi.na-ga.nja.rna rraka bugula ngu-wemba.nga.rna  
*container 2s:3s.toward-take.cont.ctf conj water 1s:3s-draw water.imperf.ctf*  
 nggula  
*for you*  
*If you had been bringing the drum, I would have begun to draw the water for you. (past subjunctive)*
2. gala bugula ngu-wemba.nga.rna  
*negative water 1s:3s-draw water.imperf.ctf*  
*I didn't begin to draw water (today). (past subjunctive with negative)*
3. minja yi-rrawa nguurr-boy ngubi-na  
*if yesterday incl pl-go incl:pl:3s-see*  
*If we had gone yesterday, we would have seen him. (non-past subjunctive)*
4. gala yi-rrawa nguurr-boy ngubi-na  
*negative yesterday incl pl-go incl pl:3s-see*  
*We didn't go and see him yesterday. (non-past subjunctive with negative)*

Table 14 defines which completive aspects co-occur with contrafact in the various verb classes. Again, although there is some correspondence between which completive aspects occur with and which occur without contrafact in the various verb classes, it will be seen by a comparison of Table 12 with Table 14 that some shift takes place.

The following examples illustrate the different shades of meaning achieved by the occurrence of contrafact with different completive aspects.

5. minja mu-nguyurra gun-nerra gu-gutuwu.rna  
*if beginning descr pref-bad 3s:3s-pick up.ctf*  
*if he had picked up badness in the beginning*
6. gun-nerra gu-gutuwu.ja.rna  
*descr pref-bad 3s:3s-pick up.cont.ctf*  
*if he were picking up badness*
7. gun-nerra gu-gutuwu.nga.rna  
*descr pref-bad 3s:3s-pick up.imperf.ctf*  
*if he had begun to pick up badness*

	Verb Stem Class Subclass	Perfect	Punctiliar	Continuous	Imperfect
I.	wepa bu galiya	- $\emptyset$ - $\emptyset$ - $\emptyset$	-rnda -rra		-nga -nga
II.	burninja wecha ni ninya	- $\emptyset$  - $\emptyset$	-rra -rra -rra -rra		
III.	jarrkarra morra wenggana			-ja -ja -cha	
IV.	molamiya bacha garlma bungga, juwa boy	- $\emptyset$		- $\emptyset$ - $\emptyset$ -ya -ya -ya	
V.	raka rrigirrga rrayka rrika balika ga bawa	- $\emptyset$ - $\emptyset$ - $\emptyset$ - $\emptyset$ - $\emptyset$ - $\emptyset$		-ja -ja -ja -ja -nja -ja	-nga -nga -nga -nga  -nga
VI.	ngunja, gornda	- $\emptyset$			-nga
VII.	gurrma wemba jena, bay	- $\emptyset$ - $\emptyset$			-nga -nga -nga
VIII.	ma, rro, jo yinda			-ngga	-nga

Table 14: Distribution of completive suffixes as they co-occur with contrafact

## 14. ADVERBS

Adverbs are a small class of uninflected words manifesting the Manner Tagmeme (Glasgow and Garner 1980) and expressing such concepts as slowly, immediately, first/suddenly, alone, together, aimlessly/fruitlessly, leaning on a stick, by moonlight, with belongings, or with full strength.

Adverbs may be non-derived or of unknown derivation, or they may be derived from nouns or possessed body parts by the addition of *burr-*, the manner prefix. As in example 1. below, the descriptive prefix is dropped from derived nouns with the addition of the manner prefix.

1. *burr-* + *gun-jong* → *burr-jong*  
manner *tree/stick* *leaning on a stick*
2. *burr-* + *ran.gu* → *burr-ran.gu*  
manner *moon* *by moonlight*
3. *burr-* + *guya* → *burr-guya*  
manner *nose* *with full strength*

The adverb below appears to be derived from a demonstrative (see section 11, Table 4, and compare with another derivation, section 17, example 2). Contractions similar to the one in the derivation below occur in the demonstrative-derived descriptives also (see section 11, paragraph 5).

4. *ngunyunarda* + *-pa* → *ngardapa*  
*here near you* *rep alone*

Adverbs have derivation potential for descriptives and verbs.

5. *an-* + *ngardapa* → *an-ngardapa*  
descr pref *alone* *one* (*an-* class)
6. *gugu* + *ya* → *guguya*  
*first/suddenly* *cl (reflex)* *lead the way*

## 15. RESTRICTED ADVERBS

Restricted adverbs are a small, closed class of words which differ from regular adverbs in their distribution. Restricted adverbs do not manifest the Manner Tagmeme, but occur as modifier within predicate phrases. Each restricted adverb is limited to co-occurrence with only one verb, except that *wana big* occurs with all four stative verbs, and *werra poorly* and *marn.gi understanding* occur with the stative verbs *ni be (sitting)* and *nega make be*.

Other concepts expressed by restricted adverbs are 'ended/completed' in *balma nega complete it (ceremony)*, and sound effects such as *dak a-buna "dak" he hit him*, and *brr.rr a-bona bulay "brr.rr" he went far away*, and *lak gu-ganja he did the ultimate (lit. "lak" he took it)*.

Restricted adverbs are non-derived and uninflected words. Those not expressing sound effects have derivation potential for descriptives, locatives and verbs.

1. *an-* + *balma + barra* → *an-balbarra*  
descr pref *ended* *tailbone* *short*

2. an- + werra → an-nerra  
descr pref *poorly* *poorly/bad*
3. gu- + werra + -pa → gu-werrapa  
acc *poorly* rep *deserted place*
4. werra + -pa + -ya → werrpiya  
*poorly* rep. cl(reflex) *waste away, disappear*
5. werra + maya → werrmiya  
*poorly* *get self* *be hungry*
6. werra + werra + ma → werrwerrma  
*poorly* *poorly* cl *erase*

## 16. ASPECT WORDS

There are five aspect words, which manifest the Aspect Tagmeme (Glasgow and Garner 1980), and semantically parallel non-past tense and the four completive aspects which occur as verb suffixes. These aspect words and their verbal parallels are shown in Table 15.

Aspect Word	Verbal Parallel
barra <i>future</i>	non-past tense
gipa <i>already</i>	perfect aspect
mola <i>again</i>	punctiliar aspect
burdak <i>still</i>	continuous aspect
munguy <i>further</i>	imperfect aspect

Table 15: Aspect words and verbal parallels

Aspect words are uninflected and non-derived, and their derivation potential is limited to mola *again*, from which two descriptives and one verb are derived.

1. an- + mola → an-mola  
descr pref *again* *alive, well, friendly* (an- class)
2. an- + mola + mola → an-molamola  
descr pref *again* *again* *good* (an- class)
3. mola + maya → molamiya  
*again* *get self* *recover*

## 17. MOOD WORDS

Mood words are a closed class of words which manifest the Mood Tagmeme (Glasgow and Garner 1980) expressing attitudes such as why contrary to expectation, ability, interrogative, negation, certainty, uncertainty, supposedness, comparison, concession, cause, correlation, and instruction to 'stop' or 'try'.

On the sentence level many of the mood words function as relator in relator-axis sentences which are peripheral to the sentence nucleus (see Glasgow 1981b, section 3).

Mood words are uninflected, although several mood words have one of the special suffixes, *-ya* or *-pa* (see section 1.), as a component.

Mood words may be non-derived or of unknown derivation, or they may be derived from other mood words, one demonstrative, one verb, one noun, one interjection and one conjunction as shown in the following examples.

1. waya + gu-ji → waygaji  
certainty 3s-be(subjunc) maybe (lit. *it could be certain*)
2. ngunyunarda + -wa → ngardawa  
here near you specific related to that (see section 14, paragraph 3)
3. gana + -pa → ganapa  
have eyes open rep stop
4. marr + ka → marrka  
soul ? try
5. ya + ma → yama  
request for affirmation ?get can (interrogative)
6. ya + -pa → yapa  
request for affirmation rep can also (interrogative)
7. wurra + -ya → wurriya  
but, or realis but contrary to expectation, but why

Wurriya *but why* occurs sentence initial and is characterised by a distinctive non-falling intonation continuing to the end of the sentence.

Mood words do not have derivation potential for other word classes, except for *yina* 'interrogative' from which most indeterminates are derived (see section 18), and *waya certainty* which derives to a temporal relator (see section 5).

## 18. INDETERMINATES

Indeterminates are a closed and heterogeneous class of words, and close-knit phrases (examples 18-20 below), which are semantically generic, making reference to or inquiring about context real or spoken. Each indeterminate has a specialised distribution. Many occur as the first base of the Indeterminate Merged Sentence described in Glasgow 1981b, section 4.2.3; example 2 below occurs in a noun phrase; example 3, 6 and 21 may occur as relator in the relator-axis sentence which manifests the sentence level Reference Margin (Glasgow 1981b, section 3.13); example 4 occurs as the second base of an Indeterminate Merged Sentence; examples 13-16 manifest the sentence level Hesitation Tagmeme (Glasgow 1981b, section 2.6); and examples 1, 5, 7 and 8 may manifest the predicate in a Simple Sentence or the first base of a Generic-Specific Sentence (see Glasgow 1981b, sections 4.1 and 4.3.3.1).

One indeterminate is derived from the demonstrative *gaya place is* (example 16); two indeterminates are derived from demonstrative-derived descriptives (examples 17 and 21); all other indeterminates are derived from the mood word

yina 'interrogative' or from other indeterminates which have been derived from yina. The indeterminate phrases in examples 18-20 contain both yina and a demonstrative.

Indeterminates do not have derivation potential for other word classes.

All indeterminates noted to date are listed below.

1. yinda *do like, say*
2. {an}-guyinda *one that does like e.g. motor car ana-guyinda in one that does like a motor car, in a motor car*
3. gu-guyinda *with one that does like (the neuter imperative attention word ngacha indeed' obligatorily co-occurring)*
4. {an}-guyindawa *one specific to the one that does like e.g. ana-nga an-guyindawa what kin relationship is he*
5. yinarda *do like that (a compound including the demonstrative-derived descriptive -narda that known to you)*
6. gu-guyinarda *with one that does like that (obligatory co-occurrence of ngacha indeed)*
7. -yinagata *did like that, said (a compound including the demonstrative gata there in sight)*
8. -yinagatiya *be like that*
9. -yinmiya/-yin *do how (alternate form is a contraction)*
10. -yinmiyapa/-yinpa *how many, when (derived from -yinmiya by the addition of the repetition suffix -pa)*
11. {ana}-guyinmiya *with one that does how, by what means*
12. -yinga/-nga *what (the stem usually elides to the shorter form in combination with the obligatory descriptive or accompaniment prefix, e.g. gu-yinga/gu-nga with what, by what means; ana-nga who; an-nga whom; gun-nga what)*
13. {an}-anngiya *whatchamacallit (derived from an-nga by the addition of the descriptive prefix and the realis suffix)*
14. yanngiya *such and such a place (derived from an-nga by the addition of the interjection ya 'request for affirmation', see section 21, and the realis suffix)*
15. gu-yanngiyarra *what happened, what went wrong (derived from yanngiya by verbal inflection)*
16. yagatay *so and so (derived from the demonstrative gata there in sight by addition of the interjection ya 'request for affirmation' and the realis suffix)*



- 17. {an}-an.gaya *the one that is where, which one* (derived from the demonstrative-derived descriptive an-gaya (see section 11, second last paragraph)
- 18. yina gaya *where* (gaya *place is*, see section 11, paragraph 3)
- 19. yina gaya wenga *where from* (wenga *from is* a directional, see section 7)
- 20. gu-gaya wenga *from being where*
- 21. gu-gurda (gu-gunarda) *with that one known to you* (derived from the demonstrative-derived descriptive {gun}-narda *that one known to you* by the addition of the accompaniment prefix; ngacha *indeed* obligatorily co-occurs)

### 19. CONJUNCTIONS

There are six conjunctions<sup>2</sup> in Burarra expressing sequence, coordination and antithesis. The distribution for each one is different as shown in Table 16. Those operating on phrase level join parts of a phrase, those operating on sentence level join clauses, and those operating on paragraph or discourse level join larger chunks, which will be more clearly defined in future analysis.

Conjunction	Level of operation
aa <i>and uh</i>	phrase, sentence, paragraph/discourse
o <i>or uh</i>	phrase, sentence, paragraph/discourse
lika <i>then</i>	sentence, paragraph/discourse
rrapa <i>and also</i>	phrase, sentence, paragraph/discourse
rraka <i>and so</i>	sentence
wurra <i>but, or</i>	phrase, sentence, paragraph/discourse

Table 16: Conjunctions and their level of operation

Conjunctions are uninflected and do not have derivation potential for other word classes.

The following are examples of some of the more semantically interesting conjunctions in context. For a further example of rraka with contrafact see section 13.7, example 1.

- 1. wuley gun-gunega gun-nerra arrkulawa  
*taken away from descr pref-thing for making be descr pref-bad 1 incl sg:dat*  
o borijipa a-ni a-bu  
*or uh aimlessly 3s-be(non-past subjunc) 3s:3s-hit(non-past subjunc)*  
gun-nerra arrkulawa  
*descr pref-bad 1 incl sg:dat*  
*taking things away from people is bad for us, and uh, hitting someone who is not doing anything (wrong) is bad for us*

2. tea ngu-yalpa minja rraka a.na-bo.ga  
 tea 1s:3s-cook(non-past:subjunc) if and so 3s.toward-go.cont:prob  
 I could boil some tea in case he is coming

## 20. ATTENTION WORDS

There are nine attention words, a masculine, feminine and neuter form parallelling each of the three moods, declarative, subjunctive and imperative. Attention words manifest the clause level Vocative Tagmeme (Glasgow and Garner). The masculine and feminine declarative attention words, a-lay, a-jay *hey*, occur most commonly; the neuter declarative and subjunctive attention words, marlay *hey look at that* and marla *hey don't*, occur as sentence fragments; the imperative forms, ngarla, ngaja, ngacha *indeed* are used for emphatic reference, ngacha obligatorily co-occurring with certain relators in the Reference Margin (see section 18, examples 3.6 and 20, and see also Glasgow 1981b); the subjunctive forms, a-la, a-ja, as well as marla mentioned above, indicate a negative response, or a command that is uncertain of fulfillment. The attention words are shown in Table 17.

	Declarative	Subjunctive (Contradiction)	Imperative (Emphatic reference)
Masc.	a-lay	a-la	ngarla
Fem.	a-jay } <i>hey</i>	a-ja } <i>hey no</i>	ngaja } <i>indeed</i>
Neuter	marlay <i>hey, look at that</i>	marla <i>hey don't</i>	ngacha }

Table 17: Attention words

Attention words manifest the Vocative Tagmeme (Glasgow and Garner). They are built on a masculine root -la, and a feminine root -ja. The preceding a is probably a generic use of the third person singular masculine prefix. Third person is used generically elsewhere in vocative expressions, e.g.

a-lay awurr-borrmunga  
*hey* 3pl -countryman  
*hey, countrymen*

Note that in this example third person plural is indicated on the word for 'countryman' although in reality it is second person plural being addressed. Masculine is used generically elsewhere also, as in ana-nga *who*, where the class of the noun to be given is response to unknown.

The final y on the declarative forms is a shortened form of the realis suffix. The subjunctive forms are used when contradicting someone and are minus the y. The imperative forms are used for emphatic reference to something mutually known and are formed by the addition of the morpheme ng- '1st person involvement' (see section 10.2).

The attention words are uninflected and do not have derivation potential for words of other classes.

## 21. INTERJECTIONS

Interjections are a small class of words which express pleasure, displeasure, affirmation, finality, disaffirmation, request for affirmation, calling from a distance, response and summons. Interjections often occur as a sentence fragment, and manifest the sentence level tagmemes, Exclamation-Response, Finis, Tag Question and Mistaken Utterance (see Glasgow 1981b). Ngika *no* may also manifest the clause level Mood Tagmeme as a negation (Glasgow and Garner 1980).

an-nyan	<i>isn't it adorable</i>
yaw	<i>goodie</i>
yakay	<i>ouch</i>
angga	<i>horrors</i>
ngaw	<i>yes</i>
minjiya	<i>it is so</i>
ganapiya	<i>it is finished</i>
ee	<i>oops</i>
aya	<i>all right</i>
awa	<i>yes indeed</i>
e - e	'confirmation'
i - i	'enthusiastic confirmation'
ngika	<i>no</i>
ya	'request for affirmation'
yuwa	<i>you don't say</i> /'request for approval of planned action'
guuu	<i>yooohoo</i>
ay	<i>what did you say / what do you want</i>
guwa	<i>come here</i>

Most of these interjections appear to derive from various particles and affixes such as -ya 'realis', ng- '1st person involvement', wa 'specific', and from the monosyllabic verb *ma get*. The interjection *minjiya* and *ganapiya* clearly derive from the mood words *minja isn't it* and *ganapa stop* by the addition of the realis suffix -ya.

The interjection *ngaw yes* derives to the verb *ngawiya say yes* by the addition of the reflexive classifier -ya; the interjection *ya* 'request for affirmation' derives to mood words, as shown in section 17, examples 5 and 6; and *yaw goodie* may be the root which appears in *yawuk single/childless woman*, *yawarriny single man*, *aburr-yawyawgu mother and her children* and *yawcha fill in (as when burying someone)*.

Interjections are not inflected.

## NOTES

1. Proper nouns have not been included in this description.
2. Nine conjunctions are listed by Glasgow and Garner 1980, Appendix B. However, in the present paper *aa* and *o* have been added, and *nuwurra afterwards* and *waypa at the same time as* are seen to be temporal relators (section 5), and *gugu first, suddenly* and *warrika immediately* are seen to be adverbs (section 14), and *wurriya but why* is seen to be a mood word.

## APPENDIX: VERB LIST

The following Burarra verbs are grouped according to the classes and subclasses described in the accompanying paper, and they are marked transitive or intransitive, t. or i. respectively.

- I. barrba *to bag* t.  
 barripa *find* t.  
 bamapa *be forgetful* i.  
 bamba *move along* i.  
 barparpa *fail* i.  
 barpa *be disabled* i.  
 beyba *pass by* t.  
 birdukarrba *pinch* t.  
 birlpa *patch* t.  
 dirrkpa *put (axe) in loincloth* t.  
 galpa *summon* t.  
 gaypa *deprive* t.  
 girrba *lay eggs, pass faeces* i.  
 gopa *keep for self* t.  
 gorlapa *dry out* t.  
 gurderrba *peel* t.  
 gupa *build* t.  
 guyba *sink, drown* i.  
 jakaba *shut* t.  
 jarlapa *make, repair* t.  
 jobujoba *cause to stop* t.  
 jorpa *pluck* t.  
 junumba *bury* t.  
 jupa *extinguish* t.  
 marrpa *take care of, wait for* t.  
 malapa *take care of, wait for* t.  
 marawarrba *talk unreasonably* i.  
 mardaworba *be incompetent* i.  
 mardayipa *throw onto back* t.  
 marnmarnba *rescue, save* t.  
 mulaba *aggregate around* t.  
 mungba *complete* t.

- murnamugaypa *deprive someone of what he is holding* t.  
 murrpa *swarm around* t.  
 nganagobuguba *make to be quiet* t.  
 ngarnamarnba *knead* t.  
 ngarnba *warm self at fire* i.  
 nguypa *sling around neck at front (as dilly bag when fighting)* i.  
 ralba *sting* t.  
 roba *poke around in a hole* i.  
 rrolpa *roll something on thigh (as in making string)* i.  
 wepa *wash* t.  
 wirrpa *make something wet, spill onto* t.  
 warba *work sorcery on* t.  
 worlpa *hunt* i.  
 wuleba *finish up something* t.  
 wurarrba *avenge* t.  
 yalpa *cook, burn, sting* t.  
 yopa *discuss* t.  
 yorrpa *be sick* i.  
 - bu *hit* t.  
   bukaba *mop up (as honey with buka grass)* t.  
 - galiya *hear* i.  
   wolawoliya *hang from something* i.

- II. banja *be submerged* i.  
   balcha *be up high* i.  
   bimburlaburlaja *retch* i.  
   burlaja *be swollen* i.  
   burninja *be dirty* i.  
   diwja *have a hole* i.  
   gurkuja *be afraid* i.  
   ngarlcha *become white* i.  
   ngiwja *beg* i.  
   ngolkuja *stink* i.  
   wardaja *observe* i.  
 - jinja *be standing* i.  
   wecha *be searching* i.  
   yunya *be lying down* i.  
 - ji *be standing* i.  
   ni *be sitting* i.  
   yu *be horizontal* i.  
 - ninya *be sitting* i.

- III. gana *watch* i.  
   garra *put vertically* t.  
   gurdagurdarra *show* t.  
   jarrkarra *lift up* t.  
   jurnarra *tease* t.  
 - morra *forget beyond recall* t.  
   ngulmorra *fail* i.  
 - bamana *guard* t.  
   na *see* t.  
   rakawa *hook (a fish)* t.  
   rra *spear* t.  
   wenggana *ask* t.  
   wu *give to* t.

- IV. bachirrimiya *be angry* i.  
 barrbichiya *tie on loincloth* i.  
 balabungabiya *have drooping eyelids* i.  
 balangambiya *appear* i.  
 balawerrpiya *disappear* i.  
 bamiya *carry on head* i.  
 berriya *burst* i.  
 birnggiya *sling onto self* i.  
 birtarrimiya *turn light on, shine light* i.  
 bortkujamiya *become unattached* i.  
 burriyapiya *find out, inquire after* i.  
 bulupiya *stick onto self (fluff)* i.  
 bupiya *descend* i.  
 garlagulurrimiya *be crippled* i.  
 garrwiya *startle* i.  
 gelakuya *gorge self* i.  
 gelambelapiya *clean ears* i.  
 gochulabichiya *tie one's waist* i.  
 gomarriya *circle* i.  
 gorlkakiya *move camp* i.  
 gornakuniya *bathe self* i.  
 gulolmiya *be rotten* i.  
 guyborrngbiya *snore* i.  
 guyburrkiya *lead to one's camp* i.  
 guguya *lead the way* i.  
 jachachamiya *play* i.  
 japarnamiya *become dry* i.  
 japurrmaya *be pleased* i.  
 japarndiya *sing* i.  
 jarlabiya *hasten* i.  
 jarlapiya *save one's self* i.  
 jayanaya *shine* i.  
 jaywarriya *turn head around* i.  
 jerrjangardawiya *stretch out one's limb* i.  
 jordapiya *roll over* i.  
 lijiwarriya *become lost, turn aside* i.  
 marrnguypiya *worship* i.  
 mobalurrimiya *bow head* i.  
 molamiya *recover* i.  
 mormiya *live or sleep alone* i.  
 murrparriya *turn around (especially chest)* i.  
 ngarlwepiya *lick chops* i.  
 ngekorndiya *stop breathing* i.  
 ngukiya *be unfulfilled (as leftover food or needs unmet)* i.  
 ngunyangunjiya *try out* i.  
 ngurrundabiya *perspire* i.  
 walagiya *dance* i.  
 warnawarnjiya *swing to and fro* i.  
 warnbupiya *swing from something* i.  
 werrimiya *be hungry, wasting away* i.  
 werrwerriya *worsen* i.  
 werrpiya *waste away, disappear* i.  
 welamberrpiya *put on ritual string harness* i.  
 workiya *do habitually* i.  
 yermiya *squirm* i.

yinmiya *do how* i.

- bacha *be fighting* i.
- rruwja *cry* i.
- wacha *be broken* i.
- barrnguma *enter* i.
- garlma *get up* i.
- bambungga *be born* i.
- bengga *arrive* i.
- bungga *fall* i.
- juwa *die* i.
- wengga *speak* i.
- boy *go* i.

- V.
- balka *stick to* t.
  - bamagutuwa *collect, gather people* t.
  - barrjeka *move backwards* i.
  - belaweka *dig out* i.
  - borrwa *remember, consider* t.
  - ditka *mate* t.
  - gaka *move* t.
  - gornaga *water* t.
  - gukukuwa *cool, refresh* t.
  - gutuwa *pick up* t.
  - guykuywa *unload the laden (as of a ship)* t.
  - jarrka *spread down (as blanket)* t.
  - jaywa *point* i.
  - jeka *return* i.
  - jirrka *cause to burp* t.
  - jortka *wake* t.
  - jurnajuchuwa *push, tempt* t.
  - malawa *recognise* t.
  - ngeka *breathe, rest* i.
  - ngurtkawa *work firesticks* i.
  - raka *sit down* i.
  - warrka *take out, unsheath* t.
  - wenyaga *hang up* t.
  - wirrka *scratch, scrape* t.
  - wurrkaka *extract* t.
  - yarlka *strip off fibre (as from pandanus leaf)* t.
  - yolka *trick* t.
  - rrigirrga *walk about* i.
  - gorlkaka *be blocking something* i.
  - gurraga *water* t.
  - guybuka *show* t.
  - jalkaka *refresh* t.
  - rurrgaka *pull, push* t.
  - rrayka *fetch* t.
  - wurrgaka *cook, burn* t.
  - wurrwurrnga *rub together* t.
  - yarlangga *spread down (as blanket)* t.
  - yilkaka *hide* t.
  - rrika *crawl* i.

- balika *send* t.
- ngorrka *rock, wobble* t.
- wulaka *carry on shoulder* t.
- wulkaka *extract* t.
- ga *take* t.
- bapawa *leave, forsake* t.
- bawa *leave, forsake* t.
- gerrkbawa *dodge* t.

- VI.
- balamukcha *close eyes* i.
  - bamagurdanja *turn end for end* t.
  - bamangumja *nod head* i.
  - barrja *burst, explode, split* i.
  - bicha *tie* t.
  - bipija *blow into (as didjeridoo)* t.
  - birlja *burst* i.
  - birrirrja *stir, wind* i.
  - bocha *spit out* t.
  - bokalcha *thunder* i.
  - bongarramukcha *have ears blocked* i.
  - bukulabicha *tie something around forehead* t.
  - bunja *suck* t.
  - burrgurdanja *translate* t.
  - dalaja *be ungiving, inattentive to someone* t.
  - daltalja *shake up and down to loosen (as when emptying pipe or billy tin)* i.
  - dawarrja *play* i.
  - dawardawaja *be too tired to participate* i.
  - dercha *stop* i.
  - dildilja *draw* i.
  - dolja *emerge from water* i.
  - duldulja *bang, rattle* i.
  - durcha *be full of food, be pregnant* i.
  - durrja *thunder* i.
  - gacha *be dried up (water)* i.
  - galalaja *give certain women's ritual call* i.
  - gapaja *dig* i.
  - garcha *be stuck* i.
  - garkarja *tell story* i.
  - garlaja *paddle (as a canoe)* i.
  - golja *challenge to fight* i.
  - gomagornda *cut through the middle* t.
  - gonja *call* i.
  - gonyinja *cover* t.
  - gornda *cut* t.
  - gorndurnda *chop up* t.
  - gortkurrcha *jump, mount, dismount, board, disembark* i.
  - gunja *receive present* i.
  - gunggaja *help* i.
  - gurdacha *laugh* i.
  - gurlja *vomit* i.
  - gurrja *roar* i.
  - gutkucha *run* i.
  - jabarrcha *talk loudly for all to hear* i.
  - jangakcha *give men's ritual call* i.



jarlcharlja *chew* i.  
 jarrcha *carve* t.  
 jarrja *lift down* t.  
 jawaja *be ready to go* i.  
 jawarcha *raise head up and peer over* i.  
 jaybicha *tie neck* t.  
 jaygacha *be thirsty* i.  
 jaygornda *cut throat* t.  
 jaywarrcha *lift head up from lying down* i.  
 jerrjerrja *pour into* t.  
 jerryercha *slip* i.  
 jilamja *chew* i.  
 jorrjorrja *pour* t.  
 jorrnja *remove from water* t.  
 jolartcha *bag* t.  
 jortcha *leak, spurt, bleed* i.  
 jordaja *conceal* t.  
 jorlcha *stalk, creep* i.  
 jurnja *be speechless* i.  
 lalarrja *be dry* i.  
 laja *be all clear* i.  
 lirrja *be all clear* i.  
 macha *kiss* t.  
 marnja *crowd around* t.  
 marrkapcha *be happy* i.  
 merndabicha *tie hands* t.  
 mipilabicha *tie around eyes* t.  
 mirлча *flash (as lightning)* i.  
 munggurparja *shiver* i.  
 ngamngamja *taste* i.  
 nganamukcha *shut mouth* i.  
 ngawcha *yawn* i.  
 ngawurrcha *perspire* i.  
 ngicha *give birth* i.  
 ngocha *become calm (wind, waves)* i.  
 ngorrcha *pull out of fire* t.  
 ngorrkornda *separate* t.  
 ngukurdanja *turn over* t.  
 ngunja *mimic* t.  
 ngurcha *refrain from speaking* i.  
 ngurrguja *hold close, nurse* t.  
 ngurrja *tell about* t.  
 nyarlcha *become weak* i.  
 nyilja *be refreshed* i.  
 rorrcha *sweep, rake* i.  
 rrenja *be on something* t.  
 rrirrja *itch* i.  
 rrucha *move close to* t.  
 warndaja *return* i.  
 warrcha *ascend* i.  
 wawaja *clap* i.  
 werrwerrja *flow* i.  
 worja *be concerned* i.

wulupcha *submerge* i.  
 wumbarja *be hot* i.  
 wurkurcha *pain* i.  
 wurlcha *eat, swallow* t.  
 wurrwurrja *shiver* i.  
 yerrnja *throw away* t.  
 yawcha *fill in hole, bury something* i.  
 yilicha *bother* t.  
 yoguja *grind* t.  
 yolaja *grill on coals* t.  
 yurtcha *run* i.

- VII. barrburrima *come up behind someone* t.  
 balgujama *open eyes, stare* i.  
 benagurrma *spread to dry* t.  
 bitima *chase, follow* t.  
 bokama *beget* t.  
 burrburrngma *put hand into* i.  
 garlagulurrma *fold* t.  
 garlawa *urinate* i.  
 garrma *rake through mud under water (to get grass lily roots or  
 cockle shells)* i.  
 gengama *be shy of* t.  
 gorlama *want something of someone* i. (has suggestive usage)  
 gurrma *put horizontally* t.  
 guyma *have as sibling* t.  
 jagulma *trim fringe or hair* t.  
 jawa *bleed* i.  
 jaygurrma *trim fringe or hair* t.  
 jerrmama *send* t.  
 jurrbitima *follow tracks* t.  
 jurrburaykujama *whip* t.  
 jurrjurrma *follow, succeed someone* t.  
 jurrwa *cross to other side* i.  
 lapkujama *open* t.  
 numa *smell* t.  
 ngima *paint* t.  
 rrema *hit with implement* t.  
 rremarrma *hammer* t.  
 rrima *hold, touch* t.  
 rrimarrma *hold back* t.  
 rruma *break* t.  
 rrumarrma *break up* t.  
 waywa *swim, float* i.  
 wulorlama *roll up* t.  
 wumbargujama *heat* t.  
 yagurrma *agree, give assent* t.  
 yargujama *make known* t.  
 yerrkujama *remove from someone's person (as clothes, tooth)* t.  
 yartkujama *cut* t.
- wemba *draw water* t.  
 - bay *eat, bite* t.  
 jena *search for* t.

- VIII. bimbulukma *peel* t.  
 jo *scold* t.  
 ma *get* t.  
 rro *burn* i.  
 - yinda *do like, say* i.

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# THE LARAGIA LANGUAGE

A. Capell

## 1. INTRODUCTION

Laragia was the language of the district where Darwin, the capital of the Northern Territory, now stands. It is almost a dead language. Even in 1950 there were no children speaking it, and most of the older people who spoke it in 1952 (when the bulk of these notes was gathered) were found on the Delissaville Reserve (now Belyuen), across the harbour from Darwin. By 1968, reports of only two speakers could be gained, and these far away from Darwin. In former times, however, the tribe was fairly large, and its territory extended to the Adelaide River, where it joined that of a tribe called "Woolna" by the early writers, while on the south-east it was bounded by the Warrai. These latter languages are practically unrecorded.

The present outline of Laragia is based on notes taken at various periods, chiefly 1949 and 1952. The notes have been systematised as far as possible, but they make no claim to provide a fully laid out grammar, especially on the phonetic level.

## 2. PHONEMICS

### 2.1 The phonemic system

The Laragia phonemic system does not differ in its essential features from the normal Australian type, except that it includes the rather rare bilabial /v/ and a mixed vowel, which is recorded here as /ö/ for convenience sake, although it has several allophones. Similarly, the bilabial is transcribed here as /v/ because it has no labio-dental counterpart. The language shows a considerable proportion of closed syllables, and more than in a number of other Northern Territory languages. The morphophonemics are simpler than those of the Jiwadja-Maung region. A certain degree of vowel harmony is present.

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The following phonemes are to be recognised:

b	d	ɖ	dj	g
m	n	ɳ	nj	ŋ
v				
	l	r	ɭ	lj
w	ɾ		j	
		i		u
		ö		
	e		o	
	a			

No discussion of the individual consonants is called for; they are of the types normal in Australian languages, i.e. the plosives are unvoiced lenes and the /v/, as was remarked, is bilabial. The retroflex series is not so frequent as in many languages, but it definitely occurs. The flapped retroflex /ɭ/, so common in the Northern Territory, is missing, as is also the glottal stop, common in Arnhem Land languages. Some consonant clusters are found which seem to function as single phonemes, e.g. /dl/ and /gw/ as in dlanbarirwa *tooth*, gwinga *nose*. These are discussed below. In the case of /dl/, there is a certain amount of free interchange with /l/, e.g. daligia or dadligia *I've uncovered it*. Initial /gw/ may correspond to /w/ in other languages: gwa:gwa:gba *crow*, belongs to the root \*wa:g, common in many parts of Australia; gudlugwa *dove*, similarly corresponds to a root \*gulu, and the -wa or -gwa suffix (and sometimes gw- prefix) of Class V nouns answers to the wu- prefix of other multiple-classifying languages.

The vowels call for explanation as the phonemes given above by no means represent the full range of sounds actually heard. As is usual in Australia, the /e/ and /o/ are found as allophones of the corresponding high vowels. In some words, however, they are heard almost exclusively, without occurrence of /i/, /u/ in complementary distribution. *I shall eat it*, with Class III object, is normally heard as /da're:/, but there is no instance of /da:ri:/ in the same sense. On the other hand, open /ɛ/ has phonemic status, occurring in stressed syllables: [jila'mɛla] *it is finished*; ['vɛ:miɭma] *woman's bag*. The frequently heard [ä] is really an allophone of /ɛ/ as much as of /a/: ['ŋalidjɛrg] and ['ŋalidjärg] are both heard for *I came*. At the same time, the tendency to modify [ə] to [ä] in the neighbourhood of a front vowel is as strong in Laragia as in other Australian languages. There is a certain phonetic convergence in this case that is independent of meaning. Similarly /ɔ/ is a phoneme, definite in its occurrence, although there seem to be no minimal pairs depending on [o] and [ɔ].

The sounds represented here by /ö/ are rather unstable, and the symbol is used for a group of centralised vowels which take their colouring to a large extent from the neighbouring consonants. Both [ɥ] and [ə] are present but, as they are conditioned allophones, it has seemed sufficient to write /ö/ for both. There is lip-rounding after rounded consonants such as [w], but the centralised vowels occur also after the unrounded labials, [b], [m], and here the interchange is found between [i] and [ɥ] and their allophones [e] and [o]. Both [mɛla] and [miɭa] are heard for the demonstrative (see section 4.6.2). It is, in fact, often difficult to know just how to transcribe unstressed vowels: e.g. *tree*,

transcribed here as /mad'böröma/, is frequently heard as [mad'börəma] or [mad'bərəma]. It would be possible to hold that [ɤ] and [ə] are one phoneme, like [i] and [e], with preference for one or the other in individual words: /mōla/ may be heard as [mila] but not as [məla]. It is this preference, in terms of usage, that must be borne in mind when referring to a single phoneme in the preceding table. The occurrence of the allophones is determined chiefly by the presence of the labial consonants immediately before them: e.g. forms of the word for *that* are Class III /ji:lə/ but Class I /jɤ:va/. The ending of Class I nouns, -va, frequently produces a variety of obscure vowels before it, e.g. ['bileva] *man*, Plur. (Class II) ['bilira]. At the same time, however, the centralised vowels are not limited to unstressed syllables; besides the above examples of the word for 'that', cf. [mō:nma] *nest* and ['dɤ:lɤnda] *branch of tree*.

The phenomena connected with vowel harmony will be dealt with under morphophonemics (section 3).

## 2.2 Distribution of phonemes

Vowel initial is rare, and it is again difficult, as it is in other Australian languages, to decide whether to admit [i-] and [u-] or to write [ji-] and [wu-] as initials. Here, the simple vowels have been admitted in most cases, with a few exceptions where [wu-] is comparatively clear and consistent. Further and more detailed study would have been ideal, but this is no longer possible.

Consonants have a definite distribution so far as initial and final positions are concerned: [l] and [r] are not documented as initials, but all other consonants can occupy this position. In the final position the choice is more limited. All the plosives and nasals except the retroflexes are found, but of the other types only [l] and [r]. Consonant clusters present are:

db, dm, dlv, dlw, djb, ɖb, ɖl, dw, gl, gw, mb, md, mg, nd, nm, nŋw, ngw, ng, ŋgw, ŋw, lb, lg, lm, lŋ, lw, rb, rgm, rŋg(w), rj, rw, řw.

Most of these are found only internally, but some occur initially - dl, gw, (ŋ)gw with facultative nasalisation; others may occur only finally, e.g. rg. The free variation of dl and l has been mentioned.

There is no lengthening or gemination of consonants, although this does occur in many Australian languages, and vowel length, though phonetically present, is not phonemic. The low open vowel when lengthened is usually [a:], which is the lengthened form of [a], the vowel in English 'but'; however, its advanced allophone may also be lengthened, as in [bǎl'bǎ:la] *stone*. Other examples of long vowels are found in [ro:dgwa] *road* (English loan); [gwa:'gwa:gba] *crow*; ['vɛ:milma] *woman's bag*.

## 2.3 Stress

Stress also does not appear to be phonemic, as far as the material goes, but it is an important suprasegmental element of the language. Primary stress rests on the first syllable of a word, unless the second or third syllable is long, e.g.

[ 'maḁaḁa ]	<i>animal, bird, meat</i>
[ mi'lu:lula ]	<i>species of kangaroo</i>
[ dua'ri:la ]	<i>species of duck</i>
[ 'gwa:ra,bila ]	<i>bandicoot</i>
[ 'dwa:rim,bira ]	<i>rat</i>

An occasional final stress, as in da're: *I shall eat it* is abnormal, and most certainly represents a contracted form, the original of which became lost. In words of four syllables or more, there is usually a secondary stress on alternative syllables.

## 2.4 Word structure

Words may begin with a vowel, but the examples are extremely rare. They include [ilan] *now*, but even this could be interpreted as [jilan]. Undoubtedly the reason for this is the system of class prefixes forming an alliterative concord throughout the utterance. One of the few cases in which concord does not come into play in this way is the word /amag/ *father's mother*. While examples of initial [a], [ɛ], and [(j)i] are to hand, there are none of initial [ɔ], [u] [ö]. Finally, [-ɛ], [-u] and [-o] are not documented.

Of the consonants, the retroflexes are not only not found initially, but are comparatively rare in Laragia as a whole. Apart from rare occurrences of initial VC, Laragia words show the following syllable types:

CV	'ma/lu/ma <i>head</i> ; 'ḡa/na/ḡa <i>I</i> ; 'ma/da/wa <i>animal</i> ; 'gu/li/gi <i>large</i> ; ḡa/'gi/ni <i>I will sit</i> .
CVC	'gu/daḡ <i>mother</i> ; 'dudl/wa <i>man's pandanus bag</i> ; 'men/gil/ma <i>hip</i> ; 'ma/lil/ma <i>centipede</i> .
CVCC	'ni/marg <i>son</i> ; ḡa/li/djarg <i>I came</i> .

Initial CCV does not occur if the apparent clusters dl- and (n)gw- are treated as functionally single consonants, and all the phonemes of the language suggest this. Examples of these combinations in various positions will show that the above syllable types cover all cases if such a convention is accepted:

CV	dlamangwa <i>night</i> ; dlanbargwa <i>tooth</i> ; gwialagwa <i>river</i> ; gwal'maruwa <i>wattle tree</i> ; dadliḡ <i>sun rising</i> ; danimadla <i>mud</i> .
----	--

There are clusters in which dl or gw is the second element: guḡguḡwa *chin*; dadbuḡguwa *honey*. The suffix in these cases is the mark of Class V nouns. There is one case in which [gw-] ~ [gɥ-] must be treated as a Class V prefix, viz. the first person singular non-future with Class V object, as in [gɥ-'a:lar] *I missed it (in shooting)*.

Other consonant clusters and their occurrences have already been listed, but these are all obvious clusters of two or more phonemes.

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1. PARKHOUSE, Thomas A., 1896, Native tongues in the neighbourhood of Port Darwin. *Transactions of the Royal Society of South Australia* 19: 1-18.



## 2.4 Tone

There are no outstandingly interesting tonal patterns in Laragia; in fact, Parkhouse contrasts the language of Wulna formerly spoken to the east of Laragia. The latter had what might be called 'ornamental' tones, i.e. fixed tone patterns which are not semantic.

## 3. MORPHOPHONEMICS

Morphophonemic rules are not so complex in Laragia as in Maung and Jiwadja, though some are shared between the three languages. One in particular is shared with Ngarinyin in the Northern Kimberley Division of Western Australia. The chief difficulties in setting up an orthography for Laragia are due to certain morphophonemic rules, but others arise from the indefinite pronunciations already mentioned.

The difficulty found by earlier writers in transcribing Laragia is a very real one, and bears witness to the aforementioned considerable degree of free variation in the vowels of the language and in certain consonants such as -l- and -dl-. The following are the most outstanding causes for uncertainty:

(a) Degradation of vowels in unstressed syllables, especially in fairly rapid speech. Although Parkhouse was an untrained observer, he had some familiarity with the language when it was still in daily use, and even with its structural analysis; but he found considerable difficulty in transcribing it. The occurrences of the allophones of i, u, and a, and the uncertainty about the real nature of the centralised vowel are among the contributing factors.

(b) Facultative labialisation occurs with g- and sometimes with m-:

/gudlagwa/ and /gwodlagwa/ *yesterday*;  
/mugwiri/ and /mugiri/ *we two go*.

Several varieties of conditioned change are present:

(i) Changes due to the elision of the final V of a root: niga-na *I will see you*, but gwın-ni-ŋ *you saw it* - a complex change in which -na- ~ -ni- which is then eliminated after -nj-, cf. na-n-iŋ *I see you*. Vowel harmony is also involved in this instance.

(ii) Elision of the final V of the prefix: nag-u-g *I'll give you* naga + u + g, -u- being the local form of the Common Australian (CA) root for *give*; magi *I'll mark it* maga + i.

(iii) Vowel harmony between affix and root:

(a) A centralised vowel appears on the root: bili-ra *men* < bilö-va *man*;  
ŋaböm *he hit me* < ŋan-wu-m, where -wu- is the CA root for *hit*.

(b) The V of the affix varies with that of the root, but in Laragia the variation takes place in stressed rather than unstressed syllables, which is unusual in Australia, e.g. ŋi-ri *I went* as against ŋa-gi-ri *I will go*; bidjböm *you (sg.) hit him*, contrast buguröm *you (pl.) hit him*; ŋanaga- *I will... you*, as against niniga- *he will...you*; bidlaŋ, < bin + la + ŋ *he speared him*, but ban-aga-la *he will spear him*; binj-igi-la *he will spear you*, bi-la-ŋ *I speared him*, but bigi-la *I will spear him*. From the root -wu- *hit*: ŋadböm *he hit me*, but dir-i-m *they killed it* (Cl.III). These modifications are rather difficult to codify. They depend on the principle of reducing vowels to -i- except in the neighbourhood of labials, where they are centralised as well, this reduction

taking place according to an overall patterning of high or low vowels in the word, rather than by a strict collocation of syllables containing one or other type of vowel.

Another type of conditioned change, shared by Jiwadja and Maung, occurs when a consonant ending an affix meets an initial consonant on the root to which that affix is added as a prefix. This does not mean that all the combinations avoided in the processes of inflection are impossible within a root morpheme. Verbal prefixes ending in -n, -nj, and -r cause the following changes in the initial consonant of a following root:

n + l	dl	as in	-la- : ɲad-la-ŋ <i>I speared him</i> (ɲan-la-n)
r + l	dl	as in	ɲad-la-ŋ <i>he speared me</i> (ɲar-la-ŋ)
nj + l	nj	as in	ɲanj-a-n <i>you speared me</i>
n + w	db	as in	-wu- : ɲad-bȫm <i>he hit me</i> , ɲad-burdowe <i>I am cold</i>
nj- + w	djb	as in	-wu- : gudjbȫm <i>you hit him</i>
r + w	r	as in	-wu- : bugur-ȫ-m <i>you (pl.) hit him</i> , dir-i-m <i>they killed it</i> .

The class signs in nouns and other classes of words also cause certain consonant changes, which are chiefly suffixal. yet operate on the same principle as the above, e.g.

- Cl.I. -va becomes -ba after a consonant: gun-ba *this*, but guligi-va *big one*; banid-ba *wife*, but banili-va *girl*; nim-ba *boy* < nin-va.
- Cl.II. -ra ~ -bira, the former after a final vowel, the latter after a final consonant, but undoubtedly standing for -vira: guligi-ra *big ones*, but gun-bira *these people*.
- Cl.III. -la becomes -da after a final consonant: gumulabi-la *scorpion*; gun-da *this*.
- Cl.V. Before a final -wa, the class suffix, -n becomes -ŋ and the suffix becomes -gwa: gu-ŋ-gwa *this*. Other consonants in general do not change: gwiar-wa *hand*; gwiamunggal-wa *breast*. If the noun ends in -m, however, the suffix is again -gwa: ɟaɟlum-gwa *honey*; gwiam-gwa *egg*, but this is rare.

In reduplications, there is a tendency for a change of w > g if the root being reduplicated begins with w, but the change is not consistent: wilwil baragum *someone is whistling*, but -wilamgilam *make fire with sticks*.

In verbal roots beginning with a vowel, -b- is added after a 2nd person singular subject and before the root: ɲadb-u-m *he gave me*; in ɲadbȫm *he hit me*, the db change is for nw: ɲan-wu-m as shown above, although the result is almost the same in each case. Maung and Jiwadja show a similar desire to distinguish between a vowel and a consonant root in the 3rd person singular.

## 4. MORPHOLOGY

### 4.1 Concord formation

Laragia is a member of the multiple-classifying language group, but has the somewhat unusual practice of combining prefixes and suffixes in the formation of the concord. The Laragia concord is shown by a discontinuous morpheme - at least in many cases, but not in the verb - partly prefixal and partly suffixal. It is what Zellig Harris called a 'broken sequence'. It may be mentioned in passing that the majority of the multiple-classifying languages in North Australia used prefixal forms to mark the classes, but a few, such as Worora and Unggumi in the Northern Kimberley Division of Western Australia, have vestigial suffixes, while a few on the Barkly Tablelands in the eastern part of the Northern Territory use only suffixes. These phenomena suggest that the languages originally had, as Laragia still does, markers at each end of the word.

Class concord prevails throughout the utterance, missing only certain invariable particles. It is best therefore to begin this sketch by setting out the scope of the concord on the syntactic level. The word classes will be dealt with individually after this general introduction in terms of their morphology. In the verb, only part of the concord appears, viz. the prefixal element.

The word classes that will be recognised on formal grounds are the noun, the adjective, the pronoun, the verb and some particles. Each will be treated separately in the present section.

The Laragia concord involves (i) the noun, (ii) all words dependent on or referring to the noun by way either of amplification or qualification, and (iii) all verbal forms required to complete the sense of the utterance. The following sentences show the concord in action:

gudlagwa baniṅ bilöva guligiva; ṅarguva bili?  
*yesterday I-saw a-man big; where is-he?*

gudlagwa baniṅ bilira guligira; ṅargura bili?  
*yesterday I-saw men big; where are-they?*

gudlagwa daniṅ bälbäla guligila; ṅargu dili?  
*yesterday I-saw stone big; where is-it?*

gudlagwa maniṅ damörma guligima; ṅargba mili?  
*yesterday I-saw river big; where is-it?*

gudlagwa ganiṅ göruwa guligiwa; ṅarguwa gwili?  
*yesterday I-saw water big; where is-it?*

It will be noticed that the concord reaches to certain types of word which in English would be classified as adverbs, such as 'where'. This is a mark of a few of the more complicated multiple-classifying languages, such as Laragia, Nunggubuyu and Anindilyaugwa (Groote Eylandt), but it is not a common feature of the group as a whole.

There are three types of morpheme in Laragia:

1. root morphemes either free or bound,
2. bound prefixal morphemes, and
3. bound suffixal morphemes.

Types 2 and 3 may be conjoined with one root. Grammatical processes may thus involve both types of affixation at once, but infixation does not occur. Whilst many particles are free forms, nouns and verbs are never so. The morphemes

which constitute them cannot appear alone, but only in their accepted combinations. In Gunwinggu (Oenpelli district of Arnhem Land) for instance, it is possible in certain cases to omit the class prefix, and this is true also in the Nunggubuyu of Rose River district, but not in Laragia. The Laragia concord is of a type uncommon in Australia in thus consisting of broken sequences.

By way of contrast with the noun, the verb does not employ suffixal class concord, but uses suffixes to mark tense, and mood or aspect, and prefixes to mark the person, number and class of the subject for an intransitive verb and both subject and object of a transitive verb. In some classes of verb it uses a prefix also to mark future action - as happens in Jiwadja and Maung and other languages of this group. There is also a series of suffixes indicating the direction in which the action takes place.

#### 4.1 The noun

The Laragia noun in many cases carries a suffix which marks the class to which it belongs. In fact, the system of classification seems to depend on ending as much as on any semantic fact, or perhaps rather the original semantic groupings have largely lost their earlier scope. This loss is more marked in Laragia than in Maung, Nunggubuyu or Anindilyaugwa. The class suffixes of the noun are:

Class I:	-va
Class II:	-bira
Class III:	-la
Class IV:	-ma
Class V:	-wa.

These markers are in some instances subject to the morphophonemic changes already discussed, if the noun stem ends in a consonant. Moreover, they can be misleading in a way that is hard to account for, and do not occur in the other languages: *damidöla smoke* is formally Class III but takes Class IV concords, e.g. *damidö-la nanigi-ma my smoke*.

Some nouns also have a prefix which is separable and may be omitted under certain circumstances, e.g. *gu-maŋgwa möla it is too dark* < *dla-maŋ-gwa darkness*. By ending, the noun should be Class V; *gu-* is a verbal prefix corresponding to that class, but *möla* is a Cl.IV form.

Some nouns carry no mark of class at all. Kinship terms are prominent among these: *nimarg son*; *nawag younger brother*; *na:diŋ father*; while *nädla elder brother* looks as though it were Cl.III, but as the name of a person it must be Cl.I. In some cases nouns of this kind change in the process of inflection and assume a class ending: *nalambira my brother*, a Cl.II form, though singular (Cl.II represents a personal plural). For this peculiarity see 4.1.2. Some other nouns which by ending should belong to a different class belong to Cl.I. by reason of referring to persons, e.g. *banö-la girl*. A few words omit or retain the ending, apparently at option of the speaker: *ilan* and *ilangwa today*, *molggara* and *molggaragwa then, next* - if the word is rightly regarded as being radically 'the sequence'. In some instances a change of meaning results from a change of class: *dla-maŋgwa night*, but *d(l)amaŋ late*.

As in all the multiple-classifying languages of Australia, there are plural forms only for personal beings. In all others - even those that are found in the personal class but are not human beings - the same form holds good for both

singular and plural, and the context alone can decide which is intended — unless some other element of the utterance indicates this. Thus: *madbərəma a stick*: *galidjilig madbərəma gabbama ŋanjug give me two long sticks*.

Each of the noun classes will be dealt with separately and the appropriate concords given. It is impossible to determine exactly the scope of each class, but the types of words found in a given class are illustrated in each case.

#### 4.1.1 Class I

This class contains words referring to personal beings of either sex. As in the corresponding class in Bantu languages, this is a predominantly 'human' class, but it contains also a number of animal and bird names. Examples are:

human: *bilöva man* (a male native adult); *ŋawira husband*; *gudaŋ mother*;  
*da:riva boy*.

non-human: *bilidijaŋ winter rain*; *djua:rimba rat*; *gürinira owl*.

Included also is the introduced word *nandəva horse* (taken from a Central Australian form *nandu*, whose origin is not established). The characteristic concord form of the class is *b.....va*. The suffix is subject to morphophonemic change, and the prefix is not always present.

Example of concord:

*bilö-va gun-ba guligi-va ba-na-m*  
*man that big (him-I-)see-did*

Not infrequently the plural class (II) is used for the singular in these instances, and it is often difficult to get a speaker to give the proper singular of the nouns in this class: see further in the next sub-section.

#### 4.1.2 Class II

This class serves as the plural for Class I for names of personal beings only: it is a purely 'rational' class, and does not serve for 'irrational' members of Class I. Forms of this class are often used even if only one is referred to. In addition to *bilö-va man*, one often hears *bili-ra* < *bili-bira*. There is no prefix for the class, but a suffix *-bira* ~ *-ra*. The longer form is used after a consonantal stem, the shorter after a vowel. The plural of the example used above becomes:

*bili-ra gun-bira guligi-ra ba-nam*.

If the sense of the noun is singular, but Cl.II forms are used (and this seems to be optional), the dependent words are also Cl.II: *nadlira ŋanigira my brother*. Many of the words are given commonly in Cl.II form, that in which they are most commonly used, e.g. *bra:dliŋa fat*; *nalambira brother*, and foreign loanwords such as English 'bag' taken into Laragia in this form: *bag* = *bira the bag*. No plurality is implied in these cases, but, if the form is intended to be singular, a singular verb is used with it: *ŋabidla? who?* Cl.I > Cl.II *ŋabira*, in, *ŋabira girar who took it?*; *ŋabira giriginig who brought it?*, and *baragudbira giriginig the white man brought it* might be a suitable answer to the question. Even the numeral 'one' may be placed in Cl.II: *bilira galugugbira bigam one man said*.

There are also occasional transfers from other classes into Cl.II of irrational creatures: gu'mununda *crocodile*, Cl.III stands in Parkhouse's vocabulary as gumaondera (for gumundira), apparently a plural formed from Cl.III root and given to him as a singular.

There is no exact parallel in other multiple-classifying languages to this functioning of a formally plural noun grouping as a singular. The suffix -bira corresponds phonetically to the wara- prefix of Maung and Nunggubuyu, and biri- of Forrest River and Ngarinyin, but these are plurals in function as well as in form. The western languages have a few doubtful cases but no full parallel to Laragia usage. All these other languages not only insist that their corresponding plural forms function as plurals, but will permit only personal (rational) animates to assume the plural sign.

In Classes I and II there is a second form, prefixing gu- as well as adding the proper class suffixes. This is clearly a form of gun- *this* and the form is a definite or emphatic one: mi'labira *women* > gumi'labira *these women*. This prefix may also be used in Cl.II situations, and carrying the singular meaning: gumilabira gunbira bigana *I shall see this woman*. If the sense is intended to be plural, it is usual to employ the 'total' prefix to the verb, biram- or baram- in place of the simple bi- *I...him or them*: gumilabira galidjirig galugag birambigana *I shall see the three women*.

#### 4.1.3 Class III

The third class contains the names of numerous animals, such as daḡudbɛla *mountain kangaroo*; gwa:rabila *bandicoot*; durubala *lizard*; dowari:la *duck*; damadingala *dugong*; mdamirina *white ant*. It contains also names of some inanimate objects, as bälbäla *stone*, däduḡuda *ashes*, and a few parts of the body, e.g. dawanda *thigh*. The moon, du:rjäwa, is also assigned to this class.

The class sign is d...-la; after a consonant final stem -da replaces -la. The example as in the previous classes would be:

bälbä-la gun-da guligi-la da-nam  
stone that big it-I-saw

As the class is non-personal, there is, of course, no separate plural form.

#### 4.1.4 Class IV

Trees and their parts tend to be grouped in Class IV, e.g. madburuma *tree*; mi'juwura *roots*. Many parts of the body belong to this class also: 'maluma *head*, madburuma *eyelash*, gwijaburuma *moustache*, mangulumma *throat*. Vegetable foods — maijuma — are included, along with ma'ri:dma *grass*. Curiously enough, from the viewpoint of the original meaning of this class, as shown in the other multiple-classifying languages of the region, a few bird names also are found in it, e.g. bidbidma *magpie lark*, together with mamulubma *tail, the shark* (mulḡundjuma) and lice (mamurulma).

The concord prefix is m-, with a suffix -ma which is invariable in this language:

damör-ma gun-ma guligi-ma ma-nam,  
river that big it-I-saw.

Once again there is no formal plural.

## 4.1.5 Class V

This class contains a somewhat miscellaneous collection of nouns, a sort of general 'neuter'. It includes:

1. Implements: ba|baliwa *firestick*; madajingwa *stone axe*;  
dudlwa *man's pandanus bag*.
2. Some products of trees: gujulwa *ironwood wax*.
3. Some parts of the body: buŋ'gu:ŋwa *jaw, chin, beard*; gwijamungalwa *breast*,  
and gubungwa *a sore*.
4. Others unclassifiable, as 'gäruwa *water*; gu:ruwa *cloud*.

The essential idea of the class, like that of the corresponding class in other languages of the group, seems to have been 'connection with the ground', and English 'road' is taken over as fo:dgwa. Moreover, pronominal forms of this class are used to express place, e.g. gun-ba *this* (Cl.I) > guŋwa *here*. This, however, does not explain even a moiety of the words in Cl.V in Laragia.

The concord markers undergo some morphophonemic changes. As a prefix the form is ga-; as a suffix -wa, which becomes -gwa after -n, changing the -n to -ŋ in the process:

garu-wa gu-ŋ-gwa guligi-wa ga-nam  
*water this big it-I-saw.*

## 4.2 Case relationships

As in most of the multiple-classifying languages, so in Laragia there are no formal relationship suffixes. Some kinship terms have special forms for the vocative: naŋiŋ! *father!* It is possible to use the vocative form with a class suffix as a term of reference: naŋiŋbira ŋanigibira binjiŋ? *did you see my father?* The term is still further refined lexically, in that the second person form is bibi(va) jidjäniŋgiva *your father*, and bibi- refers to the 2nd person (only) of all numbers. The first dual and plural is niŋam with the appropriate possessive. A plural form niŋam-bira may be used even for *my father*. Similarly for *mother* there is guŋaŋ, alŋan, nemabira.

The possessive relationship between nouns is expressed in Laragia in the form 'A B his' = 'B's A', as in *feather bird its* = *bird's feather* gwijarmangwa madjira bienägi. The word bienägi is Cl.I referring to madjira *bird*. If the possessive noun is of another class, the possessive will take the required class form (see 4.7).

Reference to the appropriate section will show, however, that there are other forms of the possessive apart from bienägi. Where forms other than independent possessives are required by the possessing noun in the phrase these are used, but the order of expression remains the same: madburuma gwijar-ma *branch*, lit. *tree arm-its*. (Cl.IV concord).

If the possessor is a human being while the object possessed belongs to another class but requires an independent possessive, the latter is inflected for class to agree with the class of the object possessed as well as with the class of the possessor, exactly as in the Bantu languages of Africa. Thus, bienägi *his* (Cl.V. form, e.g. gunigi *its*) > bienägi-ma (Cl.IV) in e.g. mangulmilima bienägima *his canoe*. The same rule holds good if the phrase is completed with a personal noun as possessor: mangulmiima bilöva bienägima *the*

*man's canoe*; mangulmilima bilöva gunbira biënägima *that man's canoe*. A similar usage is found in other languages of the group that still retain suffixes as well as prefixes, e.g. Worora, in the Western Kimberley. The use of Cl.II forms along with those of Cl.I. is to be noted; no difference in meaning results, and it would seem that an original difference between the two classes is becoming obsolescent. An instance of double agreement is seen in the common phrase minjima magila *rock markings*.

Other case relationships are expressed by postpositions (see Particles 3.9) or not expressed at all. Thus, udlagwa gunidjirgwa ñana:ni *yesterday we were (in) the camp*; bilira galidjilig biridjärg damöřma *two men came (to) the river*; biredji danudbila *they went (for) kangaroo*.

#### 4.3 Gender in nouns

The fact that no formal provision is made for the expression of sex in the Laragia noun has already been apparent. Cl.I. is simply personal, like the corresponding Class in Forrest River and in Bantu languages, not masculine or feminine. Nouns of both genders are included in it. Special expression of sex is given partly on the lexical level and partly on the morphological:

(i) On the lexical level, gender may be expressed by separate words, as in the case of some of the kinship terms, and bilöva *man* as against binjidba *woman*. There are also other words for 'woman', and subdivisions of terms for male and female persons according to age grades recognised socially. These do not require to be listed here.

(ii) The case in regard to kinship terms is more complicated. Some of these differ lexically according to whether a man or a woman is the speaker, so that either speaker or addressee may be masculine or feminine. There is, however, a prefix nu- ~ -ni- (masc.) and ñal- (fem.) found with some kinship terms: this is a rather widely distributed pair of prefixes in the multiple-classifying languages, e.g. Gunwinggu na- (masc.) and ñal- (fem.). Laragia examples: ni-märg *son* (man speaking) > ñalmärg *daughter*; ñei *son* (woman speaking) > ñalei *daughter*; no-(w)ag *younger brother* > ñalag *younger sister*; nugunji *sister's son* (man speaking) > ñalgunji *sister's daughter*.

#### 4.4 Derivation in nouns

Derivation is a rather complex matter, in that very few regular derivational morphemes are found, but there is a number of non-productive forms which must nevertheless be classed as derivational:

(a) Nouns of agent are formed by adding Cl.I suffix -va to the full verbal forms expressing what is done: binjom *he beats* > binjomba *he who beats, a violent person*. Parkhouse wrote gudbiŋga *the down come fellow*, presumably for gu/dbiŋ/ba *he who fell*. The same construction may produce derivatives which are adjectivally used, e.g. gwijurwa *angry* > gwiruwanambira *bad-tempered*, and (again Parkhouse), gogogambiram *a group talking*. The demonstrative form mɔla is also found in this connection, forming a phrase, the entirety of which expresses an agent: mologwa *before*; mologwa mɔla *one preceding*. In such a phrase there is only one primary stress, in this instance on the first syllable of the whole phrase.



(b) Noun formation may result from compounding, but this again is not a productive method. Among the established compounds there are:

(i) *-ia-*, which seems to indicate something rounded, compounds with various non-root morphemes, some of which are found also in other connections, e.g. gw-ia-bul-gwa, Cl.V. *mouth*; gw-ia-buŋu-ma, Cl.IV. *moustache* (cf. madu-buŋu-ma *eyelash*); gw-ia-muŋu-ga, Cl.V. *hill*.

(ii) *-iar-* *arm*; gw-iar-marŋ-gwa *feather*; gw-iar-wam-ba *wing*, and a verbal compound, *-iar-ŋgöu-* *beckon*.

(iii) the common Australian root maŋa *eye*, appears in Laragia as damara, and makes compounds: madu-buŋu-ma *eyelash*; mad-bar-ma *forehead*. It is possible that wa-adbar-wa *the Milky Way* is also connected in some way with this phrase, the initial m- being wrongly taken as Cl.IV. prefix and so changed to gw-.

One or two other such compounds appear but their analysis is too doubtful to be included here. Mention may, however, be made of *-mal* *having*. This form is usually best treated as a postposition, in such a phrase as baŋimba devirba mal bigam *rain having lightning, storm*, but it appears also in gwaialmalgwa *hut*, as compared with gwialgwa *the ground*, presumably 'something erected on the ground'.

#### 4.5. Transference of class signs

The process of transference of class signs is not so common in Laragia as in Maung, but there are instances in which it is documented, e.g. *-iar-* *arm* (see previous paragraph), as applied to persons in a general sense gives gwiargwa, Cl.V., with first person singular possessive suffix gw-iar-ŋa *my arm*; but in compounds the class form may vary: madbərəma gw-iar-ma *branch of tree*, in which the prefix of the original class is retained, but the suffix of the special reference class is added and the total then treated as Cl.IV. Compare also: *-iam-* *egg*, generally gwiamgwa, Cl.V., but with possessives: bir-iam-bira *their eggs*; madawa gwiamarma, guliwa *the bird lays eggs*. So, too, biril-va, Cl.I. *human hair*, but biril-ma, Cl.IV. *hairbelt*; damadji-la, Cl.III. *blood*, but damadjidamadji-gwa *red paint*, Cl.V.

Words of common Australian origin, or in some cases possibly loanwords from other languages, are assigned a class: common Australian maŋa *eye*, Laragia da-maŋa, Cl.III; djiridj, found in some Fitzroy River and other languages as a name for the *magpie lark*, becomes in Laragia djiridjdjiridj-ba, Cl.I. On the other hand, transference of idea may take place without change of class affiliation, as in dlämbargwa V. (i) *tooth*, (ii) *knife edge*.

#### 4.6 Noun adjuncts

Noun adjuncts are those words which function as adjectives, but in Laragia certain other types of word must be included, which in English may be classed as pronouns (other than the personal pronouns). Such words fall within the scope of the concord principle, and the concord is twofold: (i) suffixal with reference to the noun to which the adjunct refers, but (ii) prefixal if the adjunct is used as an independent utterance in its own right, e.g. verbalised. In certain instances the suffix is entirely discarded.

The suffixes used are shown in the following paradigms:

Class		<i>this</i>	<i>big</i>	<i>my</i>
I	-va	gun-ba	guḷigi-va	ḡanigi+va
II	-ra, -bira	gun-bira	guligi-(bi)ra	ḡanigi-(bi)ra
III	-la	gun-da	guligi-la	ḡanigi-la
IV	-ma	gun-ma	guligi-ma	ḡanigi-ma
V	-wa	guḡgwa	guligi-wa	ḡanigi-wa

Examples of these forms: (i) phrases: gāru-wa guligi-wa *big water*; mada-wa guligi-wa *big animal or bird*; a lot of meat; damōr-ma guligi-ma *big river*; bili-ḡa guligi-wa *big dog*; (ii) sentences: majuma manjigirg, molidjəl nagug *good big, a little I shall give you*. These forms will be illustrated in a little more detail below.

The majority of these adjectivally functioning adjuncts are morphemes and cannot be further analysed, e.g. b-owa:ra *bad*; bidji *good*. Other are derived forms. Some are derived from nouns by the addition of a suffix, to which in turn the class suffixes are added: damadji-la *blood* > damadji-la-g-bwa (Cl.I. form) *red, like blood* > damadji-g-damadji-g-wa *red paint* (used as Cl.V. noun). It is noticeable that in this case the suffix -g is added to the complete noun, not to the root morpheme. Examples of such formatives are too rare in the available material to determine whether they are productive forms or not, but they do not seem to be so. The suffix -g found in this particular word is probably to be identified with the suffix found in possessives: ḡani-gi- *my*; idāni-gi- *your*; b-ieni-gi- *his*, etc. and it is therefore to this extent at least productive. It is possibly present also in guli-gi- *big*, although there is no simpler form recorded.

These adjuncts can be converted into verbs if the person prefix is added: gu-wurdubami *it is cold*; ḡad-burudabaji *I am cold* (lit. *it chills me*).

The noun adjuncts are many, embracing all possible forms of description and qualification; in addition, demonstrative words must be added to the list. The following are the class forms of the Laragia demonstratives:

Class I.	Class II.	Class III.	Class IV.	Class V.	English
gunba	gunbira	gunda	gunma	guḡgwa	<i>this</i>
ja:ba	ja:bira	ja:da	ja:bma	ja:gwa	<i>that</i>
jə:ba	jə:bira	jə:la	ji:ma	jə:wa	<i>one yonder</i>

These follow the noun as do other adjuncts — or most frequently they do so. If more than one adjunct accompanies the noun, the demonstrative precedes the descriptives: bilira gunbira guligira *these big men*. There is also a negative adjunct, -iala, taking the forms I. biala, II. biriala, III. diala, IV. miala, V. gwiala, with prefix concord only. It signifies *none, no*: dablanda biala *no bucket*. Class V. form is used with verbs as a negative, *not*, and is usually heard in the forms of the allomorph gweala or even gwēala. The negative adjunct may also telescope with a preceding noun: dabdabma miala > dabdabmiala *no canoe*. This can happen because there is no stress on miala; these negative adjuncts are enclitic.

A fuller form, guni-, jaga- is found occasionally: jagawa biḡjug, guniwa biḡjug *give to this one, give to that one*.

The following are more detailed examples of adjectival concord:

- Class I. bilade-va bienigi guligiva bi-mila *his wommera is big*;  
galidjilig bimba guligi *two big boys* (see below regarding dual  
and plural numbers); banli-va milidjēul-ba *small woman*.
- Class II. bilira jira jagawa birigidimarg *those men are coming here*;  
jira ŋabila? *who is his father?*; bilira galidilibira *the two men*  
(more definite than galidilig bilira).
- Class III: da:la gunda damadila-g-da *this flower is red*; bālbā:la ŋanila mila?  
*what stone is that?*
- Class IV: malögub-ma ŋanigi-ma *my house*; maligiri-ma badi-ma *good spear*;  
maligir-ma adani-g-ma m-uara *your spear is no good*; maligir-ma  
manulgi-ma badi-gi-ma *all good spears*; damör-ma anal-ma mi-mila?  
*what river is that?*
- Class V. damwi:wa ja:-gwa damadila-g-wa *that dress is red*; damwi:wa aŋgar-wa  
ŋaŋug *give me a white dress*; galidilig galugug madawa guligi-ji-ga  
ŋaŋug *give me three big fish*.

#### 4.6.1 Pluralising the adjuncts

Adjuncts fulfilling a definitely adjectival function, i.e. description of the qualities of an object, as against simple description of it as 'this' and 'that', indicate plurals by the addition of a suffix -ga ~ -jiga. The former is used if the stress is one or two syllables back from the end of the stem, as in badi-ga *good*; the latter is used if the stress is farther back, e.g. 'guligijiga *big ones*. In the latter case, a secondary stress develops on alternate syllables: 'guli'gijiga, and this in turn may lead to phonetic variation in the form of 'guli'gɛ:ga. The uses of this suffix will be indicated below. It should also be noted that there is a root form of this adjunct without a suffix, e.g. badi, guligi. The following are the uses of both forms:

(i) Personal animate nouns require the adjective to be put into Cl.II. form, in which case -ga-ra or -jiga-ra become -gira and -gijigira (-g :gira) respectively: bilira guligira *big men*; badigira bilira *good men*. Non-person and inanimate nouns of all classes require class agreement only, as already illustrated.

(ii) If there are two adjectives after the noun, quantity precedes quality, as in English, and the first agrees in class with the noun, while the second may either be in radical form or take the pluralising suffix: madbörɛma maŋolgi-ma badi *many good trees*; damila daŋolgila badiga *many good stones*; maiima maŋolgima badi *much good food*.

(iii) If the numeral galidilig *two* is one of the two adjectives following the noun, the same rule holds good, i.e. the second adjective is either left in the radical form or it takes the pluralising suffix: bilira gadlidilig badi *two good men*; (gu)milibira galidilibira badi *the two good women* (note the definite form of the numeral); maiima galidilig badi *two good (lots of) food*; malagirima galidilig badi *two good spears*; damila galidilig badiga *two good stones*; madbörɛma galidilig badiga *two good trees*; galidilig nimba galigi *two big boys* shows a similar use, even though the numeral precedes the noun.

It is nevertheless possible to add a class sign to the pluralised adjective in the case of non-animate nouns: damörma guligijgima (guligɛ: gima) *big rivers*; bilinga guligɛ:ga *big dogs* shows the same use applied to animate non-person

nouns; *damila galidilig galogug guligila three big stones* shows the absence of the pluralising sign on the adjective, only the class sign being used.

#### 4.6.2 Predicative forms and emphatics

There is a predicative and emphatic root *-mila* (also heard as *-mɛla*) which agrees in class with the noun-adjective combination to which it is attached. This root, however, takes the prefixes of persons belonging to the pronominal series, as well as the class prefixes of nouns (which are really those of the third person pronominal series), and some considerations would lead to its being treated in the pronoun series. Sometimes, however, the root is used alone, without prefix, depending directly on an interrogative word, e.g. *ɲanala mɛla biamba? what is his name?*, cf. *ɲanala nimila niana? what is your name?* Hence it is better treated as a root of adjectival nature, allowing for the fact that it can assume all the pronominal prefixes. The adjectival nature appears clearly in a situation such as *ɲad nigin nimila? what did you say?*, where *nimila* = *you-that-me, you-there*. Similarly, in *arib gugumɛla cut into this one*, an example given by Parkhouse with the emphatic pronoun prefix *gu-*, *gugu-* *this one*.

The following are the forms assumed by the root *-mɛla* ~ *mila*:

	Singular	Dual	Plural
1. incl.	-	mönmɛla	daradbila
excl.	ɲamɛla		ɲaramɛla
2.	nimila		guramɛla
3. i(a)	bimila		biramula, ✱ila
(b)	(gu)gumɛla		
iii	damila		
iv	mɛla, mila		
v	gumɛla		

This root is used as follows:

(i) As an emphatic pronoun, or a word of emphasis attached to non-pronominal classes: *ɲanala mila? what is this?*; *alabigimbi bienigi mila she is his mother-in-law*; *gunba bigimadi mila he is about to marry*; *ɲadla mɛla nigadag? which way will you return?* (p.).

(ii) Added to an adjectival stem, increasing the force of the statement somewhat; here it may also be predicative: *baði mila good (man), he is a good man*.

(iii) This compounded adjective is then added to a noun which it describes: *miliwa badimila good woman*; *maligirima mine:mila good spear*; *gwiarɲa ɲa:ɲa guligi ɲamila my hand is large* (for the prefix concord in *gwiarɲa ɲa-mɛla*, see 4.8.3).

(iv) It may also be added to the full stem of the adjective (with class termination added) without apparent change of meaning: *maiima baðiga mila good stone*. It will be seen that in most of these instances the bare root of the word is used, without concord prefix or suffix.

(v) Used with class prefixes, the root emphasises; in the 3rd person it is almost equivalent to English 'the': *damɛla daliɾa dadliɲ the sun has risen*; *dalaiwa mila the wet season*.

(vi) The root form can also be used as a portion of an utterance and refer to the entire utterance: *balmba ilangwa bugilibida mila?* *is it likely to rain today?* (*mila* gives the sense of *is it likely?, do you think?*); *balmba buglibida it is raining.*

(vii) In 1st and 2nd persons, the root *mila*, *mɔla*, throws emphasis on the actor, as shown in the examples at the beginning of this section (4.6) and also: *gwɛala nuganmidu nimila you have not worked*; *gudlarɔ gumɔla she is tabu to him*; *ɲanala nidlibiɲ nimila? what is your totem?*; *ɲarbirigiɲig nimila idānigira dalbira? how many children have you?*

It is noticeable that *-mɔla ~ -mila* does not occur nearly so frequently in narrative or description as in conversation.

#### 4.6.3 Locative words

Words expressing place require concord in Laragia because they are treated as noun adjuncts. For example:

	<i>here</i>	<i>there</i>	<i>this way</i>
Cl.I.	jan	ja:g	gwin
Cl.II.	janbira	jagbira	gwinbira
Cl.III.	janda	jagunda (?)	gwindā
Cl.IV.	janma	jagma	gunma
Cl.V.	jangwa	jagwa	gungwa

The interrogative 'here?' will be treated in 4.6.4. The vowel of *ja:g* is shortened somewhat when suffixes are added to the word but, rather unexpectedly, its quality is retained. It may be treated as half-long, so that the [a] quality is accounted for. There are a few unplaced forms found amongst locatives: *gwaoniga this side or way*, *jagulagwa that side or way*, answering the question *ɲaragwa? which way?* of movement. Simple demonstratives are also used as locatives: *jɔwa thither*, *ɲaligiag niledi jɔwa? why did you go there?*, *ja:g guledi that man went that way*, *gwin gulidi that man went this way*, illustrate the normal uses.

#### 4.6.4 Interrogatives

All interrogatives in Laragia are classifiable as nouns, noun adjuncts or noun substitutes. Both formally and functionally they require concord. The same word may function differently in different utterance situations, being either adjectival or adverbial or pronominal. The words, arranged by class forms, are:

	<i>who?, what?</i>	<i>which?</i>	<i>where?</i>
Cl.I.	ɲabi(d)la	ɲanalba	ɲar(ba), ɲarbani
Cl.II.	ɲabira	ɲanalbira	ɲarbira, ɲarbinila
Cl.III.	ɲabila	ɲanal(l)a	ɲan(da), ɲandili
Cl.IV.	ɲab(i)ma	ɲanalma	ɲarg(ma), ɲargmili
Cl.V.	ɲa(bi)gwa	ɲanalgwa	ɲargwa, ɲargwili

The phonetic irregularities, already mentioned in 2.1, are very noticeable in this list, and the shorter forms are those generally heard in speech. Examples of the various forms: *ɳabira gi'rar?* *who held it?, who took it?*; *nimba ɳabidenigi gi'rar?* *whose little boy took it?*; *mi'lu:lula ɳabila?* *which kangaroo?*; *madböröma ɳabma?* *which camp?*

It is more general to employ *ɳanal-* in referring to inanimate objects: *damörma ɳanalma 'mila?* *which river is it?*; *gunumidända ɳanal' mēla?* *what sea is it?* The Cl.III. form of *ɳanal-* is used pronominally as a general neuter: *ɳanala mila?* *what is this?*, *ɳanala mila biamba?* *what is his name?*, *ɳanala mila niana?* *what is your name?*, *ɳanala nilidärg?* (*for*) *what have you come?*, *ɳanala dinam?* *what are you looking for?*, with *di-n-*, 2nd singular subject and Cl.III. object. The two words for 'where' need a little attention. The following phrases illustrate them:

(i) *ɳargwa nilidärg?* *where have you come from?*; *ɳad nigag?* *where are you going?*; *ɳargwa nilidän?* *where did you hear that?* (but also *ɳad nigin nimila?* *what did you say?*); *ɳargwa nuwarbin?* *where were you born?*

(ii) *ɳarbanin ɳadimbira idänigiwa?* *where is your father?*; *ɳadimbira ɳarbinila biamba?* *what is your father's name?* (the continual hesitation between 'what' and 'where' in asking a name is a Northern Australian idiomatic usage); *ɳarbanin ɳanmalg idänigiwa?* *where is your sister?*; *ɳandili bälbäla?* *where is the stone?*; *ɳarg damörma* or *ɳargmili damörma?* *where is the river?* Both *ɳarbmili* and *ɳargmili* are used: the suffix *-ili* is part of the verb *-ili to be in a place*: *ɳargba mili?* *where is it?* (Cl.IV.); *ɳangwa gwili* (Cl.V.); *ɳargu dili* (Cl.III).

#### 4.7 Pronouns

The pronominal system of Laragia is unusually complex for an Australian language in three ways. Firstly, there is an extra personal prefix which does not normally appear in nouns (though a few examples of it may be found in the preceding pages). This is arranged in the following table at 3(i)b, and is marked by *gu-*. Its force is emphatic, 'this fellow', whereas in 3(i)a, *bi-* is simply *he, she*. Secondly, while strictly speaking there is only a 1st person inclusive in the dual number, the other persons being supplied by inflection of the numeral 'two', and construed with a plural verb, the plural form is subdivisible into two types: (a) a general plural answering to 'we', etc., and (b) a 'total' plural answering to 'we all', etc. Thirdly, there are several types of pronoun for each person, viz. cardinal, emphatic and isolative. The emphatic forms were treated in 4.6.2 but will be listed below for the sake of completeness; the 'isolative' forms are 'I alone', etc. Finally, there is a column of possessive forms which, however, are severely restricted in their use. The following are the pronominal types found in Laragia:

	CARDINAL	EMPHATIC	ISOLATIVE	POSSESSIVE	
Singular	1.	ŋa:nəŋa	ŋaməla	ŋadluđö	ŋa:nigi
	2.	iđäna	nimila	nadluđö	iđänigi
	3(i)a	ja:ba, jagöva	bimila	bidluđö	bienigi
	(i)b	gunba	(gu)məla	gudluđö	gwɛ:nigi
	(iii)	ja:dla	damila	dadluđö	danigi
	(iv)	ja:bma	mila, məla	madluđö	manigi
	(v)	ja:gwa	guməla	gadluđö	gunigi
Dual	1. incl.	ŋa:mörira	mönmula	möluđö	mönigi
	1. excl.	galidiliŋara			
	2.	galidiligura			
	3(a)	galidilibira			
	(b)	galidiligura			
Plural	1. incl.	darandira	darandbila	daradluđö	daranigi
	1. excl.	ŋaraŋara	ŋaraməla	ŋaradluđö	ŋaranigi
	2.	gura gura, juwira (?)	guraməla	guradluđö	guranigi
	3(a)	bidenbira, birendbira, ja:bira, jagövira	biraməla, vila	biradluđö	biđänigi, barenigi
	3(b)	gunbunbira		?	gunbandeinigi
Total	1. incl.	da(ra)ñimörira			
	1. excl.	ŋarañimörira			
	2.	guñimörira			
	3(a)	biñimörira			
	(b)	gundiñinmörira			

The cardinal pronouns are not used as subjects unless there is a degree of emphasis on them; even then, the -məla ~ -mila forms are often employed: *banin ŋa:nəŋa I saw him myself*. As the pronoun object is incorporated in the verb, the cardinal pronoun does not appear as an object. Yet again, it can be so used if it is emphatic, its equivalent being still incorporated: *biñnimörira birambilaŋ I speared them all*. In this example, *biram-* is a 'total' prefix, as against *bi-*, the common singular and plural prefix. This 'totality' prefix may also be added to a verb if it is required to make a definite distinction between singular and plural objects: *maiima biñum you gave food to him or them*, but *maiima biñum mörira you gave food to them (all)*. Similarly in the future, *biñugmörira you will give them*. If the stress is laid on the plurality of the personal subject, the suffix -bili is used: *bilira ninamwainbili there are men waiting for you* (for -bili see *ŋabiri*).

Both uses are combined in the following examples: *ŋa:ninə ŋalidärg malörbma, nigan ŋadbiniŋ (as) I was coming to the house, my father saw me*; *ŋa:ninə bigam he said to me*; *ja:ba ŋa:ninə ŋadbum she gave it to me*; *ŋaraŋara benjin, madawa bidbim, ŋaraŋara ŋanugag madawa garei we saw them, fish they gave (you), us give-us, fish we-shall-eat*.

The second form of the 3rd person is worth attention because it is — so far as recorded — unique in Australia. The pronominal forms given above as 3(i)b

are accompanied by corresponding prefixes to the verb, so that the pronouns are called on only for added emphasis. Examples of the verb forms are seen in: gugugumbira *they are all talking together*; gwondalibmärg *these fellows return* (both from Parkhouse); a'olde gugáwana *let this fellow see* (P.); ja:g guledi *this fellow has gone that way* (P.). Similarly, there is a 'total' verb prefix corresponding to the pronouns given, and shown, for example, in birambaragir *they are all coming*; birambigawu *I will beat them all*.

The isolative series, as the name indicates, points to action by the person or persons mentioned, independent of all others: ɲadluḏö ɲiledi *I went by myself*. There are variant forms: ɲuludbiɲ *I alone*, and the -mɔla form may be added to the pronoun as well: ɲadluḏö mɔla, etc.

It is clear that Laragia is one of the languages that has never developed the dual beyond a form signifying 'you and I'. This is the case also, for instance, in the languages of Dampier Land, Western Australia, and Bathurst and Melville Islands. The other pronouns given are obvious compounds of the numeral galidilig *two*, with pronominal suffixes which are by nature plurals.

#### 4.8 Possessives

The Laragia system of possessives is complex. The forms given in the list of pronouns in the previous section are used very generally with objects which are entirely separable from the owner with what may be termed incidental or impermanent possession. If, however, the possession involved is by nature permanent or inevitable, such as that of parts of the body and relatives, different methods of expressing them are used:

- (i) Suffixes are added to some, but not all, parts of the body.
- (ii) Compound prefixes and suffixes are added to other parts of the body and to the word for 'name'.

Certain of these involve a concord on the 1st or 2nd person (as required) exactly parallel to the class concords involved with noun adjuncts. This concord may be called the 'prefix possessive concord'.

The independent possessives listed in 4.7 are used for all types of nouns that do not fall under any of the headings mentioned in the preceding paragraph, that is to say, for the vast majority of nouns. They are subject to the general rule governing noun adjuncts, i.e. they take suffixes of class in agreement with the noun to which they refer: nadlira ɲanigiwa *my brother*; baragamani bidänigira *they wanted it for their own*; nadimbira ɲanigira *my father* (also nadaɲ nanigiwa, see below); banidba ɲanigiwa *my wife*; dabdabma ɲaranigima *our canoe*; malörubma ɲanigima *my house*; bireḏi gunidirgwa bidänigwa *they went to their camp*.

There are conditions under which the class suffix is not added, one is when -mɔla ~ -mila is used after the possessive: damwiwa jəwa biengigi mɔla *these are his clothes, these clothes are his*. A second is when the possessive is followed by another adjective: biladewa bienigi guligiwa bimila *his wommera is big* — it does not matter that the adjective is rendered predicative by -mila. The plural suffix, however, does not yield place: maligirima gunma ɲanigjiga *these spears are (all) mine*.

Kinship possessives are applied to some relationship terms, but usage with such terms is rather irregular and various ways of dealing with them are found. It has already been mentioned that some relationship terms have special vocative



forms, which are lexical matters. The forms for 'father' are as follows:

Singular	1.	nada nanigi <sup>va</sup>
	2.	bibi( <sup>va</sup> ) idänigi <sup>va</sup>
	3.	bibi(ra) iginba
Dual	1.	nigan muginba
	2.	bibi wirginba
	3.	bibira iginba
Plural	1.	incl. nigan dirginba
	1.	excl. nigan arginba
	2.	bibi wirginba
	3.	bibira iginba

There are other terms of a similar nature, but the stems do not always vary for person of possessor as in the above case, cf. *ḡadimbira your father*, *gudimbira* or *gudinba your mother* (both Cl.II.); *alabi-gimba his wife's mother*; *bibiginba my father* (contracted form); *ḡalgaḡba my mother*. Other relationship terms, however, take an independent possessive without variation of their own stems: *ḡalmalg idänigi<sup>va</sup> your sister*; *nawira ḡanigira my husband*.

#### 4.8.1 Suffixed possessives

Suffixed possessives are added to some parts of the body. There is no 3(i)b form. Two instances are given, one with vowel final and one with consonant final stem: *maga-ḡa my leg*, and *gwiar-ḡa my arm*.

Person	1. singular	maga-ḡa	gwiar-ḡa
	dual	maga-nmia	gwiarwa moamia
	plur. incl.	maga-ndara	gwiarwa darandara
	plur. excl.	maga-ḡara	gwiarwa ḡaraḡara
2.	singular	maga-na	gwiar-na
	plural	maga-ḡgara	gwiar-ḡgara
3.	(i)	maga- <sup>va</sup>	gwiar-mba
	(ii)	maga-bira	gwiar-mbira
	(iii)	maga-la	gwiar-d(l)a
	(iv)	maga-ma	gwiar-ma
	(v)	maga-ḡga	gwiar-gwa

These are the forms for a noun in the singular, and usually the plurality of a noun is to be gathered from the context. Sometimes a special form is found, such as *gwiar-wira arms* (3(i)). The forms for classes other than the first are used with nouns of the corresponding class, e.g. *milu:lula maga-la leg of a kangaroo*; *damöḡa maga-ma branch of a river*. In point of fact, only a minority of nouns take these suffixes, and the names of most parts of the body are invariable in themselves and used with independent possessives, e.g. *gwa-mila ḡanigila my tongue*. A few again take prefixed pronouns, as though they were verbs: *ḡamindil my shoulder* > *dara-mindil our shoulders*. Native usage is, to some extent, also inconsistent; one finds *gwiar-ḡa ḡaliḡiḡ my arm is sore* (with prefix possessive concord, see 4.8.3), but *gwiargwa ḡanibiliba my arm hurts me*.

## 4.8.2 Double possessives

There are a few nouns which take a double possessive: both the beginning and the ending of the word changes. Such are -jubir- *knee* and -ia(n)- *name*. The forms of these two words are as follows:

Person	1. singular	ɲajubirɲa	ɲia(n)na
	dual	majubirmia	mwiamwa (?)
	plur. incl.	dara(ju)birlara	dariadira (?)
	plur. excl.	ɲara(ju)birɲara	ɲariaɲara
	2. singular	najubirna	niana (nianna)
	plural	gur(ju)birɲara	guriangura
	3. (i)	bijubirwa	biamba
	(ii)	bir(ju)birira	biriambira
	(iii)	dijubirdla	diala
	(iv)	mijubirma	miama
	(v)	gwiajibirgwa	gwiagwa

## 4.8.3 Prefix possessive concord

A noun adjunct or a verb depending on a noun that takes either a prefix or a prefix and suffix to indicate possession must agree with the noun in its form, not in class only but also in person, if the noun is other than third person. A paradigm of certain phrases will make the implications of the usage clear:

maga-ɲa naininin na-leđi *I crossed my legs*; dlänbirgi-ɲa ɲa-liñam  
*my tooth aches*; bilingi-wa dlänbirgiv-a gi-wei *the dog grips it in his  
 teeth*.

The following paradigm shows the full effects of this 'prefix possessive concord'.  
 Meaning: *my (etc.) hand is large*.

PERSON	PHRASE
1. singular	gwiarɲa ɲa:nuɲa guligi ɲamila
1. dual incl.	gwiarmönmia guligi mömula
1. plural incl.	gwiarwa darandara guligi darandbila
1. plural excl.	gwiara ɲaraɲara guligi ɲaramila
2. singular	gwiarɲa guligi nimila
2. plural	gwiarɲgura guligi ɲguramila
3. i(a)	gwiarmba guligi mila
3. i(b)	gwiarmba guligi gumula
3. ii(a,b)	gwiarmbira guligi wila
3. iii	gwiarnda guligi damila
3. iv	gwiarma guligi mila
3. v	gwiargwa guligi gumula

This process is found also in some of the languages of the Northern Kimberley Division, especially its northern part. It is found likewise in the far east of the multiple-classifying region, at Rose River and Groote Eylandt.

## 4.9 The verb

The verbal root in Laragia is similar to that of other languages in the multiple-classifying group inasmuch as it is always a bound form. Even in the imperative mood these languages never use a root by itself. The verb must contain at least two morphemes. The language is not rich in moods or tenses, and knows only the active voice. The root itself may, however, be either simple or derived, but the same mood and tense affixes apply to both types.

The chief division to be observed in the verb is that into transitive and intransitive forms. Different sets of prefixes are used in each, and the transitive form always incorporates the object, even though it be only an implied object. The tense and mood system applies similarly to both transitive and intransitive verbs. As in Jiwadja, the two main tense forms are the non-future and the future, as far as prefix distinctions are concerned, but by means of suffixes a somewhat greater variety of tenses is distinguished, though not as many as in Maung and Jiwadja. The sub-division of tenses by means of suffixes is shown below:

- A. Non-future prefixes: present  
past  
perfect (complete present)
- B. Future prefixes: future and imperative

Example: Root -n(a)- see

- A. Present and past: na/n/iŋ I see, saw you.
- B. Future: nana/n/a I shall see you.
- Imperative           ŋa'na/n/a I look at me.

There is also an irrealis aspect resting on a prefix -v- ~ -w-, e.g. ŋawa-ni *I will stay*, gweala nivi-ni *I will not stay*, I did not stay. In all cases, there is much vowel harmony in the form of variations of vowels within the various prefixes. (see 4.9.8)

### 4.9.1 Roots

#### (a) Simple roots

Verbal roots may consist of simply a single phoneme, e.g. -n- *to see*, -r- *to take hold*, -g- *to go, come*, or they may consist of one or more syllables:

Monosyllabic roots: -ga- *say*, -u- *give*, -gau *walk*, -wal *make (spears)*,  
-gold- *run*.

Disyllabic roots: -giri- *come*, derived from -g- *move, go, come*.

Simple roots never seem to be more than two syllables. Lengthier morphemes prove, on inspection, to be compounded in one of a number of ways. Certain compound roots are formed, as in the Northern Kimberley and other northern languages, consisting of an invariable base, nominal by nature, and an auxiliary verb:

ñul ŋaga *I give*, duldul mañila *I knock at a door* (Cl.IV. -mani-),  
dirid bala *I pinch*, murg gar *I grab*, luglug waga *I gather, collect*,  
bauñuli ŋaga *I lead (a person)*, wauwau biðiŋ *it barked (a dog)*,  
wai ŋajiga *I swim*.

The bases remain unchanged throughout the conjugation; only the second elements vary. The verbs which are used as auxiliaries are chiefly -g- *go*, -la *strike*, and less commonly -wal *make*.

## (b) Derived roots

Both of the above are simple roots to the extent that they are irreducible. There are, however, some derived forms which are traceable back to simple or compound roots. These are the forms for expressing the reflexive, the reciprocal and the causative, and the suffixes by which the transitive verbs are formed. They will be taken in order.

## (i) Reflexive

The essential element here is the word *ḡajalidig* placed before the verbal root, which is then conjugated by means of the intransitive prefixes: *bi-ginan I paint him* > *ḡajalidig ḡaganin I paint myself*; *madawa gugu-mile-n cut meat* > *ganmin ḡajalidig you cut yourself*. There are occasional departures from this structure: *I rub myself* = *ḡwiarḡa girgir ḡajigam* (my hands); Parkhouse has *nigari nolomanbidí go and wash yourself* < *gu-mandob wash (as plates)*. In some cases, native idiom does not agree with English, and the expected reflexive does not appear, e.g. *I bathe myself* is rendered by *ḡadlidunö ḡagamanbidí I bathe*.

## (ii) Reciprocal

Here a suffix -*lidí* is the essential element, as in *ḡarmuri-lidí-ḡ we met each other*; *ḡalidilibira bidbarbijili the two of them hugged each other*.

## (iii) Causative

A causative verb may be formed (a) from an intransitive verb by conjugating it with the transitive prefixes: *ḡa-ga I come* > *maima mañi-g-irg bring hither (-irg) the food*; *ḡabira girgirḡ? who brought it?* Parkhouse gives *nigari bumi-ni go out and cut it down*, lit. *let it sit*. (b) By using various auxiliaries with the verbal root as mentioned above: *damaḡa dadman his eye is open* > *dadman nagug mi' aldama open the door*, lit. *give it open*; *bi-ga-ganmidí he will clean it*, also *ḡarḡar 'binoa he makes it clean*, *ḡagagan midig I'll make it right*.

## (iv) Combinable

Some roots are combinable with (a) adverbial prefixes, (b) other roots.

(a) -*ma-* *take*, e.g. -*alma throw away*, -*ulma knock down*; -*gunma- carry*; -*inma- carry (on shoulder)*; -*wulidma- upset*; -*ludma- like*; -*luma- laugh*.

(b) -*ma-ridí take and go, take away*; *guləda gurumaridí you went off with the yam*.

There are also some compound roots, as in the Kimberley and some other languages, in which the first element is invariable with particles of a nominal nature, while the second is variable and occupies the verbal part of the concept. One of the commonest auxiliaries in the formation of these double verbs is -*la-* *hit, spear*, etc., which however loses its literal and original force and becomes merely an indicator of 'action upon a goal' in the particular manner expressed by the invariable element of the compound. Thus: *duldul bilaḡ I knocked*, *dirid' bilaḡ I pinched him*. Another frequent auxiliary is -*ga-* *do, say*. This root frequently indicates becoming or be in a state: *ḡirḡir ḡagain I am hot*. Thus *bidbid ḡagiḡ I waved (to someone)*, *bididbau ḡagiḡ I rolled it*, *girgir ḡagiḡ I scratched (trs.)*, *māḡmāḡma wiwi magin the wind blew*. A third auxiliary

is -ag to go: wai ɲajiga I swim; bauruli ɲagag I'll lead; bawudɪŋ ɲaledi I passed by; nul ɲaledi I dived. This auxiliary may be used transitively with the prefixes of group 2: luglug wa-ga-g I will steal it. There is also -r hold: gugar I will hold it; mingil muwar I hop; murg gugar I'll grab. Finally, there is -(w)al to make, as in gulwa guguma! I'll sing, make a song.

#### (c) Reduction of roots

The addition of the tense and mood endings often results in the reduction of a root so that it is difficult to recognise, especially if they are no longer used in the compounded forms in which they sometimes appear. Thus -ja may be reduced to -i- before the -m of the completive or the -mag of the continuative, e.g. (bodl)mugu-ja we two will sleep < -ja-; but bodl midimag he is lying asleep; so maiima mag/ai will eat food, but maiima mɛ/j/an I am eating food; gweala maiima ma/wai I will not eat food; gudlagwa ga/i/ni yesterday I ate; giri/ɛ/ni they ate, etc.

### 4.9.2 Structure of the verbal forms

The structure of the complete Laragia verb is shown in the following diagram:

#### Prefixes

#### Suffixes

V = Person + tense + (negative) + ROOT + tense (or mood) + directive.

The affixes enclosed in brackets are optional, but one tense marker must occur to mark future or non-future time. The occurrence of both signs is extremely rare. Directive suffixes are not always found. The root is marked in capitals simply to set it apart, and may itself be (as stated) simple or compound. A simple root consists of a single morpheme which may be a single phoneme. Thus ɲaɲug give (it to) me is analysable into:

Person	Root	Suffix
ɲaɲ _____	u _____	g
<i>you-to-me</i> _____	<i>GIVE</i> _____	future (or imperative)

Within this pattern, the prefixes of the second rank vary according to whether the verb is transitive or not. In the latter case, the prefix is a single morpheme indicating the actor; in the former, it is a compound morpheme indicating both actor and goal. The patterns produced in these two instances are the following:

	Prefixes		Root	Suffixes		
	Person	Tense		Tense	directive	
i.	ɲa _____		ga _____	g		<i>I will go</i>
ii.	bana _____	ga _____	(w)u _____		m	<i>he will give it</i> lit: <i>he-go-give it</i>
iii.	da _____		lib _____	mɛ _____	ɲirg	<i>they have come back</i>

It will be seen that two methods of expressing tense are in use: a morpheme preceding the root or a morpheme following it. Verbs can be classified according to the method of indicating future time — past time is always indicated by a suffix. Another type of classification rests upon the distinction of transitive and intransitive, as has been pointed out, and the scope of this one is not always the same as that of the former. In general, transitive verbs indicate the future by a prefix of Rank 1.

#### 4.9.3 Prefixes of rank 2

##### Group 1

These prefixes indicate the subject of the intransitive verb. They show the two tense forms, non-future and future, the latter being indicated by the suffixing of -ga- to the person sign. In the non-future there is a considerable degree of vowel harmony, though this is not absolutely regular. In the future, however, the invariable nature of the tense element -ga- leads to the use of only one form of the person prefix. The following Table shows the two forms. It will be noticed that not only is Cl.I. of the third person subdivided into (a) general and (b) emphatic, but Cl.III. (the personal plural) has the same subdivision. This is the only instance in which it is found in Cl.II. This class also has a 'total' form as shown already in the cardinal pronouns, i.e. the prefix bara- ~ biri-.

		Non-future	Future
Person	1. singular	ŋa- ~ ŋi-	ŋa-ga-
	dual incl.	mu-	mu-gu-, mu-gu- before vowel
	plur. incl.	dara- ~ dad-	dara-ga-
	plur. excl.	ŋara- ~ ŋad-	ŋara-ga-
	2. singular	na- ~ ni-	na-ga-, ni-gi-, nu-gu-
	plural	gura-	gura-ga-
	3. i(a)	bi-	bi-gi-
	(b)	gu-	gu-gu-, gu-gu- before vowel
	ii(a)	bi- ~ bara- ~ biri-	bi-gi-, bara-ga-, birigi-
	(b)	gunda-	gunda-ga-
	iii.	da- ~ di-	da-ga-
	iv.	ma- ~ mi-	ma-ga-
	v.	gu-	gu-gu-, gu-gu- before vowel

Examples of these forms are best grouped under the various persons.

##### (a) First person:

singular: ŋilidärg *I came*; ŋa-ga-g *I shall go*; na-ga *I do, I am*,  
e.g. ŋirŋir ŋagam *I am hot (auxiliary)*; ŋa-a-(j)irg *will come*.

dual inclusive: mugw-iri *let's go*; gwın mug-iñi *let us sit here*.

plural exclusive: ara-ga-g *we shall go*; ŋad-libmirg *we are returning, we shall return*; ŋana:ni *we sat, we were (in a place)*.

##### (b) Second person:

singular: ŋarg ni-li? *where are you?*; ni-g-iri *go away*; nu-gu-lul *go outside*; ni-liñiŋ? *are you tired?*; möl niniwε? *are you angry?*

plural: guru-gam *tell (them)*; gura-gam *you do, you say*.

## (c) Third person:

- i(a): gawög ñad bigam *I don't know what he said; gunba bigi-mädi mila he wants to get married; biliñiñ (he/she) is dead.*
- i(b): gu-gam *this fellow said it; jag gu-leđi this fellow went that way; gugiri gugumädi he will go and get married.*
- ii(a): biri-bmiñirg *they came along; biređi they went; bajowa biridbiñ they reached the middle; bara-gam they all said; biram-bara-girg they are all coming!*
- ii(b): the emphatic form — gunda-libmärg *these fellows return; gugugumbira they are all talking together.*
- iii.: milu:lul da-leđi *the kangaroo got away; mabala guligila ñargu dili? where is the big stone? (or, of course, where are the big stones?).*
- iv.: damöřma ñargba-mi? *where is the river?; malöřbma idänagima mu-wara your house is no good.*
- v.: ga:luwa ñirñir gu-gam *the water is hot; gargarwa gu-midib the chicken-hawk is alive.*

## Group 2

Group 2 consists of compound prefixes added to the stems of transitive verbs, and expressing both the subject and the object, though not always in that order. Again, there are separate forms for future and non-future. The former is expressed by the addition of -ga- to the latter, before the verb stem, with morphophonemic adjustments. This is not the only way, however, in which the future is expressed (see section 4.9). Vowel harmony complicates the analysis of the compound prefixes, especially as the general Laragia tendency to subsume different vowels under the central mixed vowel makes distinction doubly difficult.

The structures of these compound prefixes are generally clear. Of the two elements of subject and object, an object of the first or second person takes precedence over the subject, but a third person object precedes the subject. In this case — when the object is any class of the third person — some subjects become implied categories. This applies to the subject 1st singular and 1st plural exclusive, and it applies in the future as well as in the non-future forms. Forms that provided the subjects of intransitive verbs provide objects in the transitive conjugation, except in the case of the first persons mentioned above. The fact that so many subjects are implied categories leads to a degree of ambiguity in the transitive prefixes, not assisted by the tendency to centralise the vowels. The third person subject marker is -n-, as seen in the P.10.21 and P.50 forms below. This has no parallel in the intransitive prefixes, where n- marks a second person singular subject.

## Group 2: The prefixes of the transitive verb

P.10 consists of prefixes in which the first person appears as either subject or object, subdivided as follows:

P.10.1	ñga- ~ ñji-	usually intransitive <i>I</i> but sometimes transitive <i>I...it.</i>
10.11	ñgar- ~ ñad(b)-	<i>he...us; they...us; he...me; they...me</i>
10.12	ñña-	<i>you (plural)...me, us</i>
10.13	ññañ-	<i>you (singular)...me; you (plural)...us</i>

P.10.2	mu- mun(a)- man-	<i>we two...him; we two...them</i> (both incl.) <i>he...us two; they...us two</i> <i>you</i> (singular)... <i>us two</i> (?)
P.10.3	dari- ~ dad-	<i>we</i> (inclusive)... <i>him; we</i> (inclusive)... <i>them;</i> <i>he...us</i> (inclusive)
10.31	dari-	<i>we...it</i> (Cl.III.)
10.32	mari-	<i>we...it</i> (Cl.IV.)
10.33	gari- ~ gwari-	<i>we...it</i> (Cl.V.)

P.20 consists of prefixes in which the second person appears either as subject or object, subdivided as follows:

P.20.1	n-	<i>I...you</i> (singular); <i>ye...</i> (plural imperative)
20.12	nin- ~ nir- ~ nid-	<i>he...you</i> (singular); <i>they...you</i> (singular)
20.13	nañ-	<i>we</i> (exclusive)... <i>you</i> (singular)
P.20.2	ga- ~ gar-	<i>I...you</i> (plural)
20.21	gun- ~ gur- ~ gud-	<i>he...you</i> (plural); <i>they...you</i> (plural)
20.22	gun-	<i>they...you</i> (plural); <i>you</i> (plural)... <i>it</i>
20.23	gañ-	<i>we</i> (exclusive)... <i>you</i> (plural)

P.30-60 all involve objects of the third person, subjects of the 1st, 2nd or 3rd person, and are subdivided according to the class of the objects, thus:

P.30.1	b-	if followed by -a-, 1st person singular subject if followed by -i-, 3rd person singular subject with object 3.i or 3.ii.
30.11	d-	if followed by -i-, 3rd person singular subject with object 3.iii.
30.12	m-	if followed by -i-, 3rd person singular subject with object 3.iv.
30.13	g- ~ gaw-	if followed by -i-, 3rd person singular subject with object 3.v.
P.31.1	biñ- ~ biđ-	2nd singular subject with object 3.i. or 3.ii.
31.11	diñ-	2nd singular subject with object 3.iii.
31.12	miñ-	2nd singular subject with object 3.iv.
31.13	g(w)iñ- ~ gud-	2nd singular subject with object 3.v.
P.40.1	bar-	1st person dual subject with object 3.i or 3.ii.
40.11	dir-	1st person dual subject with object 3.iii.
40.12	mir-	1st person dual subject with object 3.iv.
40.13	gir-	1st person dual subject with object 3.v.
P.50.1	bin-	3rd person animate with object 3.i or 3.ii.
50.11	din-	3rd person animate with object 3.iii.
50.12	min-	3rd person animate with object 3.iv.
50.13	g(w)in-	3rd person animate with object 3.v.
P.51.1	bir- ~ biđ-	3rd person plural animate subject with object 3.i or 3.ii.
51.11	dir-	3rd person plural animate subject with object 3.iii.
51.12	mir-	3rd person plural animate subject with object 3.iv.
51.13	gir-	3rd person plural animate subject with object 3.v.



P.60.1	bugur-	2nd person plural subject with object 3.i or 3.ii.
60.11	dugur-	2nd person plural subject with object 3.iii.
60.12	mugur-	2nd person plural subject with object 3.iv.
60.13	gugur-	2nd person plural subject with object 3.v.

The prefixes listed above are exemplified in the following paragraphs.

The P.10 group is concerned with the first person in its various forms. The basic form  $\eta\alpha- \sim \eta i-$  has already been treated as the prefix of the intransitive verb, but there are instances in which it occurs also with transitives, e.g. *börilma  $\eta$ aliröwi $\eta$  I've lost my belt*. One would rather expect *maliröwi $\eta$* , but there would be an ambiguity here between 'he lost' and 'I lost', and the agreement of the object is accordingly omitted.

P.10.11 forms of  $\eta\alpha-$  and  $\eta\alpha(b)-$  are conditioned phonetically:  *$\eta\alpha$ bini $\eta$  he saw me, they saw me, he or they saw us (excl.)*;  *$\eta\alpha$ nam garib don't look at me*;  *$\eta\alpha$ la $\eta$  <  $\eta\alpha$ -la- $\eta$  he speared me, etc,  $\eta\alpha$ bi $\eta$ i $\eta$  you (singular) saw me*;  *$\eta\alpha$ dbim he gave me*;  *$\eta\alpha$ bulma $\eta$  they knocked us down*.

P.20.12,  *$\eta$ idbi $\eta$ i $\eta$  he or they saw you (singular)*; *nibum he or they gave you (singular)*; *na $\eta$ -igaja light (the torch)*.

P.20.13, *na $\eta$ i $\eta$  we saw you (singular)*.

P.20.21, *gani $\eta$  I saw you (plural)*; *gu $\eta$ äb cook ye it!*; *gu $\eta$ urub find ye it!*; *gu $\eta$ miri $\eta$ i $\eta$  ye found it*; *gu $\eta$ mali $\eta$ närg he or they followed you (plural)*; *gubini $\eta$  he saw you (plural)*; *gurumaridi ye took it away (yam)*.

P.20.22, *ga $\eta$ i $\eta$  we saw you (plural)*; *ga $\eta$ amulamarg we are following you*.

The P.30 to P.60 classes are all concerned with 3rd person objects and are necessary in order that the effects of class distinctions may be made clear. Certain of the subjects are implicit only, as has been pointed out.

P.30, 1st person singular subject with the various classes as objects: *ba-la- $\eta$  I speared him*; *gada $\eta$  I put it (Cl.V.)*; *majani I ate it (food, Cl.IV.)*; *gawu-alunu I made it (Cl.V.)*; *g-alma- $\eta$  I threw it (Cl.V.) away*; *gamal I made it (Cl.V.)*; *g-ar I held it*; *gaw-ub-am I have cooked it (Cl.V.)*. The vowel after the object prefix is here critical; in the above examples, -a- marks a 1st person (presumably a contraction of \*ba- $\eta$ a-); a following -i- usually marks a 3rd person subject: *bid-la- $\eta$  he speared him*; *bini $\eta$  he saw him or them*; *midän he put it (food, Cl.IV.)*; *mijäni he ate it*; *girigini $\eta$  he brought it (Cl.V.)*; *gir-ar he took it*; *gwijubini they were cooking it*.

Class P.31 has a vowel which is not critical, usually some subphoneme of -i-, more or less obscured as is common in Laragia: *bi $\eta$ -ar get it*; *bi $\eta$ -a- $\eta$  < bi $\eta$ -la- $\eta$  you speared him or them*; *bidböm you struck him or them*; *bi $\eta$ -i- $\eta$  you saw him or them*; *bi $\eta$ -u-g give it to him*; *gu $\eta$ ulunu you made it (Cl.V)*; *ma $\eta$ igiri $\eta$  bring it (Cl.IV.)*.

Class P.40 has similar reference from the 1st person dual to a 3rd person object: *bar-i-m we gave him*; *bar-ar we put (for) them*; *miri-jäni we were eating (Cl.IV.)*; *gar-ar-i that we may get it (Cl.V.)*; *gir-ub-ini we searched for it (Cl.V.)*; *gar-örub we shall seek it (Cl.V.)*.

In P.50, the 3rd person subject is marked by -in-, but such a subject is always personal; also, P.50 is to a degree interchangeable with P.30 in its bi- (and variant) forms. A certain difference of emphasis on the actor seems to be involved. In a mythological text, for instance, there is found *Guma $\eta$ andimba gin-ab bilidärg he trod on (set food on) Guma $\eta$ andimba as he came,*

in reference to the culture hero Waran. Class 51 is similarly the animate plural, corresponding to a Cl.II. noun as subject, but as usual there is confusion in use of these two classes, and P.51 forms may refer to a single actor. The myth to which reference has just been made exemplifies this. Its text is:

Waran Gumaṅandimba ginab bilidärg garuwa gunamidira jugulärg Bulori  
*Waran Gumaṅandimba trod he-came water salt hither Buloring*

Dubira direminiṅ görongwadliṅ dumaḍila diädla.  
*The-foreskin he-cut water-came-out flood blood (of foreskin, Cl.III.)*

Laragirr jumadliṅ dubira gweala dirimaliṅ binmiridbiṅ  
*The-Laragia therefore foreskin not they-cut they-don't-want-him*

gumaṅandim bimiliṅ bigam.  
*idol they they-said.*

Transcribed in standard English, the narrative states that

*Waran set foot on Gumaṅandimba when he crossed over the salt water and came to this side at Buloring. He circumcised a youth and a flood of blood came out like water. This is why the Laragia do not circumcise because they say that they do not.*

Other examples of P.61 class are seen in the following: *bidbiniṅ they saw him or us; bidbim they gave him or us; gir-ab they cook it (Cl.V.); bidbilimiṅirig she came back with it (a bucket in the original text); dir-i-m they got it (kangaroo); gidibini they were looking for (paddles); mirigani they have taken it (a canoe); giribilmarida they pushed (a log); girieni they ate (Cl.V.); mirijini they were leaving it; ṅabira gir-ar who took it?*

Class P.60 contains subjects of the 2nd person plural with the objects varying for class: *buguriniṅ ye saw them; mugurijäni ye ate it (Cl.IV.); mugurmiriliṅ ye found it (cane); gugur-ab cook it; mugur-lunu ye made it (Cl.IV.).*

#### 4.9.4 Tense, aspect and mood formation

There are some irregular tense and mood formations; certain verbs supply various tense forms by suppletion, e.g. -g *to go*, past tense forms -lidi. Thus ṅa-ga-g *I'll go*; ṅa-lidi *I went*. Similarly, -nag *have*, as in ganag *I have it*, but ga-! *I will have it*, and irrealis, ga-vε-!, using the future stem. These verbs are not numerous. On the other hand, as will be demonstrated later, verbs whose stems end in a vowel are incapable of taking the suffixes of aspect, etc., except the -m of the completive.

Verbal forms, apart from the personal prefixes (which are actually independent of tense, for the non-future prefixes become future by the addition of -ga- between them and the verbal stem), fall into two groups:

- (i) Those formed by suffixes and using the non-future prefixes to indicate person, number and class.
- (ii) Those formed by the prefix/suffix -g/-g between the non-future prefix and the stem in the first instance and as a suffix in the second.

The former set indicates aspect, the latter is part of the indicative formation but marks future time. There are three aspects - instantaneous, continuative and completive.

## 4.9.5 The aspects

The aspects are indicated by the following suffixes:

Instantaneous	Continuative	Completive
-iŋ	-mag	-m
	-ni	-ŋga
		-biŋ

Laragia stress is not so much on time as on aspect: hence the paucity of actual personal prefixes, or rather the wide use of the one set. Certain of the aspect suffixes may be used equally well to indicate past or future time. Although the verbal prefixes are in themselves neutral with respect to time, their function is to indicate the actor and the goal. The only exception to this statement is found in the future formatives, both of which do indicate a future action. At the same time, it is true that the vast bulk of the examples of -iŋ and -ni refer to past time, and -mag always refers to the present.

The instantaneous aspect contrasts with the completive (-m) in laying stress on a single action of a simple state: ŋalidan *I hear, I heard*; biliŋga ŋalidan wauwau wiðiŋ *I heard a dog bark* — a single act of perception even though it continues for a time. While the European *I ate* is similarly a single action, Laragia stresses the time taken in the process and says maiima majäni, using the continuative -ni, e.g. gudlagwa guđguda dajäni *yesterday I ate opossum*. If it is desired to indicate that the eating has taken place and is finished, the completive in -m is used: majam *I ate*; gajam *I drank*. So too, gudlagwa dlamungwa gir malani *he sang last night*, an act that took some time (-ni continuative past).

The suffix -iŋ is one that cannot be used with verbs whose stem ends in a consonant: ŋalidärg *I came*, represents -liđi- *go or come*, with the suffix -ärg *hither*, and the only tense or aspect variation in such a case is provided by a variation (if any) in the stem itself — as in this instance there is (see Section 4.9.4). If there is no suppletion, formal indication of the variation of aspect cannot be given. Thus, bi-ludur *I send him*, can give bigi-ludur *I will send him*, but is not capable of any further modification — and such verbs are numerous!

The future prefixes do not require the instantaneous ending if the nature of the act is not instantaneous: nimangwa niga-na *I shall see you tomorrow* is a process rather than a single act. It should be noted further that the irrealis also does not use the suffix: gwēala ba-wana *I have not seen him*; ŋalidaŋ *I hear*, but gwēala ŋwelida *I did not hear*. In the case of an action that takes place once and is finished, the instantaneous ending is used: dariwa bigidmin *the old man will call the name*.

The instantaneous form is commonest in the past tense, and examples are numerous: biliŋiŋ *he died, he is dead*, as against completive bili-ŋam *he is sick*; naniŋ *I saw you*; biliŋgiwa wauwau bigiŋ *the dog barked*; miđan *he put it* (Cl.IV); guŋmiriliŋ *you found it* (Cl.V.); binimiriliŋ *you found them*; mugumiriliŋ *you (plural) found it* (Cl.IV.); ŋuwadbiŋ *I fell*; dalibiŋ *they have gone away*; biridbiŋ *they arrived*; biniŋ *he saw it*; gudiligaŋ *I have taken out (the kangaroo from the oven)*; gadaŋ *I put it* (past, Cl.V.); bidlaŋ *he speared him*; ŋaŋambaraŋ *he told me*; nimädiŋ? *are you married?* (regarded as an act rather than as a condition); galmaŋ *I threw it* (Cl.V.) *away*.

The continuative aspect is shown by two different suffixes, and here the time is more clearly marked: -mag refers to present time, -ni to past time and there is no future continuative. The examples are clear:

- (i) -mag: gir malani *he sang*, but gir malamag *he is singing*; biliñiñ *he died*, but biliñimag *he is dying*; ñaliñimag *I am ill (or dying)*; ña-ji-mag *I'm leaving*; bödl midim *he is going to sleep*, as against bödl midim *he is asleep* (Cl.IV. prefix probably refers to the ground on which he would be lying); ñawolmidimag *I am sleepy* (F)
- (ii) -ni: this may indicate an incomplete or continued action in the past, or one which though now complete, required time for its completion, e.g. mañani? *have you eaten?*; daginirg (da-gi-ni-rg) *I have brought it*; ñabila-giri-gi-ni-rg? *who brought it?*; ñana-ni *I was sitting*, as ñaniñ *I sat* and ñagini *I will sit*; gidibini *they were seeking*; mirigani *they took it*; girijäni *they ate it*; mirijini *they were leaving it*.

Certain morphophonemic modifications are noticeable in the verb 'sit' but they are not easy to explain. The root is -ni- (which may well be the original of the suffix, though the absence of diachronic information does not permit of more than a guess at this), yet the incomplete forms are always based on -na:ni, as above.

The completive aspect is indicated by three possible suffixes, not interchangeable as a rule in one and the same verb, because their connotations are slightly different.

(i) -m preceded by a linking vowel, usually -a- or -ö- if the stem ends in a consonant. This -m indicates a complete act, e.g. bimadlöm *he has made it, he made it*; gawubam *I've cooked it* (from -ub- *cook, roast*); gajaruböm *I've found it*, implying that I now have it, as against the instantaneous form in -iñ which merely shows the act of discovery; bigam *he/she said or did* (no distinction is made in Laragia and many other Australian languages); biliñam *he is sick or dead*; dlanbargiña ñaliñam *I have toothache*; bium *I have given it to him, I gave it to him*; barim *we gave it to him*; ñanala ñañam? *why did you look at me?*; wai wirgam *they swam* (contrast with wai miga *let us two swim*). Occasionally, this suffix is found with the future tense prefixes: bana-ga-u-m *he will give it* (and will not have it any longer). If a verb is compounded with a directive suffix, however, -m is the non-past tense sign (see section 4.9.7): ña-liñ-am-uwa *I fainted away*; bi-libmi-ñirg *he came back*.

(ii) -ngga indicates a permanent state entered upon, and so has participial or adjectival force: madböruma ma-liñi-nga *dead tree*; biiöwa dirulingga *a clever person, man who has become wise*; bi-mädi-ngg-uwa *he became married*, shows the suffix followed by a directive and losing its final vowel in the process. The instantaneous suffix -iñ occurs in a more purely verbal context: madböruma mör midin *a learning tree*; gör midin *crooked* (though here P. recorded gör namidin *nga*; also ñaleringga *I have forgotten it*).

(iii) -biñ is purely stative, though its tense is not fixed: gwaribiñ *he has gone* (and is no longer to be found here); gwin ñanibiñ *I am seated here*; gudlagwa ñanibiñ *I sat yesterday*; contrast nimangwa ñaniñ *I shall sit tomorrow*; bajuwa biridbiñ (when) *they were in the middle* (see Texts: Story 2).

#### 4.9.6 The future formatives

The prefixes listed in the earlier parts of section 4.9 are aorist and may function with the various aspect formatives as required. The future, however, is definitely marked as a tense, and usually not from the viewpoint of aspect. The few exceptions to this statement have already been indicated. The future marker is -g-, which mostly appears after the person prefixes and is linked to the stem of the verb by means of a vowel, normally -a-, but sometimes weakening to -i-. In a very few verbs a suffix -g is used, and this may even combine with the prefix -g- in such cases to mark the futurity twice over.

The following examples of the future forms will suffice: bi-gi-la *I'll spear him*; biñi-gi-la *You'll spear him*; biga-r *I'll catch, hold him*; biga-wu *I'll kill him*; bana-ga-wu *he'll kill him*; mu-gi-ni *let us two sit*; ŋa-gi-ni *I'll sit*; bi-ga-na *he'll see him*; na-ga-na *I'll see you*; gara-na *I'll see you* (plural) is an exceptional form.

Combination of these formatives with those of aspect appear in such cases as: ŋa-gi-lib-öm *I'll go back*; ŋa-gi-lib-m-ärg *I'll come back*.

The suffix -g is used with both future and imperative, but with a very limited number of verbs only. The commonest are -u- *to give* and -wu *to hit*. In the future tenses, these verbs combine the prefixed with the suffixed g, expressing the time factor twice over: bi-g-u-g *I'll give it to him*; gu-wu-g *I'll hit that fellow* (emphatic gu-). In the imperative, however, the prefixed -g- is omitted: ŋaŋ-u-g *give me*; biñ-u-g *give him*.

#### 4.9.7 The imperative

The Laragia imperative positive occasionally uses the future formatives, as in the example given in the preceding paragraph. Generally, the bare stem is used with the personal prefixes and no suffix: gu-*da* *put it* (Cl.V); n-*alma* *throw it away*; ŋaŋ-*ambara* *tell me*. Thus the only real mark of the imperative mood is generally the absence of suffixes.

The imperative negative, however, is differently constructed. The same prefixes are combined with the completive suffix -m and a dehortative particle garib is placed after the verb: ŋaŋ-u-m garib *don't give it to me*; biñ-u-m garib *don't give it to him*; ŋad-na-m garib *don't look at me*. As the intransitive verb sometimes has no completive form, the simple non-future prefixes are then used with garib: ni-ag garib *you must not go*. The stative -bin is never used in this construction. For the less direct forms, *let me go*, etc. see Irrealis (section 4.9.8).

#### 4.9.8 The irrealis

Laragia has an irrealis form characterised by -v- inserted before the verbal stem and after the person markers. Before back and rounded vowels, it frequently becomes -w-. The forms are seen in the following comparative table:

## REALIS

ŋa-gi-ni *I will sit*  
 mä-jäm *I eat food*  
 ja-ja-m *I drank*  
 bi-li *he stands, remains*  
 bi-gi-ri *he will go*  
 ni-lib-m-ärg *you returned*  
 bar-i-m *we gave*  
 ŋa-gi-ri-g *I'll come*  
 ga-ni-ŋ *I saw it (Cl.V.)*  
 na-liða-ŋ *I heard*  
 ga-ma! *I make it (Cl.V.)*  
 ga-r *I hold it (Cl.V.)*

## IRREALIS

ŋi-vi-ni  
 ma-wä-ji  
 gu-wa-ji  
 bo-w-o  
 bö-vi-n  
 nu-wu-lib-m-irg  
 bar-vi-u-m  
 ŋu-ri-g < ŋu-wu-ri-g  
 ga-va-na  
 ŋö-vä-liða  
 go-m(w)a!  
 gar-w-a

These forms show a large amount of vowel harmony, contraction and irregularity. The combination of the irrealis marker with the aspects is also shown. The person prefixes are the same as in the realis: ni-vi-ni, ni-vi-ni, bi-vi-ni, etc. Used alone, the irrealis indicates an act that has not occurred but perhaps may do so: nini-vö-va (*the dog*) *may bite you*; mö-va-na *he may see it (Cl.IV.)*; ga-va-na *I may see it (Cl.V.)*. It may even imply purpose: Story I has bidanigira gugwaji *theirs they would eat* because they wanted them to eat for themselves.

Its commonest use, however, is with certain forms of the negative. The negative particle is gwala, itself a Cl.V. form of -gala *none*. This root is used with class prefixes with an adjectival force (see section 4.6). The Cl.V. form is used by an irrealis form — in this Laragia agrees with Jiwadja rather than with Maung, or for that matter, most Arnhem Land languages which are strict in requiring the irrealis with a negative — and the same applies still more rigidly to the Northern Kimberley languages. Examples in Laragia are: gwala gwin nivini (or növini) *I won't sit here*; gwala bowo *he does not stand*; bilöwa gwala gulibig böviri *the man is not going quickly*; nalingiag gwala nöwiri *why don't you go?*; gualag dlamungwa gwala gomwol *he didn't sing last night*. The exception is in the future tenses, where a realis is used: gwala jagirg *I won't come*; minagwa galwa gulwa gwala (n)gigamol *he will not sing tonight*, as against, e.g. gwala na-v-na *I can't see you*, gwala birwa *I haven't it*.

## 4.9.9 Directive suffixes

There are two directive suffixes in Laragia, one indicating movement towards the speaker and the other indicating movement away. Though commonly used with verbs, neither is limited to verbs, and the 'away' directive is even more common with adverb-functioning words.

(a) Movement towards the speaker is indicated by a suffix -(ä)rg ~ -g. The former is used after the final consonant, the latter after a final vowel; but there is one outstanding example, viz., that -liði- *went* becomes -liðärg *came*. The initial vowel is somewhat unstable and, in some instances, -irg is normal: guñigirg *you bring it*. Vowel harmony appears to be the deciding factor, but it is not consistently applied. Examples: (i) -g: ŋagi-ri *I'll go*, ŋa-gi-ri-g *I'll come*; ŋaŋ-u-g *give it (hither) to me*. Generally biŋ-u-g *give it to him* is used, somewhat illogically, but apparently by misapplied analogy with the most commonly heard form of the verb. (ii) -rg preceded by a vowel:

ŋa-lidärg *I came*; guñig-irg *you brought* — generally, however, if two i's precede, a final -i- is heard: mi-riding *we two came*; nugudärg *come in*, as against nugu-lul *go out*.

If the verb is in the completive, the directive assumes the form -miñirg, e.g. biribmiñirg *they came back*.

(b) Direction away from the speaker is indicated by the suffix -uwa, which is actually commoner with non-verbal words; it may be abbreviated to -wa after certain consonants: gurgwa *on top*; gwiolwa *under*; mol'guruwa *in front*; jidimwa *behind*; gunumidinda or gunumidinduwa *upstream* (for which gunumidinderuwa is also found). With verbs, illustrations have been given incidentally in preceding paragraphs, e.g. ŋaliñamuwa *I fainted away*; bimadinguwa *he got married*; dagiñabuwa *I'll cook it up* may be added — here the -uwa produces an idea of completion similar to that of 'up' in English.

#### 4.9.10 The passive forms

Laragia shares with most Australian languages an overwhelming preference for active rather than passive manners of statement. The only form approaching the passive idea is provided by the verb 'to go' in certain usages that may be just as well regarded as inceptives. As in English it is possible to say 'the horse got bogged' or 'the horse was bogged' (though the meanings are not exactly the same in each case), so similar expressions may be formed in Laragia with -ri ~ -lidi *go*: nanduva mavönma bulñbulñ bilidi *the horse got bogged*, lit. *went stuck in the mud*.

## 5. TEXTS

### Story I

Nargwa nana:ni gudlagwa? Jagun ŋana:ni damörma gunidirgwa nibo!.  
*Where were-you yesterday? There I-was river camp near.*

Nadimbira ŋanigivira biññ? Nai baniñ, gweala ŋanaväna.  
*Father my did-you-see? Yes, I-saw-him, not he-saw-me.*

Nargiag nilēdi jüwa? Nanaŋa marmaruwa gugumirili ŋagam;  
*Why did-you-go there? I knife will-find I-said (= wanted to find);*

milēdma galidilig bulēdi, gajalabini. Guñmiriliñ? Gweala, nadlira  
*days two went, I-lost-it. Did-you-find-it? No, brother*

ŋanigira giniñ, galidiliñara girubini gudlagwa gunidirgwa  
*my saw-it, the-two-of-us were-searching-for-it yesterday camp*

ŋana:ni, gweala ganumurili.  
*we-were, not we-found-it.*

Jagun ŋana:ni gunidirgwa, bilira galidilig biribmiñirg, damörma  
*There we-were (in-the)-camp, men two came-along, river*

miliñ giriññ. Dimabila, dimadlimbara, gwimalagwanungwa, na:dla  
*they-were they-ate. Barramundi, catfish, mudfish, crabs*

damörma girigiñirg. Galidilidbira bilira madawa bidbim ŋalmolgbira  
*river they-brought-back. The-two-of-them men fish they-gave sister*

nanigira; ja:ba nanana nadbim.  
*my; she me gave.*

Mina:gwa nadlira nanana galidilina nadbini. Jagara madawa  
*Later father's father my the-two-of-us he-saw-us. He fish*  
 baragamani, bidanigira gugwaji. Galidilina madawa gwala  
*wanted-them-all, theirs they-would-eat. The-two-of-us fish not*  
 garuwab, gwijab; jumili barim girijani. Nadlira  
*we-had-cooked, yet; then we-gave-him(and) he-ate. Father's father*  
 naranara bigam: galidilibira naranara bein, madawa bidbim, naranara  
*to-us said: the-two we saw, fish they-gave, us*  
 nanugug, madawa gareji.  
*gave-us, fish we-shall-eat.*

Galidilibira madawa barim biredi gunidirgwa bidanigwa.  
*The-two-of-them the-fish we-gave they-went camp their.*

Girab gwijugwa gwijubini. Bidandbira madawa bidbigira  
*They-cooked-it fire they-roasted-it. They fish by-themselves*  
 girijani, nimibira bidbini, baragam: nanugug madawa galidiligura  
*were-eating, children saw-them, they-all-said: give-us fish a-few*  
 naramandin naranara, nadbini. Bidbim nimibira madawa;  
*we-are-hungry we, they-saw-us. They-gave-them the-children fish;*  
 girijani bidenbira.  
*they-ate (all-of-)them.*

Gwilarövinga nalnolgbira nanana damörma naredi garawa garari.  
*Afterwards sister my river we-went water we-shall-get.*

Galidilina nadimbira nanigira bein jagun bana:ni; nadbini  
*The-two-of-us father my he-saw there he-was-sitting; (when-)he-saw-us*  
 bianaba: garawa nanugug. Naranara dablada biedla; nigilban nalnolgbira  
*he-said: water give-me. We bucket none; I-told sister*  
 dablada gunidirgwa binar binigirg. Bidbilimnirg dablada,  
*bucket camp get bring-back. She-brought-it-back bucket,*  
 galidilina barim gijani garawa. Jumili naranara: naranara  
*the-two-of-us gave-him he-drank the-water. Then we-said: we-are-going*  
 ilangwa; nangwa nadlibimnirg majerngwa dimabila dirigirg,  
*now; tomorrow we-shall-come-back, yams (and) meat we-shall-bring,*  
 idana nilinam.  
*you are-sick.*



## Story II

Bilira galidilig biridärg damörma. Jumiliṅ dabdabma mirudiniṅ mörma.  
*Men two came river. Then canoe they-hid mangrove.*

Molggara mangolmilinma milidbiṅ marijilima. Jumiliṅ miridiṅ dabdabma  
*Next the-paddles they-hid (in-the-)grass. Then they-left canoe*

biridi daṅudbila. Dirim, biribmiṅ dabdabma nibo!. Molggaragwa  
*they-went (for-)kangaroo. They-got, they-returned canoe near. Next*

mangolmilinma gidibini, gweala dabdabma mirimiriliṅ. Naḍa, bilira biṅolggira  
*paddles they-sought, not canoe they-found. "Oh, men many*

dabdabma mirigani," baragam. "Gawög, ṅabira biridärg  
*canoe were-taking, they-both-said. "I-don't-know, who came-along*

dabdabma mirimiriliṅ, manin' eala." Mörma baṅiṅ birad̄bira  
*canoe they-found, we-two-were-not-(here)." Mangroves they-saw their-tracks*

gwin biriaṅ gunumid̄anduwa burudiṅ biridärg. "Ja:gwa", baragam,  
*here(?) they-came from-the-sea they-got-up they-came. "That-way", they-said,*

"birad̄bira biṅana! Jangogwig dabdabma marigani. Mard migam  
*"their-tracks see! Perhaps canoe they-were-taking. What-shall-we-do*

mugulabaṅ gunad̄irgwa? Gweala moluri:a gaṛawa gubid̄imargwa dabdab meala.  
*shall-we-reach camp? Not-we-can-cross water rough, canoe not.*

Gwinwa mug'ri burgwa miridirg." Madböröma gwin miṅ mamimiriliṅ.  
*This-way let's-go bank little-way." Log here lying they-found.*

Bilira galugugbira bigam: "Madböröma mugu'ri mumwaga. Gunumid̄induwa  
*The-man the-first said: "The-log let's-go let's-take. Upstream*

giribib marida, madböröma mumugar wai miga." Jumiliṅ gunumid̄induwa  
*let's-push-it, the-log let's-hold let's-swim." Then upstream*

mamaga mindub, wai wirgam. Bajuwa birid̄bin, dangala  
*they-took they-pushed-it, they swam. In-the-middle they-arrived, crocodile*

bidbiniṅ margamarg bilid̄ärg. Galugugbira bigam: "Gulubig, dangala  
*they-saw towards-them it-came. The-first said: "Quickly, crocodile*

bijaga nanömiṅdub." Jumiliṅ gulubig wai wirgam, jagulärg  
*will-get he-will-push-you(under)." Then quickly they-swam, to-the-other-side*

girimindiṅ bilagiṅ. Garagag gulala jumiliṅ gwijugwa  
*they-went-over they-reached-shore. They-went-on a-little-way then fore*

giṅiṅ. Galugug bimiliṅ, "jewa gunad̄girgwa jangugwig. Gawög,  
*they-saw. One said: "Over-there camp perhaps. I-don't-know*

mugu'ri mimugamiriliṅ bilira maṛdma manigima miriwer." Birid̄i gunid̄irgwa.  
*let's go we-shall-find the-men boat our they-took." They-went camp.*

Birabira, miṅid̄bira, nimibira gwijugwa nibo! biṅa:ni. Birid̄bin  
*Men, women, children fire near they-were-seeing. They-came-up*

galid̄irabira. Baragam, "Dabdabma ṅaranigima mugurmiriliṅ? Jagulargwa  
*the two. They-said, "Canoe our did-you-find? Over-there*

damörma mirijiṅ, mijini, ṅarabmiṅärg, dabdabm'eala." "Gweala  
*river we-left-it, we-went-away, we-came-back, canoe none." "Not*

ɲarwagag dabdabma gurunigima," galugug bigam. "Bilira baramaraluwa  
*us-went-off-with canoe your," one said. "Men if-we-find-the*  
 dabdabma gulubag giriŋ ge:wera gwijurwa gugurawu," molggara  
*canoe they-stole fight big we-shall-strike-them," next*  
 galugugbã bigam. "Ari garørub dabdabma, bilira gulubag giriŋ dabdabma."  
*one said. "Now, we-see the-canoe (and) them-men (who) stole canoe."*

## 6. WORD LIST - LARAGIA

-ab	<i>to cook, roast</i>
gawubam	<i>I roasted</i>
-ařdbi-	<i>fall</i>
(ɲu-wařdbi-n; ɲagoldum ɲadbiŋ)	
-adbon	<i>sweet (d-adbon, Cl.III)</i>
agarud	<i>hide and seek game</i>
agini	<i>every day</i>
-ala	<i>go outside</i>
bidbalaŋ	
-alar	<i>to miss</i>
güalar	
-'āla	<i>no, none ?</i>
gwialwa madbirma meāla	<i>desert country</i>
gweala	<i>none, no (Cl.V)</i>
albiregbin	<i>house (Basedow)<sup>1</sup></i>
-am	<i>look for</i>
ɲanala dinj-am	
-ambara	<i>to tell</i>
ɲanj-ambara	
ɲan- ambara-ŋ	
-anabilin ([b]-anabilin)}	
-animulug ([b]-animulug)}	<i>to whine</i>
-air	<i>to catch, take</i>
bagana:r	<i>embrace</i>
dubbinja:r	<i>hold him!</i>
murg guga:ra	<i>I grab it</i>
gulg ɲaga:r	<i>I'll lift it cf. gulgan on top</i>
-ärd	<i>lie down</i>
ɲagärd	
arëdbuŋmuŋ	<i>a game in which children hold with hands and legs round anothers waist and fall back</i>
-au	<i>strike, hurt ?</i>
nawaum?	<i>did I hurt you?</i>
gwiarwa mugurau	<i>beat (time on) your thighs</i>
-awan-	<i>pick up</i>
madawa galagawa gunj-awa(-)n	<i>pick up the meat</i>
badjädiba	<i>yellow paint (Cl.I?)</i>
bädji	<i>good</i>
bädjimüla	<i>very good</i>

<sup>1</sup>BASEDOW, Herbert, 1907, Anthropological notes on the western coastal tribes of the Northern Territory of South Australia. In *Transactions of the Royal Society of South Australia* 31:1-62.

bag ɲadjiŋ	<i>I feel about e.g. madawa bag ɲadjiŋ</i>
balal	<i>between, middle one</i>
balalwilu(?w)a winjulina	<i>throw this middle one away</i>
balba	<i>(his) footprint (Cl.I)</i>
biralbira	<i>stone (Cl.III)</i>
bälbäi a	<i>firestick (Cl.V)</i>
ba ba iwa	<i>spirit, ghost, soul, portrait</i>
-bali-	<i>boy</i>
bälja	<i>altogether, entirely</i>
balinug	<i>he has gone for good</i>
banbalmug bigag	<i>rain (Cl.IV)</i>
ba: mba	<i>heavy rain is falling</i>
guligraima ba: mba bibiŋ	<i>catfish (Cl.I)</i>
banauerua	<i>female baby (Cl.I)</i>
banlewa	<i>valley (Cl.V)</i>
banɲadjuwa	<i>one who has lost his father (Cl.I)</i>
baonari	<i>cf. mundaliŋ</i>
barbariwa	<i>clay (Cl.V)</i>
bäriär	<i>? wet in, gwiälwa bäriär marsh</i>
barmalänga	<i>shoulder blade (Cl.V)</i>
-barog	<i>many</i>
gwarabarag	<i>cf. -nalga</i>
bauruli ɲagug	<i>I lead him</i>
bawidjuŋ ɲalədji	<i>I pass by</i>
bəlbəla	<i>grasshopper (Cl.III)</i>
?benba	<i>widow(er) (Cl.I)</i>
binbiria	<i>magpie lark (Cl.IV)</i>
bidbidina	<i>I walk about</i>
bidibidi ɲagau	<i>I roll it</i>
?bididjbididj baunagiŋ	<i>I look back</i>
?bidid' ɲagam	<i>lame</i>
biḍirbiḍir	<i>he (Cl.I)</i>
biənaba	<i>pandanus (Cl.IV)</i>
bijamarma	<i>wommerā (Cl.?I) (Basedow bilulwa)</i>
biladeva	<i>winter rain (Cl.I)</i>
bilibidjaŋ	<i>black cockatoo (Cl.I)</i>
bililoara	<i>dog (Cl.I)</i>
bilinguw(?iva)a	<i>his spittle (Cl.?IV)</i>
bilirima	<i>spit!</i>
meiminma manjida	<i>I must spit</i>
meraminma	<i>man</i>
bilöva	<i>turtle (Cl.I)</i>
binunäla	<i>women</i>
binjidbira	<i>dingo (Cl.I)</i>
binjununurwa	<i>rat (Cl.II)</i>
bira	<i>a mystical nocturnal monster (Basedow)</i>
Birawulida	<i>butterfly</i>
biribba	<i>(their) armpit(s)</i>
biridjbudjbira	<i>hair (Cl.II), biriliva hair (Cl.I)</i>
birilira	<i>hairbelt (Cl.IV) (Basedow berelgma)</i>
cf. bure:lina	<i>curly</i>
birmulibidjiŋ	<i>a thorn</i>
biijid dirubilgi	<i>a thorn sticks into me</i>
birubiruwa	
birubiruwa marganiŋ	

bombila!	'term of address to one who has lost a parent'
bo:njagin	<i>to growl</i>
alendjiag	
bonamora	<i>goose</i> (Cl.I?)
bonórwa	<i>cerumen</i> (Cl.V?)
boŋboŋ	<i>smoking</i>
böbö-	<i>father</i>
bölier	<i>initiated boy</i> (Cl.I)
börimba	<i>elbow</i> (Cl.I)
bra:dliwa	<i>fat</i> (Cl.III)
budlowa	<i>flesh</i> (Cl.I)
ŋaiuwulŋa	
buligiva	<i>cattle of any sort; English 'bullock'</i>
bulŋbulŋ	<i>a bog, seething</i>
nanduwa mavõnma bulŋbulŋ biledji	<i>the horse got bogged</i>
ga:ruwa bulŋbulŋ gugiguguwa	<i>boiling water</i>
burgwa	<i>shore</i> (Cl.V)
damulma burgwa	<i>river bank</i>
huri:lana	<i>hairbelt</i> (Cl.IV) cf. <i>birilira hairs</i>
-da / -didjim	<i>copulate</i>
bengi-da	<i>he copulates</i>
gwingi-da	<i>this one copulates</i>
mogo-djidji	<i>we two copulate</i>
-d(a)biŋi	<i>make strong</i>
negodbiŋi!	
dadbungwa	<i>honey</i> (Cl.V)
da:dla	<i>nail of finger or toe</i> (Cl.III)
?dadlura	<i>body</i> (Cl.III)
ŋadluŋa	<i>my body</i>
dadlva	<i>frilled lizard</i> (Cl.I)
dadugida	<i>ashes</i> (Cl.III)
-da'dji	<i>yellow</i>
bi-da'dji-ba	
daladjungwa	<i>ironwood</i> (Cl.V)
dalira	<i>the sun, light</i> (Cl.II)
damila dalira dadlin	<i>sunrise</i>
dalira jilen njudelada	<i>twilight</i>
dälingang	<i>hot weather</i>
dälö:rba	<i>quail</i> (Cl.I)
damadangala	<i>dugong</i> (Cl.III)
damadba	<i>small throwing stick</i> (Basedow)
damadjigdamadjig	<i>different</i>
?damadjidamadjigwa	<i>red paint</i> (Cl.V) cf. <i>damadjila blood</i>
damadjila	<i>blood</i> (Cl.III)
dämalala	<i>snake sp.</i> (Cl.III)
damara	<i>eye</i> (Cl.I)
dambarigwa	<i>tooth</i> (Cl.III)
damidjilbaraba	<i>iguana</i> (Cl.I)
damila	<i>stone</i> (Cl.III)
daminadji	<i>a game in which children pull one another over</i>

damirinda	<i>small black ant</i> (Cl.III)
damörenela	<i>bamboo nose stick</i> (Cl.III) (Basedow mamalölma)
damudjila	<i>smoke</i> (Cl.III)
damulgura	<i>heart</i> (Cl.III)
da:mul(ör)ma	<i>river</i> (IV)
damurj	<i>late</i>
damungwa	<i>night</i> (Cl.V)
damungwa munudjin	<i>midnight</i>
danbidjulu	<i>a belt of stringy bark</i> (Cl.III) (Basedow)
dänböidila	<i>cypress pine</i> (Cl.III)
danimadla	<i>mud</i> (Cl.III)
danimijinda	<i>mussel, shellfish</i> (Cl.III)
dangal	<i>hard, firm, strong, difficult</i>
dangalaba	<i>salt water crocodile</i> (Cl.I)
dangalada	<i>bloodwood tree</i>
dangöva	<i>emu</i> (Cl.I)
danudbila	<i>kangaroo</i> (Cl.III)
dawowira	<i>sinew, vein</i> (Cl.III)
däraba	<i>old man</i> (Cl.I)
darbda	<i>tree-grave</i> (Cl.III)
da:riwa	<i>baby boy</i> (Cl.I)
dauanda	<i>leg, upper</i> (Cl.III)
dauinga	<i>stone spearhead</i> (Cl.?V)
dawara	<i>spider</i> (Cl.?IV)
dawi	<i>numb</i>
gwarwa dawi jinam	<i>his hand has gone numb</i>
dawingwa	<i>kangaroo spear</i> (Cl.V) (Basedow)
dele'ila	<i>grass seed</i> (Cl.III)
-de-lo-	<i>to wait</i>
-didmi	<i>to ride</i>
dinamilja	<i>turkey</i> (Cl.III)
dinda	<i>vulva</i> (Cl.III)
dingana	<i>maggot</i> (Cl.III)
dinidani!	<i>you fool!</i>
dindaidjig!	
diamüdaidjig!	
dinidjängama	<i>dew</i> (Cl.IV)
dirid' bigila	<i>to pinch</i>
dirula	<i>rainbow</i> (Cl.?III)
-dja-	<i>put</i>
gudja	<i>put it on</i>
gwialwa gadjan jüwa	<i>I put it on the ground</i>
djad bigab	<i>I open (it)</i>
-djälilmärg	<i>to like, relish</i>
dje:r	<i>tabu</i>
gwialwa dje:r manjida, gumilagura	<i>get up, to lick</i>
-dji	<i>the dog licked (meat)</i>
bilinggiva gi-dji-m	<i>I lick the meat</i>
madawa gugu-dji-	<i>willy wagtail</i> (Cl.I)
djigirid'-djigiridjba	<i>I mix</i>
djilil (ga-)gam	
gwolmagana djilil gurugam!	
-djiri	<i>to itch</i>
nudjirin	<i>I am itchy</i>

djiribib banibiŋ	<i>slippery</i>
djøŋ biguŋ	<i>to suck out as from a wound</i>
djuarimba	<i>rat (Cl.I)</i>
djub bigaŋ	<i>spit out</i>
dlänbargwa	<i>tooth, edge of knife (Cl.V)</i>
dlanbargiŋa ŋalinjam	<i>my tooth aches</i>
dɔ:lɔuva	<i>jabiru (Cl.I)</i>
dɔ:lure	<i>salt water turtle (Basedow)</i>
doari:la	<i>wild duck (Cl.III)</i>
-doŋ	<i>broken</i>
-wodo-	<i>break</i>
bawodoŋ in gwiarmba baodoŋ	<i>the handle of it is broken</i>
dö:niva	<i>string (Cl.III)</i>
dub ba:r	<i>I hold him</i>
dub bin ja:r!	<i>Hold him!</i>
dubinyer	
dubòra	<i>penis (Cl.III)</i>
dubòra direnjininŋ	<i>they 'made him man'</i>
dudlwa	<i>man's bag (Cl.V)</i>
dudud ŋa'igam	<i>I tie up</i>
-dug	<i>plenty</i>
godug	<i>? this is plenty</i>
baradug	<i>? they are many</i>
dugwa	<i>distasteful</i>
dulduba	<i>broŋga (Cl.I)</i>
duldul manjila	<i>knock</i>
dumabudla	<i>barramundi (Cl.III)</i>
dumuija	<i>clothes (Cl.?III)</i>
dunüra	<i>cotton tree (Cl.?III)</i>
durgula	<i>small spear (Cl.III)</i>
du:rjäwa	<i>moon (Cl.III)</i>
durŋgira	<i>deaf</i>
durubala	<i>lizard (Cl.III)</i>
durud ŋagam	<i>I stick it in or through</i>
du:re:rwigiŋ	<i>thunder</i>
dülünda	<i>seed (Cl.III)</i>
eribogwa	<i>a light, torch (Cl.V)</i>
eribogwa ŋanjug	
-ga-	<i>go</i>
ŋagag	<i>I go</i>
bi-ga-m	<i>he said, say, do</i>
-gab	
gab aga	<i>I keep silent</i>
gab nigam!	<i>be quiet!</i>
djad maga-gab	<i>I'll open it</i>
-gaba	<i>bite</i>
bigaba	
gagagba	<i>fish hawk (Cl.I)</i>
gagiŋga	<i>goose (Cl.I, ?V)</i>
gai bi-ga-m	<i>he calls</i>

galaga	<i>another</i>
gudlagwa galagama	<i>forehead band (Cl.V)</i>
galamboua	<i>to draw</i>
-galidjan	<i>(it) flies</i>
galuma(gu)gag	<i>I pour out</i>
gawuluṅ	
guledji, gareuwa	
galmarwa	<i>fibre bundle to get honey from tree (Cl.V)</i>
	<i>(Basedow)</i>
galugag	<i>one</i>
galuwoba	<i>one (f)</i>
gama	<i>sand (Cl.IV)</i>
-ganmadji	<i>to work</i>
gara	<i>also</i>
idäna gara	
gargarwa	<i>chicken hawk (Cl.V)</i>
garimunbariwa	<i>black duck (Cl.V)</i>
ga:ruwa	<i>water (Cl.V)</i>
ga'ugwa	<i>cave, hole where bones are put (Cl.V)</i>
gaulma	<i>pubic hair (Cl.IV)</i>
-gilgir	<i>to untie</i>
gilingilimbira	<i>flying fox (Cl.II)</i>
girgir ṅagam	<i>I scratched (transitive)</i>
-girib	<i>to come back</i>
ṅagiribmarg	
-gir(i)g	<i>to come; 'suffix of motion towards speaker'</i>
godlijäni	<i>a crevice cf. madlijäni a log</i>
gonjmo	<i>? carry</i>
gönjmaṅṅagag	<i>I carry underarm</i>
gwiarwa gönjmaṅ ṅagag	<i>I carry in my hand</i>
ma:lumag	<i>on my head</i>
goa:goa:va	<i>a crow (Cl.I)</i>
-gold	<i>run</i>
no-gold-ergum	<i>run to me for me</i>
mo-gold-aridji	<i>two run</i>
no-gold-ogol	<i>run there and back</i>
gö:luluma	<i>white paint (Cl.IV)</i>
gubungwa	<i>a sore (Cl.V)</i>
gudaṅ	<i>mother; FBW, FFM, MSi, BSW, SW (Cl.I)</i>
gudjungwa	<i>cape (Cl.V)</i>
-gud'mila	<i>to come down</i>
-gud'milibmärg	<i>to come down again</i>
gudgida	<i>opossum (Cl.III)</i>
gudlara gadama	<i>early dawn</i>
gudlärgwa	<i>yesterday</i>
gudlugwa	<i>dove (Cl.V)</i>
gugudumarg	<i>strong</i>
gujuk(u)wa	<i>fire torch (Cl.V)</i>
gujulwa	<i>wax from (ironwood?) tree (Cl.V)</i>
gujuruma	<i>lily root (Cl.IV)</i>
gujurwa	<i>leaf (Cl.V)</i>
gujuwalwa	<i>edible gum (Cl.V)</i>
gulbalva	<i>frog (Cl.I)</i>
guldumunba	<i>sorcerer (Cl.I)</i>

gulg	up
gulgan	up, on top
gulgan bigag	
gulg ŋaga;r	<i>I lift it see -ga:r</i>
gulg nari!	<i>stand up!</i>
(bo) -gulgdji	<i>to burn, gleam</i>
gulibig	<i>quick(ly)</i>
?da:mulma gulebiŋgwa	<i>dry creek</i>
guligi	<i>big, large</i>
gulinjawa	<i>afternoon (Cl.III)</i>
-guludj	<i>to conceal, hide</i>
gulüda	<i>sp. round yam (Cl.III)</i>
gulugura	<i>perspiration (Cl.I)</i>
gulu	<i>slow; new</i>
gululug	<i>slow(ly)</i>
-guluma	<i>to smile</i>
gulwa	<i>a song, corroboree (Cl.V)</i>
gulwa garama!	<i>we sing a song</i>
-gum	<i>to say</i>
gogogumbira	<i>they are all talking</i>
gumidlangwa	<i>the back (Cl.V)</i>
-gumilga	<i>to watch</i>
gumjul	<i>female (Cl.I)</i>
gumöwili	<i>old woman (Cl.I) cf. näriwa</i>
gumulabila	<i>scorpion (Cl.III)</i>
gumulälwa	<i>blowfly (Cl.I, ?V)</i>
gumulariŋgwa	<i>pelican (Cl.V)</i>
gumule:lva	<i>a fly (Cl.I)</i>
gumumunda	<i>fresh water crocodile (Cl.III)</i>
gumuŋgwa	<i>small light coloured lizard (Cl.V)</i>
-guna	<i>to hunt</i>
milu:lula gugunanŋ	<i>I hunted a 'roo</i>
gunadla	<i>soft</i>
gunba	<i>sing (Cl.I)</i>
gunbira	<i>(Cl.II pl.)</i>
gunda	<i>(Cl.III)</i>
gunimidjinda	<i>upstream</i>
gunimigunŋ	
-gunudjur	<i>to jump</i>
gunumidjinda	<i>the sea (Cl.III, ?V)</i>
gunma	<i>(Cl.IV)</i>
gunumo:lgari	<i>olden time</i>
gununubgwa ma:luma	<i>grey headed</i>
gunuwa	<i>this way</i>
jagowa	<i>that way</i>
gunŋurŋgwa	<i>jaw, chin (Cl.V)</i>
gunŋgwa	<i>(Cl.V)</i>
gu:ruwa	<i>cloud (Cl.V)</i>
gurinjöva	<i>owl (Cl.I)</i>
gwadba	<i>round waddy (Cl.III)</i>
gwanda	
gwadbarwa	<i>Milky Way (Cl.V)</i>
gwaiälwa	<i>paper bark tree (Cl.V)</i>
gwa:lawa	<i>caterpillar (Cl.V)</i>
gwalmaruwa	<i>wattle tree (Cl.V)</i>



gwanda	<i>fighting stick</i> (Cl.III) (Basedow gwadba)
gwangwa	<i>music stick</i> (Cl.V)
gwariagwa	<i>for a long time</i>
gwarila	<i>sp. spotted snake</i> (Cl.III, ?V)
gwa:rabila	<i>bandicoot</i> (Cl.III)
gwiabulgwa	<i>mouth</i> (Cl.V)
gwiaburuma	<i>moustache</i> (Cl.IV)
gwiamálawa	<i>tongue</i> (Cl.III)
gwiamungalwa	<i>female breast</i> (Cl.V)
gwiamuruga	<i>hill</i> (Cl.V)
gwiadbarawa	<i>track, path</i> (Cl.V)
gwialambadjuwa	<i>downstream</i>
gwialigwa	<i>river</i> (Cl.V)
gwialwa	<i>earth, ground</i> (Cl.V)
gwiamalgwa	<i>hut, bough, shed</i> (Basedow alberegbin)
gwiamgwa	<i>egg</i> (Cl.V)
bir-iam-bira	<i>their eggs?</i>
gwiarwa	<i>arm, butt of spear</i>
gwiarwa	<i>hand, foot</i>
gwiarmarngwa	<i>feather</i> (Cl.V)
gwiarwamba	<i>wing</i> (Cl.V)
gwiarngöum	<i>beckon</i>
gwiaragwa	<i>bamboo</i>
gwiigwa	<i>smoke</i>
damudjila	
gwinguludlula	<i>black snake</i> (Cl.III)
gwijibib	<i>sp. round yam</i>
gwiju:wungwa	<i>testicles</i> (Cl.V)
gwiminjäřwa	<i>charcoal</i> (Cl.V)
gwin ?gun	<i>this way</i>
gwin goledji	
gwingwa	<i>nose</i> (Cl.V)
gwilimba	<i>variety edible palm</i>
gwirinda	<i>a reed (used in spear but no point)</i> (Cl.III)
gwolcnamrama	<i>banyan tree</i> (Cl.IV)
gwonareawarj	<i>wet season</i>
gwonidjängwa	<i>camp</i> (Cl.V)
idäna	<i>you</i> (singular)
-idjimi	<i>to fear</i>
quidjälminj	<i>I fear him</i>
beudjälminj	<i>he is frightened</i>
-idea	<i>to lift</i>
gagidla	
bidbidla	
-ijuvi-	<i>go out, of fire</i>
gugugwa gugau gwijuvinj	<i>fire I beat it-went-out</i>
ilan }	
ilangwa }	<i>today</i>
-ilmi (i+mi)	<i>to waken</i>
negilmi	<i>wake him up!</i>
-imalan	<i>to slit</i>
-imil-	<i>check</i>
gaimilna	

imurbura	<i>mother's brother's sister</i>
-ira-	<i>tell lies</i>
gwinjiram	<i>liar</i>
-iredjiwa	<i>carry on the back</i>
irimogwa	<i>behind, last</i>
-ja ~ -ji	<i>to eat or drink</i>
ga:ruwa mogwe	<i>this man wants a drink of water</i>
jāba	<i>he, that person (far)</i>
	jāba (Cl.I)
	jābira (Cl.II)
	jāda (Cl.III)
	jābina (Cl.IV)
	jagwa (Cl.V)
jāg(o)wa	<i>that direction</i>
jabárag	<i>tea</i>
jag	<i>that way</i>
jagbira; jagwa; jän	<i>there</i>
jagujagu guni	<i>a cleared space of ground (Cl.V)</i>
-järi-	<i>to stink (gujäriŋ)</i>
jei ŋa-lao	<i>I shout</i>
jiŋ ŋagam	<i>I make new, mend</i>
-ju	<i>be angry (with)</i>
-jubir-	<i>knee (Cl.?I)</i>
ŋajubirŋa bidlig	<i>I kneel</i>
-jungadla	<i>fix a wommera</i>
biladiva gu-jungadla-ŋ	
-la	<i>hit, pull up</i>
ga:laŋ	<i>I pulled it up</i>
-lagoroaŋ	<i>be strong, have strength cf. dangal</i>
lauurba	<i>lightning (Cl.?I)</i>
lauuruba	<i>kookaburra (Cl.I)</i>
-lebi	<i>to be dry (gulebi)</i>
-lerε(nga)	<i>to lose/forget</i>
ŋalerεg	<i>I forget, I lose</i>
-lidja	<i>to hear</i>
ŋa-lidjili	<i>I listen to him</i>
nagalidja!	<i>show me!</i>
lidunda	<i>pygmy grass (Cl.III)</i>
-ligu	<i>to fool, tell lies to</i>
-limbgwa	<i>to urinate</i>
ŋaga-limbgwa	<i>'Future'</i>
-linjam	<i>sick, ill</i>
-linji-	<i>to die</i>
bilinjiŋ	<i>he is dead</i>
bilinjam	<i>he is sick</i>
-luema	<i>spittle (Cl.IV)</i>
bi-luema	
lɔijera	<i>pubic organ (Cl.?I)</i>
-l(o)ma	<i>throw away</i>
galmaŋ	
binjulma	

-loma(g)i	<i>to play</i>
-lö-	<i>to cry</i>
gwila:geru bilöm	<i>he cried bitterly</i>
-lubag-	<i>steal</i>
gulubagaiŋ	
-ludjina-	<i>to like</i>
galudjman	<i>I like him</i>
-ludju-	<i>send</i>
gogonidjur(g)	<i>I send</i>
gunjuludju	<i>send this one</i>
ludlula	<i>bream</i>
'luerba	<i>pointed reed used as a spear</i>
luglug wagag	<i>I collect, gather up</i>
guriŋlugläri	<i>you assemble</i>
-luma	<i>to laugh</i>
-lweb	<i>lie on back</i>
-ma?	<i>carry</i>
-inma	<i>let us two carry it, see also -gonjma</i>
madbarma	<i>forehead (Cl.IV)</i>
madburuma	<i>tree (Cl.IV)</i>
maduburuma	<i>eyelash, brow (Cl.IV)</i>
-mädji	<i>to get married (bimädjiŋ)</i>
madawa	<i>meat food, fish (Cl.V)</i>
maḍaŋgwa	<i>stone axe (Cl.V)</i>
madjira	<i>bird (Cl.I)</i>
maga-	<i>leg (Cl.V)</i>
magaŋa	<i>leg</i>
magala	<i>leg of 'roo</i>
maima	<i>vegetable food (Cl.IV)</i>
malagirma	<i>spear (Cl.IV)</i>
malarinda	<i>a shell cup (Cl.III) (Basedow maraba)</i>
malg	
mamalēma malg maledji	<i>star went = meteor</i>
malilma	<i>centipede (Cl.IV)</i>
malḡarema	<i>white gum tree (Cl.IV)</i>
ma:luma	<i>head (Cl.IV)</i>
-mal-	<i>to make</i>
gulwa ge-mal-am	<i>sang a song (Cl.?I)</i>
mamaidma	<i>tribal cicatrices (Cl.IV)</i>
mamalölma	<i>wooden nose rod (Cl.IV) (Basedow damörenela)</i>
mamaŋeina	<i>liver (Cl.IV)</i>
mamarol(da)	<i>big dog (Cl.III)</i>
mamer madbera	<i>I am ashamed</i>
mamilba	<i>animal (Cl.I)</i>
mamilima	<i>musical pipe (Cl.IV)</i>
mamindjüma	<i>flat land, billabong (Cl.IV)</i>
mamōija	<i>plenty</i>
mamulubma	<i>tail (Cl.IV)</i>
mamuli:ma	<i>brain (Cl.IV)</i>
mamulüma	<i>a boil (Cl.IV)</i>
mamululma	<i>jealous</i>
bienaba mamululma	
ḡanḡa mamululma	

mamurulma	<i>lice</i> (Cl.IV)
-mana-	<i>to vomit</i>
gu-mana-n	
mana[gwa]	<i>by and by</i>
manalama	<i>star</i> (Cl.IV)
manangurgwa	<i>morning</i> (Cl.V)
manawul	<i>greedy</i>
manawul lilib nimila	
-manbidji	<i>bathe</i>
nagamanbidji	<i>? imperfect</i>
naramanbidjimen	
mandenimba	<i>clumsy</i>
mandilima	<i>a cough</i> (Cl.IV)
manman giwara	<i>I get a cold</i>
-mandub	<i>to wash</i>
gugumandub	<i>1st person singular</i>
gumandub	<i>3rd person singular</i>
mangolma	<i>throat</i> (Cl.IV)
mangulma yaliñiñ	<i>I fainted</i>
mangulmilima	<i>canoe</i> (Cl.IV)
manidjima	<i>entrails, guts</i> (Cl.IV)
manijugu	<i>pregnant</i>
mā:nma	<i>lower leg, language</i> (Cl.IV)
manɔi	<i>(go) slowly</i>
-mañdig	<i>hungry</i>
nāmañdig	
mānmānma	<i>wind</i> (Cl.IV)
mar[biniñ]	<i>it pierces him</i> see birubiruwa
maraba	<i>handle carved in shell cup called malarinda</i> (Cl.?I)
mareingwa	<i>water snake</i> (Cl.?V)
-mare-	<i>to scold</i>
naramareñdji	<i>we scold each other</i>
mari:dlma	<i>grass</i> (Cl.IV)
marimari	<i>knife</i> (Cl.?I)
mardma	<i>canoe</i> (Cl.IV)
marulma	<i>rib</i> (Cl.IV)
mauerma	<i>body hair</i> (Cl.IV)
birilira, gwiabalma, gaulma	
medlemō	<i>corroboree hat</i> (Basedow)
meerogwa	<i>long yam</i> (Cl.V)
-medla	<i>to rock to and fro (as baby)</i>
gogo-medla	
medemima	<i>tail feathers of black cockatoo</i>
mejañ ñagila	<i>I point</i>
-melidji	<i>to fight</i>
bara-melidji-n	
melva	<i>pregnant</i>
menaulidjma	<i>a spear barbed on both sides</i> (Cl.IV)
mengilma	<i>hip</i> (Cl.IV)
mialdama	<i>door</i> (Cl.IV)
-midib	<i>life, live, alive, green</i>
-midli	<i>arrange in pairs</i>
gwi-midling	

-midlu-	<i>carry pick-a-back</i> (ɲana-midlup)
midmid	<i>daughter's sister, elder sister's son's son</i>
ɲalidmid	<i>female</i>
mijuwura	<i>root</i> (Cl.?IV)
mila(bira)	<i>woman, female</i> (Cl.II)
milabira di:liba	
milabira baljāla	<i>bachelor</i>
mili:lma	<i>a bee</i> (Cl.IV)
milu:lula	<i>kangaroo</i> (Cl.III)
minamidla	<i>porcupine</i> (Cl.III)
minangurgwa	<i>early</i>
minbana	<i>female</i> (Cl.I)
-mindil-	<i>shoulder</i>
ɲaimindil	
daramindilira	
mine:ga	<i>female child</i> (Cl.I)
min	<i>small ?</i>
-mini-	<i>to cut</i>
dubir/la diriminij	<i>he cut the foreskin</i>
-mingera	<i>to carry</i>
miragma	<i>reed armllet</i> (Cl.IV) (Basedow)
-miriba-	<i>to tremble</i>
ɲan-miriba-m	<i>I trembled</i>
-mirab	<i>put (one thing) inside (another)</i>
mólgorwa	<i>before</i>
mólgorwa mila	<i>one preceding</i>
moburgma	<i>ankle</i> (Cl.IV)
molɲorwa	<i>the bush</i> (Cl.V)
mowijägwa	<i>spine</i> (Cl.V)
möl(ɲa)nawe	<i>(I am) angry</i>
mö:nma	<i>nest</i> (Cl.IV)
mör ɲadjij	<i>I lean?</i>
madbürma mör midjij	<i>tree leans</i>
muburmo	<i>wrist</i> (Cl.IV)
mudloma	<i>belly</i> (Cl.IV)
mudmir	<i>quivering of limbs in corroboree</i>
-mudu-	<i>male chest</i>
mud-	<i>heavy</i>
mudmo	
mudgwa	
mujagwa	<i>bone</i> (Cl.V)
-mal-	<i>sing</i>
-müla	<i>self</i>
ɲamüle, bimüle	<i>emphatic</i>
bädji-müla	<i>very good</i>
mulgundjuma	<i>shark</i> (Cl.IV)
mulidjul	<i>small</i>
-mulinji	<i>to swell up</i> (bimulinjij) cf. -linji
mulunju	<i>young girl, married man</i> (Cl.I)
muma(r)	<i>excrement</i>
munb niva	<i>woman who has a living child</i> (Cl.I)
mundali	<i>one whose mother is dead see baonari and bombila</i> (Cl.I)
-mundjula	<i>dirty</i>
-munji-	<i>to jump</i>

munugurama	<i>stringy bark tree</i> (Cl.IV)
murugwa:nagwa	<i>red</i>
nadla	<i>elder brother, father's father,</i> <i>FFB, FBS, MSiS</i> (Cl.I)
-nadijŋ	<i>to climb</i>
(bi) nidjiŋ	<i>to shine</i>
durjära bidnidjiŋ	
ŋaganadjiŋ	<i>I climb</i>
na:diŋ	<i>father, father's brother, MSiH</i> (Cl.I)
nag(djiŋ)	<i>outside</i>
naganjinaganjiva	<i>eaglehawk</i> (Cl.I)
naga(r)d ŋagija	<i>I lie down</i>
nagunji	<i>SiS, SiHF, BDH</i> ŋalgunji = 'feminine'
nanduva	<i>horse</i> (Cl.I)
näriwa	<i>belonging to old women ?</i> (Cl.I)
gumöwili	
naro	<i>ear</i> (banaro etc.)
nawa	<i>husband</i> (Cl.I)
-nelwa-	<i>to answer</i>
-nianga-	<i>left</i>
ŋa-nianga-ŋa	
nimarg	<i>son, BS, SSS, (MS)</i> (Cl.I)
nimbira	<i>children</i> (Cl.II)
nimglo:lo	
nimeruma	<i>heavy spear for emus</i> (Cl.IV) (Basedow)
nimglo:lo (pl. nimbira)	<i>male child</i>
nimiringwa	<i>bone</i> (Cl.V)
-nirig	<i>empty</i>
-nolga	<i>many, much, ? certain, some</i>
nowag	<i>younger brother, FFYB, FYBS, MYSiS, BSS, SS</i>
-nörali	(Cl.I)
-nu(-g)	<i>finished</i>
ba(i)nug	
-nubulu-	<i>short</i> (bunubulug) (bunubulira)
yonobolira	
-nudbe	<i>full, sated</i>
-nuldwa	<i>fresh</i>
ga:ruwa gunuldwa	
-numuguliu-	<i>right</i>
ŋa-numuguliu-ŋa	
-numungiju-	<i>black</i> (adjective)
-nureja	<i>wet</i> (gunureja)
-ni-	<i>to sit</i>
ŋa-ginji	<i>I stop, cease</i>
-njiga	<i>take away</i>
-njigirg	<i>bring</i>
-njimörira	<i>all</i>
da-njimörira, bi-njimörina	
njul ŋaledji	<i>I dive</i>

ɲabidla	<i>who</i>
ɲa:dʔ	<i>whither?</i>
ɲa:guri	<i>water soak</i>
ɲai	<i>yes</i>
ɲai, ɲandawa	<i>yes, I think so</i>
ɲalab	<i>mother's mother, WM, WMSi</i>
ɲaladig	<i>wife, WSi, ?FFF, SSW, CBW, YBW, BSSW (Cl.I)</i>
ɲaladju	<i>daughter's daughter, SiDD, (WS)</i>
ɲalag	<i>younger sister, WSp (Cl.I)</i>
ɲalei	<i>daughter, SiS, (WS) of ɲalmarg MS, ɲei</i>
ɲalgunji	<i>sister's daughter, DH (Cl.I) see nuguni</i>
ɲalidmid midmid	<i>daughter's daughter (MS), SiDD</i>
ɲalin	<i>husband's mother, HMSi, HMBW (WS)</i>
ɲalmarg	<i>daugher, BD, FFFSi</i>
ɲalo	<i>husband's mother's mother (WS)</i>
ɲa:n	<i>sister's husband, (MS), H(WS)</i>
ɲanalaʔ	<i>what?</i>
ɲa:nana	<i>I</i>
ɲanmalg	<i>elder sister (Cl.I)</i>
ɲarguniginiʔ	<i>when?</i>
ɲargwigamʔ	
ɲargwaʔ	<i>where?</i>
ɲarɲar	<i>white</i>
ɲarɲarwʔva	<i>white cockatoo (Cl.I)</i>
ɲei	<i>son's mother (WS) SiS, SSS, HF, HFB</i>
ɲeimarg	<i>sister's sister, SiSS (WS) cf. nimarg</i>
ɲirɲir ɲagam	<i>I am hot</i>
-ɲudbala	<i>to skin</i>
ɲunja	<i>mother's elder brother, WF, WFB</i>
ɲugunji	
ɲaladig	
-oa:ra	<i>bad</i>
boa:ra	
goa:ra	
-olmedji	<i>sleepy</i>
ɲolmedji ɲamila	
ɲagol medjin	<i>I now sleep</i>
ɲaolmedjimug	<i>I sleep towards</i>
-or	<i>insert</i>
bidbonur	<i>they put into his mouth</i>
-ragili	<i>to pinch one</i>
ragwira	<i>to be hot</i>
ɲa-ne-bei-ragwira	
-rendji	<i>pick up</i>
morendjin	
-rulen-	<i>clever</i>
? di-rulen-i-ɲga	
-rungi	<i>to be sharp</i>
-raboliva	<i>spirit, soul, ghost (Cl.I)</i>
biraboliva, daraboliva	<i>etc.</i>

-u-	<i>to give</i>
ŋanj-u-g	<i>give me</i>
bi-nj-u-m	<i>you gave to him</i>
-udjara	<i>to scratch</i>
ŋudjaram (past)	
-udla	<i>to uncover</i>
gunj-udla	
winjudla	<i>pull it</i>
-ulia-	<i>to shut</i>
ma'uliaŋ meitramili	
-ulbi-	<i>to rub</i>
gunjulbrin	<i>you rubbed it</i>
umbalagama	<i>flat ironwood waddy</i>
-ungulub	<i>blunt</i>
-uram	<i>touch</i>
ŋanjuram	<i>touch me</i>
-urub	<i>find</i>
gunjurub!	<i>find it!</i>
vedbi	<i>to bow</i>
ma:luma muvebiŋ	
ve:miłma	<i>woman's bag</i>
wai ŋa:ga	<i>I swim, go?</i>
wawa bigiŋ	<i>to bark, of dog</i>
-wai	<i>to warm</i>
gujukwa ŋanagawai	<i>se -wei fire grips me = fire warms me</i>
-wal	<i>make</i>
biri:lma ma-gawal	<i>I will spin a hairnet</i>
gunidjirg gugawal	<i>I will make a camp</i>
-wei	<i>grasp?</i>
bilingiva denbärgiva giwei	<i>the dog holds it (in) his teeth</i>
ŋanduwei	<i>he hit me</i>
wiar ŋagidjiŋ	<i>I wave it</i>
wil ŋagum	<i>I whistle</i>
-wilamgilam	
-wiligma	<i>to love</i>
bawiligman	
wilriłma	<i>lory, parrot sp. (Cl.IV)</i>
-winma-	<i>to smell (transitive)</i>
gawinmaŋ	
-wiribö	<i>to seek, look for</i>
gawiriböm	
wiwi magiŋ	<i>to blow</i>
mänmäŋma wiwi magiŋ	
-wulidjina	<i>to upset (gawulidjmaŋ)</i>
gawulmaŋ guledji	<i>I pour out, ? I poured it went</i>
-wurobwei	<i>cold</i>
ŋadburdobwei	
giwurdobwei	



# STOP ALTERNATIONS IN NDJÉBBANA (KUNIBIDJI)

G.R. McKay

## 1. BACKGROUND

The present paper<sup>1</sup> aims to suggest some directions in ongoing discussions of wider relevance in Arnhem Land languages, rather than to present a definitive analysis of Ndjébbana (Kunibidji) phonology. A little background on these ongoing discussions is necessary to begin with.

Many languages of Arnhem Land have contrasts in medial stops in which all three of the oppositions fortis-lenis, long-short, voiceless-voiced play a part. Early work in north-east Arnhem Land took the last of these as primary (for example the work of B. Lowe in establishing the Gupapuyngu orthography), while others have taken the long-short opposition as basic, for example Glasgow and Glasgow (1967) in Burarra, Schebeck (1972) and Wood (1977) in north-east Arnhem Land, McKay (1975, 1979) in Rembarrnga and Ndjébbana, and Eather (1979) in Nakkara, though Glasgows (K. Glasgow 1981) and Wood (1978) later took voiceless-voiced as the basic opposition. Still others have seen the basic opposition as fortis-lenis (for example Heath (1978) in Ngandi). It could be argued that it is only in devising an orthography (central to the purposes of most of these researchers) that it becomes necessary to decide between these important phonetic factors.

In Rembarrnga phonetic, morphophonemic and psycholinguistic evidence all point to an interpretation as follows: Syllable initial stops are lenis, voiced and short, while syllable final stops are fortis, voiceless and long. When a syllable final and a syllable initial stop come together within a word creating a cluster of two stops (whether hetero-organic or homorganic) the syllable initial stop assimilates to the syllable final stop to become voiceless and fortis. This means that in words like those in 1a and 1b a short voiced lenis medial stop contrasts with a long, voiceless fortis medial stop. The latter is seen as a syllable final stop followed by a homorganic syllable initial stop.

- |     |             |                      |             |
|-----|-------------|----------------------|-------------|
| 1a. | barnabarna  | <i>rib bone</i>      | [baŋabaŋa]  |
| 1b. | barnabbarna | <i>calytrix bush</i> | [baŋappaŋa] |
| 1c. | kurdkurd    | <i>plumage</i>       | [guŋkuŋ]    |

Compare 1c in which both the medial stops are phonetically fortis and voiceless as is the word final stop, while the word initial stop alone is voiced and lenis. The only medial environment where a single fortis or voiceless stop may occur is before a consonant and here it cannot contrast with a lenis stop nor with a

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geminate stop since this is unambiguously syllable final position. Details are outlined in McKay 1975 and McKay 1980a.

In discussing Galpu, a language of north-east Arnhem Land, Wood (1978) proposes three alternative interpretations to handle the facts as they appear in that language:

- (i) The *segmental solution* interprets the opposition as one between separate series of fortis and lenis or voiceless and voiced stops. This is the solution favoured for Galpu by Wood in that paper.
- (ii) The *geminate solution* interprets the opposition as one between single and double stops as I have outlined for Rembarrnga above.
- (iii) The *prosodic solution* interprets the medial long fortis voiceless stops as phonetic or allophonic variants of the syllable initial stop when immediately following a fortis syllable. Fortis syllables, in terms of his analysis of Galpu, are manifested by the presence of a syllable final glottal stop which, however, drops before an oral stop, triggering gemination of the stop. Thus the fortis medial stops are seen as derived from a sequence of glottal stop followed by oral stop. Fortisness or gemination of the stop is seen as an automatic consequence of the fortisness of the preceding syllable.

Wood notes that all these solutions have their separate problems, though I think it would be true to say that some of the problems are language specific.

Waters (1980), in writing about the phonology of Djinang, one of the westernmost of the north-east Arnhem Land languages, has found a rather different phenomenon. In Djinang, he maintains, there is a basic phonemic contrast between voiced and voiceless stop series, but within the voiceless stops only there is conditioned variation between single and geminate stops. That is in Djinang, in intervocalic position he finds all three of single voiced stops, single voiceless stops and geminate voiceless stops. The distribution of the last two of these is conditioned by the absence or presence respectively of a preceding open stressed syllable. That is gemination of a stop occurs only following an open stressed syllable. Contrast Rembarrnga in which, in the relevant environment (before a vowel) only two possibilities, not three, may occur: voiced lenis single (or short) stop, or voiceless fortis geminate (or long) stop, leaving aside hetero-organic stop clusters which have a straightforward interpretation. That is Rembarrnga does not have prevocalic single fortis stops. Thus Waters' proposal for Djinang, namely that geminate fortis stops be interpreted as phonetic variants of single (syllable initial) voiceless stops after an open stressed syllable, does not apply to Rembarrnga. In any case many of the geminate stops in Rembarrnga occur following unstressed syllables as in lb where stress, like in la, falls on the first and third syllables. See the Appendix for some further discussion of Waters' suggestions regarding Rembarrnga.

Waters' work on Djinang gives an example of a suprasegmental origin for the gemination of stops based on stress in the preceding syllable. Wood proposes a different suprasegmental origin for gemination in Galpu based on the fortisness of the preceding syllable, this fortisness being marked by a syllable final glottal stop when the following syllable does not begin with an oral stop. Note that Schebeck (1972:193ff.) had earlier linked syllable final glottal and oral stops in Gupapuyngu and north-east Arnhem Land languages generally in terms of "syllable accent" and "glottal rhythm".

## 2. VERB INITIAL ALTERNATIONS IN NDJÉBBANA

Some morphophonemic processes in Ndjébbana (Kunibidji), the language of the traditional owners of the Maningrida area in Arnhem Land, also suggest a suprasegmental origin for gemination, but of a third type. It involves stress again, coupled with vowel length, but this time stress and length of a following syllable. Note that the following discussion does not cover all of the numerous environments in which geminate stops occur in the language, but only two clearly defined environments in which gemination is an active phonological process.

## 2.1 Rules

The set of alternations to be discussed applies in the root initial consonants of verbs and can be expressed by means of two rules roughly formulated as in 2 (cf. McKay 1980b:4-5).

## 2. Rule 1

$$\phi \rightarrow \left[ \begin{array}{c} \text{stop} \\ \alpha \text{ peripheral} \\ -\alpha \text{ laminal} \end{array} \right] / \text{v} \text{ \_\_\_\_\_\_ } + \left[ \begin{array}{c} \text{stop} \\ \alpha \text{ peripheral} \\ -\alpha \text{ laminal} \end{array} \right] \check{\text{v}}$$

## Rule 2

$$\text{stop} \rightarrow \text{semivowel} / \text{v} + \left[ \begin{array}{c} \text{ \_\_\_\_\_\_ } \\ \alpha \text{ peripheral} \\ -\alpha \text{ laminal} \end{array} \right] \check{\text{v}}$$

Rule 1 states that an intervocalic root initial peripheral or laminal stop geminates before a vowel bearing the primary phonemic stress and vowel length. This rule is without exception in the verbs for the laminal stops but has some exceptions (see below) for peripheral stops.

Rule 2 states that an intervocalic root initial peripheral or laminal stop lenites to a semivowel when preceding a vowel which does not bear the primary phonemic stress and vowel length. Again this rule is without exception in the verbs for laminal stops but is by no means general for peripherals. In fact only one clearcut example of the application of Rule 2 to a peripheral stop has been found.

Note that the stress referred to in the rules is not the only type of stress to be found in Ndjébbana words, but it is the only phonemically significant stress and the only one coupled with lengthening of the vowel. In fact it could also be termed 'significant vowel length'.

Note too that the operation of these rules can be clearly seen only where stress shifts in different forms of a verb, but that the majority of verbs (in which stress does not shift) are consistent with at least Rule 1 in that root initial geminate stops occur where the root initial syllable has a stressed/long vowel and single stops occur on other roots. Note too that where both

rules apply an underlying root initial single stop never appears in surface form unless the root can occur word initially as in the *infinitive* form in 3a, since there are no zero prefix forms known to me in the language except infinitive forms of verbs with root initial unstressed *dja-*. Rule 2 does not apply in all cases where it could (for reasons as yet unknown) so that root initial single stops do occur intervocally, as in 3c. Examples of the application of the two rules are given in 3.

- 3a. *djúwe be sick* (Conjugation VIII)
- |            |                                    |                      |
|------------|------------------------------------|----------------------|
| Past 1     | ka-djdjúwa <i>he is sick</i>       | Rule 1 applies       |
| Past 2     | ka-yawé-la <i>he was sick/died</i> | Rule 2 applies       |
| Infinitive | djawé-la                           | Neither rule applies |
- b. *bíddabo follow, chase, track* (IX)
- |        |  |                |
|--------|--|----------------|
| Future | nga-ya-bbíddaba <i>I'll follow him</i> | Rule 1 applies |
| Past 1 | ngá-woddabo <i>I'm following him</i>   | Rule 2 applies |
| Past 2 | nga-woddabé-ra <i>I followed him</i>   | Rule 2 applies |
- c. *búdjeyi shout* (II)
- |        |                                   |  |
|--------|-----------------------------------|--|
| Past 1 | ka-bbúdjeya <i>he is shouting</i> | Rule 1 applies   |
| Past 2 | ka-badjí-na <i>he shouted</i>     | Structural description of Rule 2 met but Rule 2 does not apply |

The conditioning factor in the gemination rule (Rule 1) is following stress/length, contrasting with the equivalent conditioning factor in Waters' analysis of Djinang, which is preceding stress. It contrasts also with Wood's proposal of a 'prosodic solution' for Galpu involving a preceding fortis syllable as the conditioning factor for the gemination of a stop.

## 2.2 Exceptions

There are, however, a number of verbs which are inconsistent with these rules. They have invariant stress pattern but could not be derived by the rules in that either (i) a root initial geminate stop occurs before an unstressed vowel as in 4a (contrast 4b which is consistent with Rule 1); or (ii) a root initial single stop occurs before a stressed vowel as in 4c (contrast 4d which is consistent with Rule 1).

- 4a. ka-kkamiya-na *he got up* (II)
- b. ka-karráwa-ra *he looked around* (V)
- c. ka-bíwaya-na *he stank* (II)  
ka-bíwa-ra *he smelled it* (V)
- d. ka-bbánjdja-nga *he put it down* (I)

See also the verb *bu hit* (Conjugation IVB) which is consistent with Rule 1 except when it bears the Reflexive/Reciprocal suffix *-ya-* (Conjugation II) as in 5.

- 5a. ka-bú-ya-na *he hit himself* (II) (Past 2)  
 b. ka-bbó-na *he hit it* (IVB) (Past 2)  
 c. ka-bú-ya *he hit himself* (II) (Past 1)  
 d. ka-bbú-ra *he hit it* (IVB) (Past 1)

Among the verbs all known inconsistencies with the rules affect only peripheral stops, not laminal. I take the existence of such exceptions to show the lack of full synchronic generality and productiveness for the rules, at least as currently formulated. The emergence of contrasts such as 4a versus 4b means that gemination in this position can not, or perhaps can no longer, be seen as phonologically conditioned. Synchronically, while most verbs work according to the rules (particularly Rule 1), certain verbs must be listed in the lexicon with invariant root initial single or geminate stops and a block against the application of Rule 1 and/or Rule 2.

### 3. NOMINAL INITIAL ALTERNATIONS IN NDJÉBBANA

#### 3.1 According to rules

When we come to nominal morphology (noun/adjective) a similar situation holds. Most adjectives, some body part nouns and a few other words are normally marked with prefixes for person and number or noun class (two classes – masculine and feminine – only). Root initial alternations between single stop and either geminate stop or semivowel occur with some of these and can be seen when forms with the masculine (3 singular masculine) and feminine (3 singular feminine) class prefixes are compared. This arises because the masculine prefix is consonantal, having the form of a syllabic n-, while the feminine has the vowel final form nja-. (Actually other masculine prefix forms occur in other nominal classes. See McKay 1981.) Most resultant forms are consistent with Rules 1 and 2. See, for instance, 6a to 6c in which a stressed vowel in the root initial syllable provides a gemination environment for the initial stop in the feminine form, while in 6d and 6e the vowel is unstressed and no gemination occurs, but Rule 2 does not apply. In 6f and 6g Rule 2 does apply in the feminine form.

- 6a. n-bókka *bad* (masculine)  
 nja-bbókka *bad* (feminine)
- b. n-kódda *skin*  
 nja-kkódda
- c. n-djídjabba *same*  
 nja-djdjídjabba
- d. n-barrábarra *big*  
 nja-barrábarra
- e. n-karrúmakkarra *slippery*  
 nja-karrúmakkarra
- f. n-djaráma *heavy*  
 nja-yaráma
- g. n-djarramáya *small of back*  
 nja-yarramáya

In 7a to 7d the same consistency with Rule 1 occurs, but this time it is because Rule 1 cannot apply because a shift of stress/length to the prefix in the feminine form destroys the environment for the application of the rule.

- 7a. n-káro *fat* (noun)  
njá-karo
- b. n-káreddja *cooked, ripe*  
njá-karreddja
- c. n-kálarra *Aboriginal man*  
njá-kalarra *Aboriginal woman*
- d. n-djárawarra *young person, adolescent*  
njá-yarawarra

### 3.2 Exceptions

As with the verb roots a number of exceptions exist to the application of Rules 1 and 2 to nominal roots with a feminine prefix. These include cases where a geminate stop occurs before an unstressed vowel, as in 8; and cases where a single stop occurs preceding a vowel bearing the phonemic stress/length, as in 9; and cases where a semivowel occurs before a stressed/long vowel as in 10.

- 8. n-barlánga *raw, unripe*  
nja-bbarlánga
- 9a. n-kánkarra *meat, flesh*  
nja-kánkarra
- b. n-búlanj (subsection name)  
nja-búlanj
- c. n-kóyawa *crooked*  
nja-kóyawa
- d. n-káma *toothless*  
nja-káma
- 10a. n-djínjawa *alive*  
nja-yínjawa
- b. n-djáwarlbba *old person*  
nja-yáwarlbba

Again the exceptions suggest that, at least as formulated here, the rules are not fully general, though they may have had historical validity. To show this the development of the exceptions will have to be explained. As it is we are left with significant contrasts between double and single stops (e.g. 6d versus 8) and between double stops and semivowels (e.g. 6c versus 10a). Compare the similar contrasts in verbs already mentioned above (4a versus 4b, 5c versus 5d).

## 4. CONCLUSIONS

Some interim conclusions are possible from the foregoing:

(i) The rule (Rule 1) which operates in Ndjébbana to derive most geminate stops in nominal and verbal root initial position is conditioned by the suprasegmental feature of stress/length – following stress. This is opposite to the preceding suprasegmental conditioning found by Waters in Djinang and proposed in Wood's 'prosodic solution' for Galpu.

(ii) The lack of complete generality for Rule 1 in particular (at least as at present formulated) may indicate incipient loss of synchronic validity for the rule, leading to reanalysis of the contrasts involved.

(iii) The extent of applicability of the gemination rule in Ndjébbana supports the historical relevance of suprasegmental features in the origins of gemination (as suggested by Schebeck, Wood and Waters). On the other hand the differences from language to language in Arnhem Land noted in this paper show that the relation between these suprasegmental features is by no means straightforward. The existence of exceptions within Ndjébbana itself adds weight to this caution, as does the fact that non-root-initial geminates are not derivable by Rule 1 in many cases.

## NOTE

1. An earlier version of this paper was presented to the 12th Annual Conference of the Australian Linguistic Society, Monash University, Melbourne, August 1980. For Ndjébbana phonological data I am especially indebted to Jockey Bundubundu and Joseph Mangkudja. The examples throughout are written in the Ndjébbana practical orthography, approved for use in the Department of Education's Ndjébbana bilingual education program at Maningrida. Symbols requiring comment are: dj and nj represent laminal stop and nasal respectively; rd, rn and rl represent retroflex sounds; intervocally a single k commonly represents a voiced velar fricative allophone of the velar stop phoneme; an acute accent marks the phoneme of major stress/vowel length. In the Rembarrnga examples the same orthographic system is used with the addition of two symbols: h represents glottal stop and ɤ represents a schwa-like vowel.

APPENDIX  
 COMMENTS ON WATERS' 'COMMENTS ON GEMINATION IN REMBARRNGA'

Waters (1980:58-61) makes a number of comments on gemination of stops in Rembarrnga which, because of their relevance to my method of analysis in both Rembarrnga and Ndjébbana, I wish to comment on briefly here. I hope to be able to deal with the whole matter in more detail at a later date.

Waters, in his comments, discusses what he sees as an alternation in Rembarrnga between single and geminate voiceless stops. This view is found in comments such as "...one member of the cluster is deleted so that the surface manifestation is merely a voiceless stop" (p.58); "...voiceless stops are never geminated when they occur as onsets of a stressed syllable..." (p.59); and in the attempted phonetic transcription of my phonemic /kuʃpərəʃa/. In these cases he has failed to take note of the clear statement I made in discussing voicing in oral stops (McKay 1975:17): "Medial voiceless stops are interpreted as geminate stops and voiced medial stops as single stops." Equally clear was my statement in connection with allophonic variation (1975:23): "Stops are normally voiced (and lenis) in syllable initial position unless preceded by a voiceless (and fortis) [i.e. syllable final - GRM] oral stop..." That is, a single, syllable initial stop is always voiced. In other words Waters appears to have read my phonemic transcriptions, which, unlike the current practical orthography, use voiceless stop symbols, as phonetic transcriptions. /kuʃpərəʃa/ is, in fact, phonetically [guʃpərəʃa] (and orthographically kudjbərrədja). Waters would in reality have to account in his proposal not simply for gemination but for gemination and devoicing of single stops. In fact he claims, (p.60) without discussion, that voiced stops cannot geminate. He does not clarify how he incorporates two stop series into the analysis of Rembarrnga.

The major stumbling block for Waters' specific suggestions, however, is the existence of minimal contrasts between single and geminate stops, given in the relevant section of my discussion (McKay 1975:17). Unfortunately I did not write in all the (non-phonemic) stresses, but, according to normal practice in phonemic analysis, the reader can safely assume that no contrasting pairs were claimed unless the stress patterns were identical in the two words. In any other case the phonetic environment could not have been considered identical or even analogous. In both Rembarrnga and Ndjébbana the contrastiveness of stop gemination is established by the existence of numerous minimal and sub-minimal pairs as given in detail in McKay 1975, 1980a, 1979. A few examples will suffice here. Stress is written in. Note that all syllable initial stops are voiced unless preceded by a syllable final stop.



## Rembarrnga

Contrast at onset of a stressed syllable

'barna'barna	'barnab'barna
<i>rib bone</i>	<i>calytrix bush</i>

na'kunda	nak'kunda
<i>you (plural)</i>	<i>those</i>

Contrast following an 'open' stressed syllable

'waduh	'waddu
<i>afterwards</i>	<i>behind (place)</i>

'yurduh	'kurdrduh
<i>to tell a lie/deceive</i>	<i>fish poison berry</i>

Contrast between unstressed syllables

'murdurdu	'mukurdrdu
<i>hornet</i>	<i>(place name)</i>

Contrast following a closed stressed syllable

'warrkad	'warrkka
<i>to set off suddenly</i>	<i>(particle marking change of subject)</i>

Contrast between two compounds of *bu to hit*

'minjdjibun	'damebun
<i>know (present)</i>	<i>yawn (present)</i>

'minjdjib'buna	'dame'buna
<i>know (future)</i>	<i>yawn (future)</i>

## Ndjébbana

Contrast at onset of stressed syllable

kabála	kabbála
<i>he ate it</i>	<i>boat</i>

kakárra	nakkárriyala
<i>foliage/shade</i>	<i>Burdekin duck</i>

Contrast following an 'open' stressed syllable

kába	kábba
<i>he is eating it</i>	<i>water</i>

yíbarda	míbbarda
<i>barramundi</i>	<i>bandicoot</i>

nmardárdá	buwárdarda
<i>bone</i>	<i>bustard</i>

Waters (1980:60) quotes a paragraph from my exposition to show that the gemination interpretation entails 'lack of generality' and 'extra complexity'. He does not note that, in context, the quoted paragraph was originally written to show that there was one minor disadvantage of the gemination interpretation to set against the numerous significant generalisations and lessening of complexity permitted by the same interpretation and set out in the preceding paragraphs. In Rembarrnga, like in Galpu (Wood 1978), there are advantages and

disadvantages in each possible interpretation, but in Rembarrnga the balance of the evidence strongly favours the 'geminate solution'. Waters does not seem to realise that his proposal of two separate series of stops in and of itself constitutes a significant loss of generality in comparison with positing a single stop series, given that the two series are in almost complete complementary distribution and that the simple phonetic rule required to explain the voicing distinction in the one contrasting environment is independently required to handle the devoicing of the second member of hetero-organic stop clusters. In fact this rule can be generalised only by expanding it to handle geminate stop clusters. Waters is merely substituting one form of complexity for another, in my opinion lesser, form.

Waters (1980:60) comments also on the evidence I presented (McKay 1975:20) from slow speech, which clearly differentiated, no matter how slow the speech, between single and geminate or voiced and voiceless stops in terms of placement of the syllable boundary. Voiceless or geminate stops in Rembarrnga are always divided by the syllable boundary, while voiced stops are always preceded by the syllable boundary. Waters quotes my statement, comments that the same happens in Djinang, extends its application in Djinang to sonorant consonants and then argues as if this also happens in Rembarrnga. He does not explain why it is in precisely these areas where a clear contrast is maintained in Rembarrnga. Note also that sonorant consonants may be geminated in Rembarrnga too - but as a productive process in the formation of future tense forms of Conjugation 1 verbs, not universally as a phonetic concomitant of stress and slow speech.

I reiterate that there are many indications in both Rembarrnga and Ndjébbana that at some time in the past suprasegmental factors may well have contributed to the evolution of geminate stops in certain positions. The synchronic evidence in both languages, however, points strongly to an interpretation involving only a single series of stops with geminate stops contrasting with single stops in a restricted set of environments and giving rise to an apparent voicing contrast in those environments. In the Ndjébbana case the clearly established gemination process triggered by suprasegmental features differs in essential respects from that postulated for Djinang by Waters. Waters' proposal for Rembarrnga does not hold up on the evidence available.

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# NDJÉBBANA (KUNIBIDJI) GRAMMAR: MISCELLANEOUS MORPHOLOGICAL AND SYNTACTIC NOTES

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## 0. INTRODUCTION

Ndjébbana is the language of the traditional Aboriginal owners of the Maningrida area on the eastern bank of the mouth of the Liverpool River in Arnhem Land, Northern Territory, Australia. Earlier classifications of languages in the area have listed the language (under the name Gunavidji) as the sole member of the Gunavidjian language family (cf. Wurm 1972:114). Detailed work needs to be done on the classification, but I suggest on the basis of my own observations that such work is likely to show a relationship between the Ndjébbana, Nakkara and Burarra languages and more distantly with the Gunwinyguan family of languages. The name Ndjébbana is that used for the language by the speakers of the language themselves. Earlier literature uses in the main variants of the name Kunibidji which I understand to be a Kunwinjku or Gunbarlang name for the language. Throughout this paper I use the orthography adopted for the Ndjébbana bilingual education program at Maningrida School.

The present paper constitutes a summary of the results of research on various so far unpublished aspects of the Ndjébbana (Kunibidji) language where this had progressed far enough to permit a self-contained outline to be presented. The purpose of this summary is to provide the basis for future research and to serve as reference material for the production of bilingual education materials in the language. The topics covered and the approach to them are largely determined by this latter aim. For instance the auxiliary construction has in the past presented difficulty for those unfamiliar with its formal nature and function in deciding whether or not to translate it into English. The 'Comparison' section arose in the course of materials development for vernacular language development and vernacular mathematics. Thus the paper has emerged as a series of eight self-contained and largely unconnected sections.

Examples quoted in the paper are taken in the main from my own transcriptions of texts (roman numerals give the text numbers, arabic give line numbers) or from publications of the Maningrida Literature Production Centre (title italicised and author).

## 1. AUXILIARY CONSTRUCTION

In discussing the auxiliary construction in Ndjébbana (Kunibidji) I restrict my use of the term *auxiliary* to a construction using free standing auxiliary verbs having their own pronominal and tense affixes. I use the separate term *compound(ing)* for cases where what might historically have been a free auxiliary has become an integral part of the main verb word. As I have complained before (McKay 1975:165) the use of the term *auxiliary* for compounding elements (as in some of the papers in Topic E in Dixon, ed. 1976) can cause great confusion in connection with a language, such as Ndjébbana or Rembarrnga, in which the two types occur side by side. Hudson (1976:653), for instance, has tried to draw a similar distinction between *auxiliaries* and *compounding* in Walmadjari for exactly the same reason — both patterns occur in that language so tighter definition is required to keep the types separate. This is not to deny that compounding may well have developed out of auxiliary constructions. Synchronically, however, a distinction needs to be made. (Dixon 1980 puts the word *auxiliary* in inverted commas in connection with compounding in recognition of the problem of making the necessary distinctions here.)

## 1.1 Compounding

Compounding in Ndjébbana involves two distinct types:

(i) The defective verb root *balo* *come hither/towards* may be prefixed to a number of other verbs to give the meaning 'towards the speaker or point of reference nominated by the speaker'. This verb may occur independently, as in (1) and (2).

- (1) Kayóra kábaló... (Ndjébbana Mandjad)  
*it lies it comes this way*  
*It juts out towards (Juda Point)...*
- (2) Bárra-bala barra-bala-yirríya. (XXV/49)  
*they-come hither they-come hither-go*  
*They came towards us.*

Note that the final vowel of the root *balo* is often reduced to a if it is not long and stressed. Note too the double use of this root in example (2), once independently and once as a compounding element on the auxiliary verb *djirri go*, *move*.

The significance of this compounding root can be clearly seen in a pair of words like those in (3) and (4). Note the lenition of the initial *b* of the root in (4), conditioned by the root initial labial consonant of the main verb.

- |                    |                             |
|--------------------|-----------------------------|
| (3) ka-djórrkka    | ka-bala-djórrkka            |
| <i>he it-took</i>  | <i>he it-hither-took</i>    |
| <i>He took it.</i> | <i>He brought it.</i>       |
| (4) ka-béna        | ka-wala-béna                |
| <i>he-went</i>     | <i>he-hither-went</i>       |
| <i>He went.</i>    | <i>He came./He arrived.</i> |

Finally there are two verb roots which appear to derive from this very compounding process, but the deletion of the syllable *wa* from the main verb has partly obscured the derivation.

- (5) ka-balákka      *he returns/comes back*      (? ka-bala-wákka)  
       ka-wákka      *he returns/goes back*

- (6) ka-balála (*tide*) comes in/up (? ka-bala-wála)  
 ka-wála he goes uphill/ascends

(ii) Parallel to the compounding processes found in a number of languages of the area and exemplified in Carroll's (1976) exposition of Kunwinjku verb classes, the recurrence of certain endings on verb roots suggests that these could well have their origins in earlier compounding verb roots (or, of course, derivational suffixes). For instance the Ndjébbana verb root warrabu (Conjugation IVB) *burn* is clearly a compound of bu *hit*, the only other verb so far known to be in that conjugation. All thirteen verbs in Conjugation IV appear to be compounds of bu as well. The vowel of the relevant syllable is reduced giving the compounding formative the form ba since in these verbs this part of the verb never bears the vowel length/stress phoneme. Characteristic root final segments of various conjugations are as follows with number of verbs in brackets:

Conjugation II/III	yi	(44)	
Conjugation V	wa	(10)	
Conjugation VIII	we	(2)	
Conjugation IX	bo	(5)	
Conjugation IXB	wo	(2)	
Conjugation X	kka	(9),	wa (2)
Conjugation XVI	yi	(3)	

The status of these formatives is not clear. The yi which occurs in Conjugations II and III is clearly a Reflexive/Reciprocal or general Intransitivising suffix but the elements in the other conjugations could well be either original compounding elements or other derivational suffixes.

## 1.2 Auxiliary

The auxiliary construction (AUX) occurs also in two forms in Ndjébbana. Common to both is the use of a fully marked auxiliary verb, bearing pronominal prefixes and tense/aspect affixes. The AUX follows its main verb without pause and within the same intonation contour. If a pause does occur between two such verbs it normally indicates that each verb has its full force in a temporal sequence, that is that two main verbs are used, and both would need translating separately into English. In the AUX construction normally only the main verb needs translation into English.

(i) There are a number of invariant verb root morphemes or particles (criteria for deciding between these two possibilities are unclear) which carry neither pronominal prefixes nor tense/aspect affixes, but combine obligatorily with a particular auxiliary verb. For instance:

márrmarr barrabbóna <i>They were happy.</i>	AUX root bu <i>hit</i>
karlóykkarloy kabbóna <i>He cut bark from the tree.</i>	AUX root bu <i>hit</i>
yárrkyarrk barrabbóna <i>They split up.</i>	AUX root bu <i>hit</i>
kalábba ngarakarawéra <i>I forgot/lost it.</i>	AUX root rakarawo <i>move</i>
djakóra kárawo <i>He's smoking.</i>	AUX root rawo <i>throw/discard</i>

This type of construction, normally with the AUX verb *no sit*, is employed to introduce English verb root borrowings as in the examples (7), (8) and (9).

- (7) Sdád njarra-nóra Fraydey (XXV/1)  
*start we-sat Friday*  
*We started (our trip) last Friday.*
- (8) ...wékkana wébbá drabling nga-baló-kana. (V/249)  
*night time travel I-hither-sat*  
*...I travelled at night.*
- (9) Njarra-nána-nja Stanley drangk ka-kóna. (Pauline Banamal - Drangkinmen  
*we him-saw-dual fem. Stanley drunk he-sat Kanébbanga Ngúdja)*  
*We saw Stanley drunk.*

(ii) The major type of AUX construction involves a fully marked AUX verb following a fully marked main verb. This construction is very common, especially in the speech of adults. Let us look first at an interesting text example, in (10).

- (10) Ngayábba nja-barrábarrabba yaka-bbándjeya yaka-yóra.  
*she mother one she-put herself down she-lay*  
 Ya-karráwanga yaka-yóra. Ka-rríkkaya ki-yirríya.  
*she-looked around she-lay he-crept he-went*  
 Ká-rakarawo ki-yirríya díla-ngaya mándjad ka-nádja  
*he-moved he-went eye-her straight/true she him-saw*  
 yaka-yóra. Ya-bala-karráwanga ya-bala-kayóra. (XXV/38-41)  
*she-lay she-hither-looked she-hither-lay*  
*The cow buffalo lay down and looked around her. He (the narrator's companion) crept towards her. She looked straight at him as he came.*

This passage comes from a hunting story and illustrates a number of interesting features of the AUX construction.

- (a) Notice first that every main verb in these sentences has an AUX following it.  
 (b) The AUX verbs are, in the main, the general verbs of position or motion.  
 (c) The compounding verb root *balo come hither* can be used with both the main verb and the AUX verb as in the last sentence.  
 (d) The AUX verb, being normally intransitive, can be used to differentiate the sex of a singular transitive third person subject. For instance the form *ka-nádja* in the second last sentence is ambiguous in isolation meaning either *she saw him* or *he saw him*. In this case the following AUX has a feminine subject. Thus *she saw him* translates *kanádja yakayóra* while *he saw him* translates *kanádja kayóra*.

### 1.3 Positional AUX

The three positional verbs used as AUXiliary verbs are *no sit*, *yo lie* and *rénjdjeyi stand*. Each object normally has its own characteristic position, for which the appropriate verb is used, while humans, of course, can adopt any of the positions depending on the occasion. Compare, for instance, examples (11) and (12).



- (11) Kurridja njirri-bbándjeya njirri-nóra. Njirri-yirriya  
[place] we-put ourselves down we-sat we-went  
njélnjel. (XXV/4-5)  
late afternoon  
We stayed at Kurridja and left in the late afternoon.
- (12) Ka-rakarawéri-ba ka-kkóya njirri-bbándjeyana njirri-kkóya  
it-moved-habitual it-lay we-put ourselves down we-lay  
rdórbalk. (XVIII/11-12)  
well  
When the wind blew we would sleep all right (without disturbance from mosquitoes).

In (11) the stay was a daytime one and involved sitting around rather than lying asleep. In (12) the reference is to sleep so *yo* rather than *no* is used. Compare (13) in which, during the daytime, a watchful buffalo cow 'sits' but the verb *yo*, being characteristic of buffaloes' sitting position, is used.

- (13) Ngayábba njabarrábarra yaka-bbándjeya yaka-yóra.  
she mother one she-put herself down she-lay  
Ya-karráwanga yaka-yóra. (XXV/38-39)  
she-looked around she lay  
The buffalo cow sat down and looked around.

A similar difference in characteristic positions between humans and buffaloes is found in (14) and (15) with the verb *ba* *eat/drink*. In performing this activity humans sit (no) while buffaloes stand (*réndjeyi*).

- (14) Ka-djórrbana karnayédjabba...ka-bála ka-kóna. (XVII/59-61)  
he it-cooked two he it-ate he-sat  
He cooked two (fish) and ate them.
- (15) Nga-nádja ká-ba ka-réndjeya. (XXV/35)  
I (them)-saw (they)-drank (they)-stood  
I saw (several buffaloes) drinking.

On the other hand there is a little evidence to suggest that the AUX verb (at least the verb *no sit*) is somewhat arbitrary and does not necessarily indicate actual position. This is shown by the use of *no sit* as an AUX verb with main verbs of motion as in (16) and in (8) above, and by the use of *no* as the general AUX with borrowed English roots as in (7), (8) and (9) above.

- (16) ...ka-djórrkngaya ka-kóna, nakébbá kúdjabarra. (Graham James, Kúdjabarra  
it-ran it-sat it kangaroo namánja Njirribéna)  
...it ran away, that kangaroo.

Further support for the suggestion that AUX verbs are often used with a more general sense than their actual lexical meaning is provided by the use of the AUX verb *djirri go* with aspectual significance as discussed in 1.5 below. Finally on two separate occasions in translating two separate stories Kunibidji speakers have used the AUX verb *no sit* to follow the main verb *ngúdjeyi talk* in spite of the fact that the accompanying illustration showed all those 'talking' as standing up. In one case I asked was it appropriate to the picture without further elaboration and was assured it was. In the other case I mentioned the lexical meaning of the AUX verb and was told that in the light of the picture it should be changed to *réndjeyi stand*. Given the form of my question, the other background mentioned above and the fact that I have to my knowledge never encountered *ngúdjeyi* with any other AUX than *no*, the evidence provided by this suggestion of a change will have to be considered suspect.

## 1.4 Motion AUX

With verbs of motion there appear to be two possible AUX verbs with no obvious differences in significance - *djirri go* and *rakarawo move along, run, as*, for instance, in the pairs of examples (17) and (18) with the verb *wákka return* and (19) and (20) with the verb *walédjba paddle*.

- (17) Nirrikébba ndjéya bárrri-yarra. Njirrikébba njiyi-wákka.  
*you two this way you two (Imper.)-go we two we two-return*  
 Yakanádja njiyi-wákka njiyi-yarra. (XXV/18-20)  
*that way we two-return we two-go*  
*You two go this way and we two will go back, we'll go back that way.*
- (18) Ka-wákka ká-rakarawo bana-mángka. (XXV/98)  
*it-went back it-moved it them-picked up*  
*(The boat) went back and picked them up.*
- (19) Birri-ndakarlába... yeláwa njana birri-walédjba birri-béna.  
*they it-put in water then they-paddled they-went*  
 Birri-rakarawéra birri-béna::.\* (IX/32-33)  
*they-moved they-went*  
*They put (the canoe) in the water and paddled away. They went all the way.*
- (20) Wánarda ka-mángka. Ka-walédjba ka-rakarawéra ka-béna.  
*paddle he it-grabbed he-paddled he-moved he-went*  
 Ka-rakarawéra ka-béna nganéyabba... (IX/62-63)  
*he-moved he-went there*  
*He grabbed a paddle and paddled off. He went there to...*

## 1.5 Motion AUX for aspect and extent

The suppletive AUX verb *djirri go* appears to be used in a number of cases with a type of significance which covers the range Durative, Iterative, Distributive (in the sense widespread) and Extensive (indicating great extent). The meaning depends on the individual case but I would suggest that the meanings are, in fact, linked and cover the general notion of 'great extent' in time, space or frequency. Compare the Rembarnga PROGRESSIVE suffix which expresses durative aspect and is formed from verbs of going (McKay 1975:175-178).

This usage may or may not overlap with the motion usage exemplified in (17) to (20) above. Examples (21), (22) and (23) show this use of this AUX while example (24) with AUX *rakarawo* in a similar function should be compared with (23).

- (21) Ya-rayéera. Ya-rayéera ka-béna.  
*it (they)-tore up it (they)-tore up (they)-went*  
 Ya-rayéera ka-béna, ya-rayéera ka-béna ka-béna ka-béna ka-béna.  
 Yaláwa ya-yikkabéera. (XVII/20-21)  
*then it (they)-bound*  
*They tore up paperbark. They tore and tore and when they had finally torn it all they tied it up.*

\* The double colon indicates considerable vowel lengthening on this word final syllable, coupled with raised pitch, used to indicate duration. See further discussion and examples in section 8.1 below.

- (22) Ka-marnawayíniiba ka-kóna.  
*(they)-shared with/gave to each other (they)-sat*  
 Ka-wúna ka-béna ka-bála ka-béna. (XVII/72-73)  
*(they)-gave (they)-went (they)-ate (they)-went*  
*They gave (food) to each other. They gave it all round and they all ate it.*
- (23) Karrówa duram ka-rendjína ka-béna. (Ndjébbana translation of  
*many drum (they)-stood (they)-went Jesus at the wedding*  
*There were many drums standing there.*
- (24) Yanakkábba ka-rendjína ka-rakarawéra ngána Kabálko. (VII/70)  
*dry land it-stood it-moved there Entrance Island*  
*There used to be dry land stretching right out to Entrance Island.*

### 1.6 More inclusive AUX subject

In a couple of examples an AUX is found whose pronominal subject prefix is more inclusive than that of the main verb it follows as, for example, in (25).

- (25) ...yaka-ráya yá-nabo barra-yóra-nja. (XXV/55)  
*he her-shot she-fell they-lay-two fem.*  
*...he shot (the female buffalo calf). She fell on top of her mother.*

### 1.7 Negative AUX

In a negative sentence both the main verb and the AUX are in negative form, though the NEGative particle kóma, as is normal, appears only once.

- (26) Ka-ndakarlába kóma kayaka-bbéngkana kaya-bardarrbbayína. (IX/45-46)  
*he it-put in water NEG it-didn't float it-didn't lie*  
*He put (the log) in the water but it didn't float.*

### 1.8 Similar constructions

In the vast majority of cases the subject (S) of the intransitive AUX verb is identical to — or more inclusive than — the subject (A or S depending on transitivity) of the main verb. In fact this may possibly be a defining characteristic of the AUX construction. To establish this, however, we will have to be able to account for a range of similar looking two-verb phrases ranging from verbs with complements (27), through the equivalent of English participial phrases (i.e. also complements) (28), (29) and (30), to fixed idiomatic phrases which do not relate closely to the meaning of the main verb involved (31a), (31b) and (31c). (For these last two see page 126.)

- (27) Njanbirri-nádja birri-míba yinjerrekéyanga. (XXV/57-58)  
*we them-saw they-arrived to us*  
*We saw them coming towards us.*
- (28) Warábbana wúbbunj nganéyabba njarra-bbándjanga ka-rendjína. (V/297-298)  
*one canoe there we it-put it-stood*  
*We left one canoe (standing) there.*

- (29) Njanbirri-míwanga barra-bala-yirríya kabbála. (XXV/97)  
*we them-sent they-hither-went boat*  
*We saw them off back here to Maningrida by boat.*
- (30) "Dá-bala!" nga-bbúdjeya-yana ngi-yirríya. (XXV/36)  
*you (Imper.)-come hither I-called-to him I-went*  
*"Come here!" I yelled to him as I walked.*
- (31a) Ka-kkúndja ká-rakarawo nkálakarra. (GF/29/9)  
*he-defecated he-moved man*  
*He ran.*
- (31b) ...njarra-mánga njarra-rendjína djob. Ngána ébbod barra-náwarla  
*we-worked jobs there airport they-others*  
 barra-mánga barra-rendjína. (XIV/45)  
*they-worked*  
*We were all working at jobs. Some others worked there at the airstrip*  
*(clearing the strip).*
- (31c) Rdórdbalk kómabba bayúka-ma baka-réndjeya. (XIV/40)  
*well all they will-work*  
*They'll all work well.*

In other words we may need to be able to distinguish in some way between, for example (32) and (33) as syntactic constructions.

- (32) Njanbirri-nádja njirri-yirríya. (XXV/33)  
*we them-saw we-went*  
*We saw them as we walked along.*
- (33) Nga-wákka ngi-yirríya. (XXV/34)  
*I-went back I-went*  
*I went back.*

### 1.9 Grammatical NP roles in AUX

In considering the grammatical roles of the various NPs which are involved in AUX constructions we can note that the following possibilities have been found to occur: main A identical to AUX or complement A as in (34); main A identical to AUX or complement S as in (22) and (32); main S identical to AUX or complement S as in (17), (23) and (30); main O identical to AUX or complement S as in (29) and (27); and main IO identical to complement A as in (35).

- (34) Njarra-ndabarlíndjanga njarra-rawéra. (Tommy Wardírdi: Makéddja  
*we it-turned we it-threw Njabarrábarra)*  
*We turned the turtle onto its back.*
- (35) Mudíkkang márdba djakabbándja yíyi-yarra djáka-na  
*vehicle (you like) you and me-go you it-will see*  
 djaka-lémaya djáka-na nganéyabba. (XVIII/32-34)  
*I you-will show you it-will see there*  
*If you like we can go in your truck and I'll show it to you.*

The paradigm case of main A or S being identical with AUX S is further exemplified in (36) and (37).

- (36) Bárriya birri-mérbara-njabba birri-nóra. (VII/64-65)  
*those two they it-hide-from me they-sit*  
*Those two are hiding it from me.*

- (37) Njarra-nádja makéddja ya-rríkka yi-yirríya. (XXV/15)  
*we it-saw long necked turtle it-crawled it-went*  
*We saw a long necked turtle crawling along.*

### 1.10 Homophonous forms

Last, but not least, let us note that in a small number of cases main and AUX verb forms can even be homophonous as in (38) where the main verb is a form of *na see* and the AUX is a form of *no sit*, but movement of the vowel length/stress phoneme reduces the vowel to short *a* in both cases, thus obliterating the distinction.

- (38) Dílkarra ngíya-na ngíya-na. (XXII/22)  
*moon let's-see let's-sit*  
*Let's look at the moon (to determine timing by phase of moon).*

## 2. IMPERATIVE

### 2.1 Imperative morphology

There is a distinctive set of imperative pronominal prefix forms in Ndjébbana. These forms are added to the Future form of the verb root. The forms for intransitive verbs and for transitives with third person minimal object are as follows:

Singular Imperative	da- before a stem initial labial consonant (b, m, w) ma- elsewhere
Dual Imperative	{ birri- with male augment* barra-...-nja with female augment*
Plural Imperative	barra-

The dual and plural forms have variants in the case of particular verbs (see below). It is noteworthy that the non-singular imperative forms are identical with third person (rather than second person) non-minimal prefix forms. There is some evidence from the bound pronominal forms that the element *ba-/bi-* is, in fact, purely a marker of number and is unspecified as to person. See discussion in McKay 1980b. The use of these forms for both imperative and third person non-imperative forms is thus to be expected since they are the unmarked person forms. (Compare subject deletion in the English imperative.)

In the Imperative, contrary to practice with the Future tense itself, the prefix element *-rrV-* is used instead of the Future *-ka-*, *-yi-*, etc. Compare the forms given in (39) and (40).

- (39) biddabo IX *chase*
- |                                 |                                       |
|---------------------------------|---------------------------------------|
| baka-bbíddaba (FUT)             | barra-bbíddaba                        |
| <i>they (pl) will chase him</i> | <i>Chase him!</i> (Plural Imperative) |
| biyi-bbíddaba (FUT)             | birri-bbíddaba                        |
| <i>they two will chase him</i>  | <i>Chase him!</i> (Dual Imperative)   |

\* See McKay 1979b for details of this distinction.



It does not matter whether the stem initial consonant is syllable initial or syllable final. See the forms given in (45).

- |                   |                  |
|-------------------|------------------|
| (45) ma-nmarabúya | da-malónba       |
| <i>Hide it!</i>   | <i>Pick it!</i>  |
| da-bbúdjeya       | da-bíwa          |
| <i>Call out!</i>  | <i>Smell it!</i> |

For verbs in Conjugations VII, XV and XVIIIB, which use what I have elsewhere termed a -yaka- prefix in the Future tense (McKay 1980a), this stem forming prefix has the forms seen in (46) using the verbs wu *give* (VII) and dji *drink* (Irregular) as examples.

- |                          |                  |
|--------------------------|------------------|
| (46) Singular Imperative |                  |
| ma-rráka-wa              | ma-rráka-ya      |
| <i>-give</i>             | <i>-drink</i>    |
| <i>Give it to him!</i>   | <i>Drink it!</i> |
| Dual Imperative          |                  |
| bá-rri-wa                | bá-rri-ya        |
| <i>Give it to him!</i>   | <i>Drink it!</i> |
| Plural Imperative        |                  |
| ba-rrúka-wa              | ba-rrúka-ya      |
| <i>Give it to him!</i>   | <i>Drink it!</i> |

Note that, as in other languages of the area, the prefixal element -rrV- is characteristic of non-singular bound pronominal forms and is normally restricted to those. The use of -rraka- with ma- here in the singular imperative seems to be an exception to this general pattern.

It should be clear from examples such as (44) and (46) that stress shifting verbs operate as usual in Imperative forms, following their regular future tense patterns. Thus the future form of djirri *go* is yarra with the vowel length/major stress falling on the prefix initial syllable (except where the presence of a suffix permits it to occur on the root final syllable as outlined in section 3 below). This changes the shape of the dual and plural imperative prefixes in the regularly expected ways as can be seen by comparing the forms in (47).

- |  |                    |
|--|--------------------|
| (47) Dual Imperative Masculine (two males)     |                    |
| bárrí-yarra                                    | birri-balábara     |
| <i>Go!</i>                                     | <i>Hit it!</i>     |
| Dual Imperative Feminine (at least one female) |                    |
| barra-yarrí-nja                                | barra-balábara-nja |
| Plural Imperative                              |                    |
| bárra-yarra                                    | barra-balábara     |

Some Ndjébbana verbs have distinctive future tense forms, unlike the major open conjugations of verbs in which the verb root has the same form and a zero suffix in both Future and Past 1. Verbs with a distinctive Future form show clearly that it is the future and not the Past 1 which provides the basis for the Imperative. Compare the Singular Imperative, Future and Past 1 forms of several of these verbs in Table 1.

Table 1: Singular Imperative, Future and Past I forms			
Root	Singular Imperative	Future	Past I
bu IVB <i>hit</i>	da-balábara	dja-balábara	dja-bbúra
ba VIIID <i>eat</i>	da-móya	djaka-móya	djá-ba
biddabo IX <i>chase</i>	da-bbíddaba	djaka-bbíddaba	djá-woddabo
djorraba IV <i>cook</i>	ma-ddjórraba	djaka-ddjórraba	dja-ddjórrbara
djirri IRG <i>go</i>	mé-yarra	djé-yarra	ngana-yirríya
kákka X <i>push</i>	ma-kkákka	dja-kkákka	dja-kkákaya
rawo IXB <i>throw</i>	má-ro	djáka-ro	djá-rawo
yiyi XVI <i>leave</i>	ma-yíndja	djaka-yíndja	djá-ya

## 2.2 Future as imperative

In every case the future tense forms of verb words may be used as imperative forms. In general where the object of a transitive verb is not third person minimal the regular future tense form is the only one available, or at least the only one commonly used. For instance

(48) Njandaka-lémaya (GO/39/12)

*you me FUT-show*

*Show it to me.*

(49) Djabindi-bbíddaba (GO/39/9)

*you them two-follow (FUT)*

*Follow them.*

(50) Njanáka-wa (GO/37/12)

*you me FUT-give*

*Give it to me.*

The alternative nature of the Future and Imperative forms is shown by the side-by-side existence of the two in this function as in the following examples.

(51) Djakanídja  
*Wait for him. (2min. A, FUT)*

Manídja.  
*Wait for him. (Singular Imperative)*

(52) Niyibalákka.  
*Come back. (2ua S, FUT)*

Birribalákka.  
*Come back. (Dual Imperative)*

(53) Nanbiyi-bbíddaba.  
*you them FUT-chase*  
*Chase them.*

Banbirri-bbíddaba.  
*Chase them. (Dual or Plural Imperative)*

(54) Nbaka-bbíddaba.  
*me you FUT-chase*  
*Chase me.*

Nbarra-bbíddaba.  
*Chase me. (Plural Imperative)*

There are several things to notice in the examples (52), (53) and (54). In all cases the Imperative prefix form is identical to that which we would expect if the subject were third person (of the same number) instead of the Imperative second person, and if the tense were non-Future (thus permitting the usual use of -rrV-). See examples (40) and (52) above. In this case the Dual Imperative and the Past I form with third person unit augmented S are identical in form



because the Future and Past 1 forms of the verb are not distinguished by suffix or suppletive forms. Compare also the forms of the verb *biddabo* *follow, chase* given in (39) and Table 1. In example (54), with the same verb, it so happens that the prefix form marking first person minimal O and third person augmented A is not distinguished from that marking first person minimal O and second person augmented A. Thus the only difference to appear on the surface between Future and Imperative is that between Future *-ka-* and non-Future *-rra-*. In fact one informant maintained that the inland dialects are more likely to use the Imperative in this case and the coastal dialects the Future. This has not been checked in actual usage.

### 3. SHIFTING OF WORD FINAL VOWEL LENGTH

There is, in Kunibidji, a well established phoneme of vowel length combined with major stress. There are numerous minimal pairs supporting the existence of such a phoneme, and further evidence is provided by the movement of this phoneme within verbal and nominal words, in some cases triggering the operation of phonological rules geminating or leniting root initial stops (see McKay 1984, McKay 1980a:4-5 and McKay 1979a:A-7). In fact an examination of the patterns set out in McKay 1980a shows that this phoneme can occur in or move to each of the following positions depending on the verb involved: root initial, root final (and other positions in the root), pronominal prefix initial, *-yaka-* prefix initial, *-ko-* prefix, suffix initial and penultimate of suffix. See the examples below, noting that loss of the vowel length phoneme causes vowel reduction to a in most cases.

(55) bo IRG *fall, land*

pronominal prefix initial	bárra-bbo <i>they are falling</i> (Past 1)
suffix initial/penultimate	barra-ba-ngóna <i>they fell</i> (Past 2)
root final/initial	baka-bbó-ngana <i>he would have fallen</i> (Past 2 Neg)

(56) no IRG *sit*

<i>-yaka-</i> prefix initial	ka-yáka-na <i>he will sit</i> (FUT)
root initial/final	ka-nó-ra <i>he is sitting</i> (Past 1)
<i>-ko-</i> prefix	ka-kó-na <i>he sat</i> (Past 2)
penultimate of suffix	kaya-na-rayína <i>he would have sat</i> (Past 2 Neg)

(57) rimi VI *grasp, hold, have*

root initial	kayaka-ríma <i>he will grab it</i> (FUT)
pronominal prefix initial	ká-rama <i>he is holding it</i> (Past 1)
root final	kaya-ramí-ngana <i>he would have grabbed it</i> (Past 2 Neg)

It can be seen that none of these vowel length/stress positions is word final. Word initial, prefix initial, root initial and suffix initial are possible. Root final is possible but only when not at the same time word final. No suffix final long vowels occur. A crucial set of data was unknown and thus had not been taken into account in the analysis of McKay 1980a. This involves the addition of suffixes to verb forms which otherwise would have word initial vowel length — such as *bárrabbo* and *kárama* in (55) and (57) above. There are two principal cases where minimal pairs can be found with and without a suffix:

(i) Third person augmented (plural) subject forms differ from third person

unit augmented (dual) feminine subject forms normally only in the addition of the suffix -nja on the latter, as in (58).

- |      |                                     |  |
|------|-------------------------------------|--|
| (58) | barra-béna<br><i>they (pl)-went</i> | barra-béna-nja<br><i>they-went-dual feminine</i> |
|------|-------------------------------------|--|

(ii) With certain transitive prefixes the suffixes -yana (third person minimal masculine) and -yángaya (third person minimal feminine) – the third person minimal dative pronouns – signal that the subject (A) is third person rather than first or second person, as is clear from (59) and (60).

- |      |  |   |
|------|--|---|
| (59) | njana-wúna<br><i>me-gave</i><br><i>you gave it to me</i> | njana-wúna-yana<br><i>me-gave-he</i><br><i>he gave it to me</i> |
| (60) | ngana-bbóna<br><i>you (O)-hit</i><br><i>I hit you</i>    | ngana-bbóna-yana<br><i>you (O)-hit-he</i><br><i>he hit you</i>  |

The interesting cases occur when these suffixes are used in this way with verb forms which otherwise would have vowel length in the word initial syllable. See the various related forms of the verbs exemplified in (61) to (64).

- (61) bo IRG *fall, land*  
 bárra-bbo *they are falling* (Past 1)  
 bárrri-bbo *they (dual masculine) are falling* (Past 1)  
 barra-bbón-nja *(dual feminine) are falling* (Past 1)
- (62) bakabinji VI *dig*  
 bárra-bakabanja *they (plural) are digging*  
 bárrri-bakabanja *they (dual masculine) are digging*  
 barra-bakabanjí-nja *they (dual feminine) are digging*
- (63) njembo VIIIC *waken*  
 njána-njabo *you woke me* (Past 1)  
 njana-njabó-yana *he woke me* (Past 1)
- (64) biddabo IX *chase, follow*  
 njána-woddabo *you are chasing me* (Past 1)  
 njana-woddabó-yana *he is chasing me* (Past 1)

In these examples we find that when the addition of a suffix renders the root final syllable no longer word final, the vowel length/stress moves to the root final position. This occurs with other suffixes too in text. Thus in (65) the suffix -bba allows stress to fall on the root final, while in (66) it is the Dative Pronoun suffix which does this but this time in the indirect object, not transitive subject function. A similar form without suffix is given in brackets.

- (65) Njarra-baló-bba. (Njárra-bala./Njárra-balo.) (XXV/95)  
*we-came*
- (66) Nga-ndabayí-yana. (Ngá-ndabaya.) (XXV/37)  
*I-made bilabial click sound-to him.*

As far as I can see the simplest way to describe this phenomenon is to say that in an underlying form the vowel length appears on the root final vowel, but that wherever this is word final it shifts to word initial position. Two factors suggest this, as opposed to underlying word initial stress, though my advancing these points in support is rather speculative at this stage.

(i) In the case of conjugation IX the root final vowel is not reduced to a in the Past 1 when word final, even though it does not bear the vowel length. In the presence of a suffix, of course, it may bear vowel length. Contrast the Future tense of the same conjugation in which the root final vowel is reduced to a. It seems plausible to suggest that this difference is due to the fact that in the Past 1 the vowel length is underlyingly on the root final while in the Future it is underlyingly on the root initial. The underlying length, even when not realised on the surface, inhibits vowel reduction. Compare the forms of (67):

(67) djakkabo IX *tie up*

baka-djdjakkaba *they will tie it up* (FUT)

bárra-yikkabo *they are tying it up* (PAST 1)

barra-yikkabó-nja *they (dual feminine) are tying it up* (PAST 1)

In Conjugations IC and VIIIC exactly the same contrast between reduced and unreduced root final vowels in the Future and Past 1 applies. These conjugations include all the verbs with this type of stress shifting and a root final o. The other possible root final vowels, i, e and a all reduce to short a when not lengthened in this position.

(ii) The verb bo (IRG) *to fall* has been presented already as example (55). See also the forms given in (68).

(68) bárra-bbo *they (plural) are falling* (PAST 1)

barra-bbó-nja *they (dual feminine) are falling* (PAST 1)

If we were to consider the vowel length in the PAST 1 forms to be underlyingly on the root final syllable and if it were underlying rather than surface vowel length/stress which triggered the rule geminating root initial stops (Rule 1, McKay 1980a:4) then all the alternations between b and bb in root initial position in this verb would be explained. This verb, however, is unique in this. Many verbs with this stress pattern do end in bo (VIIIC and IX) but it is not a root initial bo so Rule 1 would not, in any case, apply. The verb ba VIIID *eat, bite* does have a root initial stop but this stop does not geminate at all, whether the following vowel is lengthened in the surface or the underlying form. Thus

(69) ba VIIID *eat, bite*

bárra-ba *they (plural) eat* (PAST 1)

barra-bá-nja *they (dual feminine) eat* (PAST 1)

barra-bá-la *they (plural) ate* (PAST 2)

Note that the Past 2 form with third person minimal subject presents a minimal pair with the word for *boat* – kabála *he ate it*, kabbála *boat*.

The verb yiyi XVI *leave* presents some interesting data, the status of which is still unclear. Remember that there is a phonological rule deleting one of a pair of identical CV syllables (Rule 4, McKay 1980a:7). This may have a role to play in this case. The Past 1 and Past 2 forms meaning *he left me* appear to be homophonous, giving both the form njanayíyana. The Past 2 form could well be derived from \*njanayíyayana with application of the abovementioned Rule 4 deleting one of the two successive occurrences of the syllable ya. In the Past 1 form the lengthened high vowel could be the root final rather than the root initial one, though this does not, then explain the loss of the root initial syllable. In addition, presumably to overcome this homophony, there appears to be an alternative Past 1 form with the same meaning: njánayana. This is presumably derived by double application of the rule to a form \*njánayayana. This is the only form I have been given in which the vowel length does not move

to the root final when a suffix appears. Compare the regular-looking dual feminine forms of this verb given in (70).

(70) *yiyi XVI leave*

*bárraya they* (plural) *left it* (PAST 1) (derived by Rule 4 from \**bárrayaya*)  
*barrayáínja they* (dual feminine) *left it* (PAST 1)  
*barrayíyanja they* (dual feminine) *left it* (PAST 2)

In summary it appears that verb forms with prefix initial vowel length/stress arise from the inability of vowel length/stress to occur word finally. In the relevant verb forms an underlying word final vowel length phoneme is transferred to word initial position. A great deal more study of the Ndjébbana phenomenon of 'stress shifting' (or rather 'length shifting') is required, but a very interesting picture is beginning to emerge. Of its overall significance in the language there can be no doubt. It adds further weight to the view that vowel length/stress is significant, unlike Burarra where it is predictable, occurring in root initial position (Glasgow 1981:64).

#### 4. FREE FORM PRONOUNS

There are four main sets of pronominal forms used in Ndjébbana (Kunibidji). Of these I am terming three 'Free Form Pronouns' for the purposes of discussion here, leaving only the pronominal prefix forms out of consideration for the present. The other three types are the Cardinal Pronoun forms (4.1) which are true free form pronouns, and the Dative (4.2) and Possessive (4.3) Pronouns which appear to be suffixal under certain conditions. The pronominal categories used in this discussion are set out in McKay 1978. The material presented here supplements, and in some respects corrects, that presented in McKay 1976. Pronominal prefixes are not discussed here because at the moment there are a number of gaps in the paradigms I have collected, particularly related to unit augmented (dual) feminine forms other than third person. Further details on the gender distinction as it applies in the unit augmented number are contained in McKay 1979b. Finally there is a set of Interrogative/Indefinite Pronouns.

##### 4.1 Cardinal and emphatic pronouns

The full range of Cardinal Pronoun forms is presented in Table 2. The Emphatic Pronouns are formed by replacing the Cardinal Pronoun suffix -bba with -mala.

The fact that bound pronominal prefixes marking intransitive subject (S), transitive subject (A) and transitive object (O) (or indirect object (IO) in the case of ditransitive verbs) are obligatory components of every verb in a Kunibidji sentence means that it is not necessary to use free form pronouns to duplicate this pronominal marking, especially since there are no distinctive case forms which could be used to clarify even those prefix forms which are ambiguous as to the grammatical roles of the actants marked by them. It is not surprising, then, that where the Cardinal Pronoun does appear it has some sort of contrastive, emphatic or focus significance. The contrastive aspect comes out clearly in (71) and (72).

Table 2: Cardinal pronoun forms

Number	minimal masculine	minimal feminine	unit augmented m.	unit augmented f.	augmented
Person					
1	ngáyabba	-	njirrikébbba	njarrayábbanja	njírrabba
1/2	ngárrabba	-	ngirrikébbba	ngarrayábbanja	ngúrrabba
2	njínjdjabba	-	nirrikébbba	narrayábbanja	núrrabba
3	nakébbba	ngayábbba	birrikébbba	barrayábbanja	barrayabba

- (71) Barrayabba yaláwa barrabalayirriya yawúyakka...njírrabba  
*they they came first we*

njarrayóra bakkándja njarrowolakkamiya. (XXV/91-94)  
*we camped later we set off this way*  
*They came on ahead. We camped there and came on later.*

- (72) Kawéndjanga. Ngayábbba ngarráma kádja yakkóya, nakébbba  
*he mounted she female under she lay he*

lárlana málaya. Yaraméra. (XXI/37)  
*male on top he held/mated with her*  
*He mounted. The female (turtle) was underneath, the male was on top.*  
*He mated with her.*

The Emphatic Pronouns formed with the suffix -mala (e.g. nakémala barrayámalanja, núrramala etc.) are used with the same sort of contrastive function as can be seen by comparing the examples (72) and (73), both from the same text.

- (73) Ngayámala yibéna ngarráma njana nakémala lárlana kabéna,  
*she she went female and he male he went*

warábbba. (XXI/45-46)  
*alone*  
*The female went away and the male went away, alone.*

The Cardinal Pronoun can also be used for emphasis or as a sort of focussing element as in (74) to (78).

- (74) Nakébbba Mángkaddjarra barrarána. (V/88)  
*Him Macassan they him speared*  
*It was Macassans they murdered.*

- (75) Ngayábbba djarríbbang yabarrakkóndjanga djéyabba yawarramánga. (V/109)  
*it(fem.) trepang it they cut there it they got*  
*Trepang, they cut it, they got it there.*

- (76) Ngayábbba marnúbbarr yakanórabba. (I/69-70)  
*it(fem.) goose she sits (habit.)*  
*There are geese there.*

- (77) Bárrarakarawo karrabba djíbbba njana ngáni::, njíndjabba  
*they moved like here and/to there you*  
 nganayóriba. (XXV/45-46)  
*you live*  
*They moved off as far as from here to your place.*
- (78) Barrabála wénjngala, yókkarra nakébbba, bíbbo ... (I/31-32)  
*they ate cockles fish it (masc.) crab*  
*They ate cockles, fish too, and crab.*

Note in (78) that, both wénjngala and bíbbo being feminine nouns, nakébbba can agree only with yokkarra.

Finally the Cardinal Pronouns have a second major function — they mark the possessor for nominals of Declension Class I. In this function the Cardinal Pronouns bear prefixes as nominals of Declension Class IV or VII in their own right. In fact only with the first person minimal form ngáyabba has it been possible to establish clear membership of Declension Class IV. With the other Cardinal Pronoun forms there appears to be no third person minimal masculine prefix. The prefix marks person and number of the possessed noun — that is it marks agreement with the possessed noun. We get forms like those given in (79).

- |      |                |               |                  |                |
|------|----------------|---------------|------------------|----------------|
| (79) | N-ngáyabba     | bábba.        | Nja-ngáyabba     | kíkka          |
|      | -my            | father        | -my              | mother         |
|      | My             | father        | My               | mother         |
|      | Barra-ngáyabba | barraróddjiba | Barra-barrayabba | barraróddjiba. |
|      | -my            | children      | -their           | children       |
|      | My             | children      | Their            | children       |

Further details on possession marking can be found in McKay 1980c.

For predicative marking of possession (e.g. *This car is his.* as opposed to *His car (was stolen).* etc.) the Cardinal Pronoun forms are again used, with one exception: the third person minimal (singular) masculine has a special predicative form nga-nábba, a nominal of Declension Class V, the root being -nábba and the prefix marking person and number agreement with the possessed object.

#### 4.2 Dative pronoun

Dative Pronoun forms are set out in Table 3.

Number	minimal masculine	minimal feminine	unit augmented m.	unit augmented f.	augmented
Person					
1	ngabúyanga	-	yinjerrekéyanga	yinjerreyánja	yinjírra
1/2	yingárra	-	yingerrekéyanga	yingarrayánja	yingúrra
2	yikkóyanga	-	yinerrekéyanga	yinerreyánja	yinúrra
3	-yana	yángaya	yiberrekéyanga	yiberreyánja	yibérra

One thing which must be established at the outset for effective use of these pronouns in writing is whether they are suffixes or free forms. These pronoun forms normally immediately follow the verb they modify and nothing else may intervene (apart that is from other verb suffixes). This suggests that these pronouns are, in fact, bound forms. This view receives further support from the fact that the third person minimal masculine form, when used to mark the third person masculine subject in certain transitive, stress shifting verbs creates the non-word-final environment which allows vowel length to be realised in its underlying position as outlined in section 3 above, as, for instance, in example (80).

(80) *njembo* VIIIIC *waken*

*njána-njabo* *you woke me*

*njana-njabó-yana* *he woke me*

*bárra-njabo* *they (plural) woke him*

*barra-njabó-nja* *they (dual feminine) woke him*

On the other hand the third person minimal masculine dative pronoun is the only form in this paradigm which does not have its own long/stressed vowel. The other forms appear to be equally able to stand as independent words in a phonological sense. In view of the length of many of these forms it may be best to write them as separate words, given the lack of strong reason to treat them as suffixes.

As in the case of the Cardinal Pronoun, the Dative Pronoun has two main functions: (i) Dative of Interest, as a marker of an 'interested party', in many cases specifically an indirect object; and (ii) as a subject (A) with certain transitive prefix forms to differentiate between third person and non-third person minimal transitive subject (A).

(i) *Dative of Interest*

By this term I am referring to any kind of interest in the verb which is indirect, that is not as direct transitive object. See also the discussion of the Possessive Pronoun in section 4.3 below. In Ndjébbana there are a few verbs which obligatorily mark a noun phrase in this type of case role by means of the 'object' element of the pronominal verb prefix. These are the so-called 'ditransitive' verbs *wu* (VII) *give*, *djébbá* (I) *deprive someone of*, *lemaye* (IB) *show*, *manjdja* (I) *steal, take away from*. The Dative Pronoun is not used in these cases. See example (81).

(81) *djabindi-wúna*

*you them-gave*

*You gave it to them.*

With other verbs such indirect interest is marked by a Dative Pronoun. In fact the available examples are mostly with intransitive verbs. Some of the possibilities can be seen in examples (82) to (88).

(82) *Nga-bbúdjeya-yana ngi-yirríya. Kóma ka-lakaláya. (XXV/36)*

*I-shouted-to him I-walked NEG he-(didn't) hear*

*I called out to him as I walked but he didn't hear.*

(83) *"Yá-rakarawo", ka-ngúdjeya ngabúyanga. "Kóma". (XXV/43-44)*

*you and me-go he-said to me no*

*"Let's go", he said to me. "No".*

- (84) Balawúrrwurr ka-rakarawéra yinjírra nganamánda. Ka-rawéra  
*wind it-moved for us little it-dispersed*  
 balawúrrwurr mardírrbala. (XVIII/6)  
*wind mosquitoes*  
*A little bit of wind blew for us. It got rid of the mosquitoes.*
- (85) Njanbirri-nádja birri-míba yinjerrekéyanga. (XXV/58)  
*we them-saw they-arrived to/for us*  
*We saw them (2) coming towards us.*
- (86) Rénjmarla ka-kkóya yabarrayánja, nganéyabba dílkarra. (XXI/40)  
*new moon it-lay for them that moon*  
*A new month started for the two of them (a pair of mating turtles).  
 (i.e. the mating went on for a whole month.)*
- (87) Lúrra ka-bbándjanga yinjírra Ndjébbana njarra-ngúdjeya. (VII/122)  
*lúrra he it-put for us Kunibidji we-speak*  
*He established the Lúrra fishing place/ceremony there for us Kunibidji  
 speakers. (Kunibidji speakers (njálkkidj soft dialects only) are the only  
 people allowed to participate in the ceremonial fish poisoning there.)*
- (88) Nganéyabba Malamalárta barra-rawáyiba yibérra Baru. (Djabíbbá, 1981)  
*then 'Seagulls' they-played them 'Baru' Budborl Barrarawáyiba*  
*Then the Seagulls (Kunibidji football team) played Baru (Burarra football  
 team).*

A special case of this occurs with the phrase márdba (ka)bbándja *like, want* as in (89).

- (89) Ngáyabba márdba nga-bbándja yikkóyanga, yí-yarra  
*I I-want you you and me-will go*  
 bedroling. (V/255-256)  
*patrolling*  
*I'd like you to come patrolling with me.*

The object or complement of this phrase may be a verb phrase as in (90) or an unmarked nominal as in (91). Only with pronouns is a distinction between direct and indirect objects drawn in Ndjébbana, and the only two case marking affixes found are an Ablative (-kkawa) and a Purposive (-ngána), which would not be appropriate here. Thus it is not surprising to find unmarked nominal objects here.

- (90) Márdba baka-bbándja ba-kkóya. (GF/25/21-22)  
*they will want they-will sleep*  
*They want to sleep.*
- (91) Márdba djaka-bbándja bíbbo. (I/220N)  
*you-will want crab*  
*You want crab.*
- (92) Ngaléwara márdba ngiyi-bbándja? (I/276-277)  
*what? we will-want*  
*What do we want?*





Interestingly the nominal meaning 'one' or 'alone' is in this declension class and thus in a phrase meaning 'three' can take a possessive pronoun of augmented number if the reference is human, third person singular masculine or feminine if not human. Sometimes augmented number is marked for animals too (see also section 7.1).

(97a) karnayédjabba warábba-na  
*two one-3 minimal masculine*  
*three (non-human/inanimate)*

(97b) karnayédjabba warábba-baddabirra  
*two one-3 augmented*  
*three (human, third person)*

Compare also (98).

(98) Nga-nóra warábba-njabba. (GA/15/8)  
*I-sit alone-1 minimal*  
*I am sitting by myself.*

Further examples are given in (99) and (100) which show an interesting contrast with Cardinal Pronouns to mark possession and in (101) which shows a contrast between the Possessive Pronoun and the Pronominal Prefix forms. (See also McKay 1980b)

(99a) ngalidjbínja-njabba  
*throat-my (Poss. Pron.)*

(99b) ngáyabba ngalidjbínja  
*my (Card. Pron.) didgeridoo (masculine)*

(99c) nja-ngáyabba ngalidjbínja  
*fem.my (Card. Pron.) shotgun (fem.)*

(100a) njamánja-njabba  
*knee-my (Poss. Pron.)*

(100b) njamánja nja-ngáyabba  
*mussels fem.-my (Card. Pron.)*

(101a) búrrbba-njabba  
*strong-I (Poss. Pron.)*  
*I am strong*

(101b) nga-bbúrrbba  
*my (Pron. Prefix)-guts*

The second function of the Possessive Pronoun is to mark a sort of 'Dative of Interest'. Only a couple of isolated examples ((102) and (103)) have been noted and this has not yet been explored.

(102) ...Nakébbba yawúyakka-njabba ki-yirríya. Ngáyabba nga-réndjeya. (XXV/33)  
*he first-for me he-went I I-stood*  
*He went before me, I stayed.*

(103) Bárriya birri-mérbara-njabba birri-nóra. (VII/64-65)  
*they two they two it-hide-from me they two-sit*  
*Those two are hiding it from me.*

As with the Dative Pronoun the question arises as to whether the Possessive Pronoun forms are suffixes or free forms. Note that they always immediately follow the word they modify, whether nominal ((96) to (101)), adverb (102), or verb (103). This fixed ordering suggests suffixation and this impression is

largely confirmed in the case of the second person minimal (singular) which has the form *ngka*. The initial nasal demands an open syllable to which it can attach. While a syllabic nasal syllable type does exist in the language normally only the apico-alveolar nasal is found. On the other hand the length and structure of some of the non-minimal forms suggests that even if they are to be considered to form a single word with the word they modify they could nevertheless be profitably written as separate words.

## 5. COMPARISON

Under the heading of comparison I am referring to a whole range of cases in which one item or activity is compared with another in some way. This includes comparisons introduced in English by words such as *like*, *same*, *too*, and so on. There is apparently no formal means of expressing the comparative degree (= English *-er*) or the superlative (= English *-est*). At least I have come across no examples of this in my work. I have not discussed this below but would expect that, as in Rembarrnga (McKay 1975:99-100), comparison of this type would be carried out using the polar terms in a relative sense. For instance English *A is bigger than B* would, I suggest, be rendered by *A is big, B is small* (i.e. relative to each other and not relative to some independent norm for the species as a whole). See also 5.2 below.

### 5.1 *karrabba like*

The word *karrabba* roughly translates English *like*. It is sometimes (but not obligatorily) used with the particle *wébba* as in example (104) below. It may be used to compare objects, activities, distances etc. as in (104), (105), (106) and (107).

- (104) Djalákarra... balawúrrwurr ka-ngódjbara malóya — *karrabba*  
*stingray dreaming wind it-makes rain like*  
 ngaríbba wébba. (XVIII/3-4)  
*dreaming palm tree*  
*The stingray dreaming makes wind and rain, just like the ngaríbba*  
*dreaming does.*
- (105) Bár-ra-rakarawo *karrabba* djíbbba njana ngáni::,  
*they-moved like here and there*  
 njíndjabba ngana-yóriba. (XXV/45-46)  
*you you-camp HABIT.*  
*They moved off as far as from here to your place.*
- (106) Ngaríbba — *karrabba* djéyabba kalúkku méyameya — ka-réndjeya. (XVIII/1)  
*dreaming palm like that coconut leaf it-stands*  
*The ngaríbba palms — their leaves are like coconut leaves — are standing*  
*there.*
- (107) "Alf Wilson?" "Nganéyabba nga-lawáya."  
*that I him-know*  
*"I know the man you mean."*  
 "Nganéyabba nga-lawáya ngáyabba *karrabba*." (Johnny Naliba 12/5/82)  
*that I him-know I too*  
*"I know him too."/"/Same as me, I know him too."*

The word *karrabba* also functions as a conjunction with the meaning *and*. Further examples of all its uses are given in the *karrabba* entry in the 'Glossary of miscellaneous Ndjébbana (Kunibidji) words' (McKay 1981b).

## 5.2 too + adjective

In Ndjébbana this English construction is normally rendered by a simple adjective, the notion of 'grading' or comparison being inherent in the relevant type of adjective. See discussion in McKay 1975:99-100 and the references cited there. The comparison is with some kind of norm. In the case of (108) the norm is the actual size of the drainhole and in (109) it is the comfortable or safe load of the boat in question. Both examples are from conversation.

- (108) Comment on finding a cork which might be useable as a plug for the speaker's boat:

Wukúyawa nganamánda. (Jockey Bundubundu 25/1/80)  
*perhaps small*  
*Perhaps it's too small.*

- (109) "Djéyarra?"  
*Are you going?*

"Kóma. Barra-karrówa." (Jockey Bundubundu)  
*no they-many*  
*No. There are too many people already./No. The boat's already overloaded.*

## 5.3 birribúyabba they look the same

The appearance of two or more different items can be pronounced 'similar' or 'the same' using the reflexive/reciprocal form of the verb *bu hit* with -bba suffix. The appropriate tense forms for a Conjugation II verb are used (preceding the -bba suffix) as shown in the examples of (110).

- (110a) birri-bú-ya-bba  
*they two-hit-reflexive Past 1-bba*  
*they look the same, like each other*

- (110b) barra-bú-ya-na-bba  
*they (pl)-hit-reflexive-Past 2-bba*  
*They (pl) looked the same.*

- (110c) ba-ka-bú-ya-bba  
*they-Future-hit-reflexive-bba*  
*They will look like each other.*

The English word 'same' can be used in this sense ('similar appearance') but this should be clearly distinguished from the other sense of the English word 'same', that is referential identity ('the very one', 'the self-same'). In Ndjébbana referential identity is referred to using the nominal *ndjídjabba* discussed in the next section.

5.4 ndjídjabba *same*

The nominal ndjídjabba (Declension IV) means *same* in the sense of referential identity and should be clearly contrasted with forms referring only to similarity such as constructions with karrabba *like* (5.1) and with the reflexive/reciprocal form of bu *hit* with suffix -bba (5.3). The opposite of ndjídjabba is the nominal nganáwarla/nganáworrkala *different* which refers only to referential distinctness or difference, not to dissimilarity. Ndjídjabba is often followed by the particle wébba. It is probable that ndjídjabba *same* is derived from or related to the nominal ndjídja *old*.

- (111) Naméwaya ngíya-ma djídjabba wébba. (I/170)  
*net we it will-get same*  
*We'll get the same net.*
- (112) Njarra-balákkana djídjabba njarra-djórrbana njarrúkana. (I/66-67)  
*we-went back same we it-cooked we sat*  
*We went back to the same place and cooked it.*

## 6. STATIVE SENTENCES

Ndjébbana has no copula and thus in the present (Past 1) tense there is normally no verbal form or copula where the predicate is a nominal. Sentences are simply made up of the relevant nominals, each marked with the appropriate agreements. See (113) to (115) and the second clause of (116).

- (113) Njanabbardákka yírriddjanga. (XXI/3)  
*trevally yírriddjanga*  
*Trevally is yírriddjanga.*
- (114) Narra-búlanj-nja. Lárla-baddabirra  
*you-(subsection)-dual feminine male-they two*  
 birri-búlanj. (GO/33/1-2)  
*they two-(subsection)*  
*You two girls are njabúlanj and the two boys are búlanj too.*
- (115) Yókkarra yeláwa kalalmúkkayana nganéyabba wóndja. (XXI/61-62)  
*fish mullet that*  
*The fish are mullet, that's it.*

Where appropriate, positional verbs may be used but this need not always be the case as seen by contrasting the two clauses of (116).

- (116) Ngayábba ngarráma kádja yakkóya, nakébbá lár lana málaya. (XXI/37-38)  
*she female underneath she lay he male on top*  
*The female (turtle) was underneath, the male was on top.*

If the tense is other than present (Past 1) it appears from the text examples collected so far that an appropriate positional auxiliary verb must be used as in (117), (118) and (119).

- (117) Ngáyabba nga-ndarládja kóna. (XXIII/23)  
*I I-short I sat*  
*I was short. (In context this sentence means that the swelling in the speaker's leg seemed to shorten it.)*
- (118) Nga-namánda ka-kóna, dja-nána ka-yarrárlmanga. (XVII/53-55)  
*he-small he-sat you him-saw he-grew*  
*He used to be small. You saw him, he's grown up now.*

- (119) N-karrakárramardba ka-rendjína. Ka-nangarddjína yeláwa. (XVIII/37-38)  
*it-long/tall it-stood it-broke*  
*It (stone dreaming place) used to be tall but it's broken now.*

## 7. AGREEMENT

Person and number agreement is a prominent feature of Ndjébbana (Kunibidji) sentences. There are only two gender classes among nominals though these are marked in a variety of different ways according to which of the ten available declension classes the particular nominal belongs to (see my 'Glossary of Ndjébbana (Kunibidji) nominals' McKay 1981a:iii). Thus in declension classes IV, IVA, V, VI, VII, VIII and IX agreement (or possession or intransitive subject S) is marked by intransitive pronominal prefixes, while in declension class II the same functions are marked by means of the possessive pronoun suffix. In the case of inalienable possession the line between agreement and possession would be extremely hard to draw, and in fact is not drawn morphologically. Thus for instance the word *lár-la-baddabirra* was given in example (96) with two meanings. In (96a) it was quoted as meaning 'the two boys' - *lár-la* meaning *male* and the possessive pronoun marking person and number agreement. The word could, however, equally mean 'their (two) penes' - *lár-la* meaning *penis* and the possessive pronoun marking possessor (96b).

The possessive pronoun can also function as subject of a stative sentence as the first person minimal form does in the sentence *Búr-rbba-njabba I am strong*. Contrast the prefix-possessor form *nga-bbúr-rbba my guts*. Where the cardinal pronoun is used to mark possessor, *it*, in turn, is marked by a prefix to indicate person and number agreement with the possessed noun as in (120).

- (120a) *nja-ngáyabba kíkka*  
 3 minimal fem.-*my mother*  
*my mother*
- (120b) *barra-barrayabba barra-rókaddjiba*  
 3 augmented-*their* 3 augmented-*children*  
*their children*

Agreement is marked on verb forms in three ways:

- (a) by pronominal prefix;  
 (b) by subject suffix (third person minimal possessive pronoun);  
 (c) by dual feminine suffix -*nja*.

By far the most extensive of these is the pronominal prefix system which is outlined elsewhere. (Earlier partial tabulations needing some correction and completion are found in McKay 1976 and McKay 1978. A more complete discussion is in preparation.) The pronominal prefix system provides one-place intransitive subject (S) prefixes and two-place prefixes for transitive and ditransitive verbs. These mark transitive subject (A) in all cases and indirect object for ditransitives or direct transitive object (O) for ordinary transitives. In most cases one of the pronominals is marked for person and number, the other for number only. A number of neutralisations are found.

The 'subject suffixes' are the third person minimal possessive pronoun forms *yana* (masculine) and *yángaya* (feminine). These mark third person minimal transitive subject (A) of the appropriate gender in certain cases with first and second person objects (O) to distinguish them from second and first person minimal subjects respectively. See (121) and the discussion and examples in section 4.2 (ii).

- |       |                   |                  |
|-------|-------------------|------------------|
| (121) | njana-bbóna       | njana-bbóna-yana |
|       | <i>me-hit</i>     | <i>me-hit-he</i> |
|       | <i>you hit me</i> | <i>he hit me</i> |

The -nja suffix coupled with augmented prefix forms marks unit augmented (dual) feminines in which the single augment is feminine. The meaning system and options are outlined in my paper 'Gender and the category unit augmented' (McKay 1979b).

In general agreement in person, number and gender is marked whenever and wherever the morphology permits, though a couple of special cases will be discussed below and some lapses have been found to occur. Of course with the verb forms, the free form noun phrases in the sentence being non-essential, it is often only the pronominal prefix 'agreements' which remain. These are obligatory. See for instance the following examples in which agreements are linked by lines. Dotted lines signify partial agreement in the sense that in one of the items linked gender is not clearly marked but only person and number is unambiguous apart from context. Thus njarra-nádja in (124) indicates that the object (O) is third person minimal but, like other forms with non-third person subject (A) does not distinguish masculine from feminine with a third person minimal object.

- |       |  |                          |                      |
|-------|--|--------------------------|----------------------|
| (122) | ...lár-la-baddabirra                       | birri-búlanj             | (GO/33/1-2)          |
|       | <i>male-3 unit aug. masc.</i>              | <i>3 unit aug. masc.</i> | <i>-(subsection)</i> |
|       | <i>The two boys are búlanj subsection.</i> |                          |                      |

- |       |   |                              |                     |                |
|-------|---|------------------------------|---------------------|----------------|
| (123) | Ngayábba nja-barrábarrabba                | yaka-bbándjeya               | yaka-yóra.          | (XXV/38-39)    |
|       | <i>she</i>                                | <i>3 minimal fem.-mother</i> | <i>she-put self</i> | <i>she-lay</i> |
|       | <i>The mother one (buffalo) lay down.</i> |                              |                     |                |

- |       |                       |                                  |                             |
|-------|-----------------------|----------------------------------|-----------------------------|
| (124) | Njarra-nádja makéddja | ya-rríkka                        |                             |
|       | <i>we it-saw</i>      | <i>long necked turtle (fem.)</i> | <i>3 minimal fem.-crawl</i> |

nja-nabarlámbarla	nja-barrábarra...	nja-yínjawa
<i>3 minimal fem.-freshwater</i>	<i>3 minimal fem.-big</i>	<i>3 minimal fem.-alive</i>

- |                  |                             |                             |
|------------------|-----------------------------|-----------------------------|
| nga-djórrkka.... | "Nirrikébbba ndjéya         | bárri-yarra.                |
| <i>I it-took</i> | <i>2 unit aug. this way</i> | <i>2 unit aug. IMPER-go</i> |

Njirrikébbba njiyi-wákka.	Yakanádja
<i>1 unit aug. 1 unit aug. FUT-go</i>	<i>back that way</i>

njiyi-wákka	njí-yarra."	(XXV/15-20)
<i>1 unit aug. FUT-go</i>	<i>back 1 unit aug.-will go</i>	
<i>We saw a long necked turtle crawling along - a big freshwater one you know. I took it with me still alive... "You two go this way and we two will go back that way."</i>		

## 7.1 Number neutralisation with non-human nominals

While it is possible for non-human animals in particular to be cross-referenced in the verb as plural or augmented number as in (125), especially if the number is a significant detail and individuation is clear, it is also quite common for minimal or singular cross-referencing to be used, especially if a group or a generality is in focus rather than a set of individuals. In (125) both occur.

- (125) Njanbirri-nádja kúdja-baddabirra, kaw, karnayédjabba karnayédjabba,  
*we them-saw tracks-their cow two two*  
 barra-wála... nabarláambarla namarnakkúrrkka ka-warréra...  
*they-went down freshwater creek it (i.e. they)-crossed*  
 kúdja-baddabirra... (XXV/22-25)  
*tracks-their*  
*We saw their tracks, four cows, they went down...they crossed the*  
*creek...their tracks...*

In (126), (127) and (128) augmented number is not marked even though (a) the noun phrases are semantically plural, given the adjectives involved; and (b) the morphology is available (viz. barra-karrówa, barra-múlbbum, njanbirri-mánga, njanbirri-nána etc.).

- (126) Njirri-nána nja-múlbbum karrddjúnja yaka-yóra. (XXIII/5-6)  
*we it-saw 3 minimal fem.-several stingray 3 minimal fem.-lie*  
*We saw several stingrays there.*
- (127) Njarra-mánga yókkarra karrówa. (I/29)  
*we it-got fish many*  
*We caught many fish.*
- (128) Mardírrbala karrówa djiya. (I/80)  
*mosquitoes many here*  
*There are too many mosquitoes here.*

In (129) the phrase karnayédjabba warábba-na, being marked third person minimal masculine in agreement with mudíkkang presents a nice contrast with the form for the number 'three' in reference to three people (third person). Here the third person augmented suffix would invariably be used giving karnayédjabba warábba-baddabirra.

- (129) Mudíkkang karnayédjabba warábba-na ka-karlábaya. (XXV/77-78)  
*truck two one-3 minimal masc. 3 minimal masc.-came down*  
*Three trucks came down to the landing.*

Finally it can be noted that even with human subjects generalisations can be made using minimal (singular) pronominal forms, even where plurality is clearly involved. There is, for instance, a whole text (No. XVII) which is cast in the singular even though it deals with a large group of people because it is detailing the normal or general sequence of events in a fish poisoning ceremony. Interestingly the few interpolated English words are in the plural while their Ndjébbana counterparts are singular.



- (130) ...ngandjúddama some wúbbunj wékkana ngána ka-béna  
*bark canoe canoe early morning* 3 minimal masc.-went  
 ka-kkóya *camping there one day...They go island*  
 3 minimal masc.-camped  
 wékkana ngána *after breakfast, bálay, wékkana ngána*  
*early morning already*  
 ka-wálanga. Ka-walédjba ka-béna.  
 3 minimal masc.-go ashore 3 minimal masc.-paddle 3 minimal masc.-went  
 Level ka-béna. Djíya ka-béna, djíya ka-béna,  
 3 minimal masc.-went here 3 minimal masc.-went  
 djíya ka-béna, djíya ka-béna. Ka-béna  
 3 minimal masc.-went  
 ka-wálanga... Two, three barra-bena wúbbunj  
 3 minimal masc.-went ashore 3 augmented-went canoe  
 makéddja... (XVII/2-10)  
*turtle*  
*Early in the morning they went in bark canoes and some dugouts (to Juda Point) and camped there one day. They went to the island and landed before breakfast. They paddled across level with each other in a line. One here, one here, one here, one here. They paddled across and went ashore. Two or three went off in a canoe to hunt turtle.*

Note how the verbs are all marked with singular pronominal prefixes, even where the reference is to a large group of canoes full of people advancing 'level' or side by side in a line. But at the end of this extract two or three men from the larger group go off hunting leaving the others on the island and it is here, where individuation is more pronounced, that augmented (plural) pronominal prefixes occur.

## 7.2 Unit augmented (dual) for general statements

It is quite common in Ndjébbana (Kunibidji) to find the unit augmented (dual) number instead of the also common augmented or plural when a general statement of practice is being made. In fact Text No. XXII is a version of the same story about the sequence of events at the same fish poisoning ceremony as is discussed by a different speaker in Text No. XVII, which we have just discussed. While general statements in Text XVII are made in the singular, many general statements in Text XXII are made in the unit augmented (dual), though the singular is also used.

A thorough check of all verb forms with respect to number has not been carried out but the plural use of dual forms is borne out by a number of examples such as those quoted below. I have long had a strong impression that unit augmented forms are quite common with augmented or general significance.

- (131) Marlémarla njirri-ngódja djawalárра. (XXII/8)  
*poison berries we (unit aug.) it-call 'lily'*  
*We call the poison berries 'lilies' (in order to fool the spirits).*

- (132) Bákki njánabba nganjónjanja. Barrayabba balánda  
*tobacco what's it? black they white person/English*  
 barra-ngódjiba 'stick tobacco', ki-birri-yíngkiba. (XX/186-188)  
*they (aug.) it-call -they (unit aug.) it-call*  
*What's it tobacco? Black tobacco. In English they call it 'stick*  
*tobacco' - that's what they say.*
- (133) Wúrdeyak ngárri-na ngirrikébbba wébbba. Ngárri-na  
*long ago we (unit aug.)-sat we (unit aug.) we (unit aug.)-sat*  
 ngirri-béna yókkarra. (VII/2-3)  
*we (unit aug.)-went fish*  
*In the old days we (plural) used to go fishing.*

In fact large slabs of the text from which example (133) comes are set in the unit augmented number when in fact general statements are being made about the old way of life.

### 7.3 Interesting features

In discussing the AUX construction we have already noted in connection with example (10) that the subject agreement on an intransitive Auxiliary can sometimes disambiguate the gender of the undifferentiated third person minimal subject of a transitive verb.

- (134) Ka-nádja yaka-yóra.  
*he/she him-saw she-lay*  
*She looked at him. (\*He looked at her lying there.)*

Gender is grammatical in Ndjébbana and there is a text example which clearly shows this but unfortunately the reference has been mislaid and it cannot be located at present. The example in question involves a man named after the bird kaddíkadda (feminine) whose song he sings. In one text the man is referred to using feminine pronominal forms after the introduction of this name.

## 8. DURATION AND EXTENT

There are three main methods of indicating durative aspect or great extent in Ndjébbana (Kunibidji). These are (i) lengthening of sentence final syllable with a rise in pitch; (ii) repetition; or (iii) the use of AUXiliary verbs of motion.

### 8.1 Lengthened final syllable

All Aboriginal languages of the area known to me share this feature. This includes Aboriginal English. The final syllable of the clause is lengthened considerably and the pitch of the voice is raised instead of the normal statement-final fall. In the examples we will indicate this by two semicolons following the final vowel. This final syllable becomes even more prominent than a preceding stressed/long syllable.

- (135) Njarra-nóra::. Yeláwa mudíkkang karnayédjabba warábbana  
*we-sat DURAT then vehicle two one*  
 kakarlábaya. (XXV/77-78)  
*it (i.e. they) came down*  
*We stayed there a long time before three vehicles came down to the*  
*landing.*

In Kunibidji this syllable final lengthening appears to function in the same way as the phonemic vowel length/stress with respect to vowel reduction. That is vowels which are otherwise reduced to short *a* in word final position become unreduced when this marker of duration and extent is employed. Note that in the case of the demonstrative affected in (136) this is the only evidence available that the underlying form should have a high front vowel. Note too that spatial extent, not duration is indicated in this example.

- (136) Bárre-rekarawo karrabba djíbbá njana ngáni::,  
*they-moved like here to there*  
 njíndjabba ngana-yóriba. (XXV/45-46)  
*you you-live*  
*They moved off as far as from here to your place.*

## 8.2 Repetition for duration

In many Aboriginal languages reduplication is a productive process to indicate duration, iteration, plurality, broad extent, or related features. Reduplication does not occur in Ndjébbana within a single word but rather whole words are repeated to indicate duration in general as in (137) or to indicate a specific number of iterations as in (138), where each occurrence of the verb 'to sleep' indicates another night of sleep.

- (137) Njírrabba njarra-béna ngána nakkáyala. Njarra-wolo-béna,  
*we we-went there on foot we-hither-went*  
 njarra-wolo-béna, njarra-wolo-bena...  
*We were walking along on foot. We walked and walked...*

- (138) "Nirrikébbá níyarra budborl?"  
*you you'll go football*  
 Njirri-yángkana, "I." Njarra-kkóya, njarra-kkóya,  
*we-said yes we-slept we-slept*  
 njarra-kkóya, njarra-kkóya, yaláwa njarra-wolo-béna kúl.  
*we-slept we-slept then we-hither-went school*  
*"Do you two want to go to the football?" We said, "Yes."*  
*Four days later (lit. we slept, we slept, we slept, we slept -*  
*four nights) we came to school...*  
 (Lance Wardáka, Banakúdjabba Njarrabéna Budborl, 1981)

## 8.3 AUX verbs of motion for extent

See section 1.5 for a discussion of this method of marking duration and extent, as well as a number of examples of this phenomenon.

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SEMANTIC ROLES – THE LANGUAGE SPEAKER'S CATEGORIES  
(IN KALA LAGAW YA)

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0. LIST OF ABBREVIATIONS

ABL	Ablative case
ALL	Allative case
CR	Having a concrete referent
COM	Comitative
COMP	Completive
DU	Dual
GEN	Genitive case
HAB	Habitual
IMMP	Immediate past
KLY	Kala Lagaw Ya
LOC	Locative
ICOM	Incompletive
INC	Inclusive
PL	Plural
YESP	Yesterday past

1. INTRODUCTION<sup>1</sup>

During the past five years I have studied the language and culture of the Kala Lagaw people of the Western Torres Strait and increasingly I am convinced that in order to communicate I must learn not only new words and grammar rules but new schema for categorising ideas. These schema harmonise with a way of life that is peculiarly the people's own.

The three examples given below are indicative of Kala Lagaw patterns of semantic organisation.

1. Kulay! baydham sena boey amadhan.  
*beware shark there approaches close*  
*Look out! a shark there, it's coming close.*
2. Kayn wath sena boey amadhan.  
*new year then approaches soon*  
*The new year then will arrive soon.*

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The comparison of these two sentences illustrates that while English tends to use separate sets of words for time indication and for space indication Kala Lagaw Ya uses almost identical sets of words. The cultural basis for this difference will be discussed below.

3. Kulay! kula sena boey            amadham.  
     *beware rock there approaches close*  
     *Look out! (we are) about to run into a rock.*

The third example would typically be uttered by an observer in a canoe as a warning to the person steering. The close similarity of the Kala Lagaw Ya wording used in each of the three sentences is in marked contrast to the widely different constructions needed to translate the ideas into English. Were we to transliterate example 3. after the pattern of example 1. 'Look out! a rock there, it's coming close.' this would not be a very acceptable way of warning an English speaking helmsman. Kala Lagaw Ya and English have quite different rules controlling choice of reference origin. Where apparently different semantic elements cluster to the same Kala Lagaw Ya morpheme I have taken this as evidence that there is a semantic relationship between these elements and I have searched for further evidence of grouping or unity. In making such a search I have been helped and inspired by the work of Hopper and Thompson (1980), Foley and Van Valin (1977, 1979, 1980), and Marion Johnson (1981). Personal consultation with Ray Johnston of Summer Institute of Linguistics and Marvin Mayers of University of Texas, Arlington, have also helped me to formulate ideas.

The paper sets out to describe the search for meaningful groups of semantic roles as they are mapped onto noun case morphemes. Later the search for underlying unity is extended and an attempt is made to bridge across the grammatical categories of nominal and verbal and to demonstrate that there is a uniform pattern in Kala Lagaw Ya for dealing with sequences whether these be

- (i) Sequences of things, living and/or non-living
- (ii) Sequences of events
- (iii) Sequences of ideas.

Westerners will tend to treat these as three essentially different sequence types, relating them to space, time, and cognition respectively, but there is ample morphological and semantic evidence that Kala Lagaw Ya speakers place far more emphasis on what is common to the various sequences. Systematic use is made of the same terminology when Kala Lagaw Ya speakers discuss each of the different sequence types. This will be featured below. Further it will be shown how morphemes of the same shape occur on nouns to indicate case and on verbs to indicate tense/aspect but that there are very close semantic links in meaning between equivalent morphemes occurring on nouns and on verbs. The same set of morphemes which occur on verbs to indicate various levels of decisiveness of the argument of that verb, also occur on nouns. When they occur on nouns they indicate various levels of decisiveness of interaction between participants. The correspondence between nominal and verbal hierarchies of decisiveness is surprisingly close.

## 2. SEQUENCES AS PARTIAL ABSTRACTIONS

It appears significant that Kala Lagaw Ya not only uses the same terminology for locating events in time and for locating things in space, it goes further and uses morphemes of the same shape attaching to both nouns and verbs. The parallel is inescapable, verbs are predominantly event oriented while nouns are



predominantly oriented to things. As I struggled to understand how the abstractions of time and space could be perceived as essentially analogous, Dr Mayers pointed out to me that it could be more productive to focus attention on sequences of events rather than on time as a highly abstracted concept. He has gathered considerable evidence to the effect that different cultures have different propensities to order events either in relation to other significant events or else in relation to a mathematical conceptualisation of time as an abstraction. There is considerable evidence to suggest that the Kala Lagaw people tend to focus attention on event sequences rather than on time as an abstraction. Likewise there is a lot of evidence to suggest that within the culture, sequences of things and of people are more in focus than is space as an abstract concept. It appears that this tendency away from abstraction enables the Kala Lagaw person to think about the various types of sequences according to a common schema. It is significant that in Kala Lagaw Ya, distant past tense and future tense are not paralleled by noun cases with morphemes of the same shape. Yesterday past, immediate past, completive aspect, and incompletive aspect all find exact parallels with noun cases having morphemes identical in form. (See Tables 5 and 6). Plausibly the distant past tense and the future tense are more highly abstracted from event sequences than are the other tense/aspects. It would be interesting to explore the possibility that among English speakers there is an inverse correlation between propensity for abstract thinking and propensity to apply space oriented terminology to time sequences and cognitive sequences.

Even in Western man's experience there are situations which tend to blur our tight separation of object from event and of space from time. Consider the following sequence of object/events, a gala parade. A spectator watching the gala parade from the footpath will tend to perceive it as a time sequence, 'First I saw the elephants, then I saw the marching girls, etc., .....'. A newscaster, however, who views the spectacle from a helicopter tends to see items sequenced in space, 'Just below me I can see the juggling act, immediately in front of them clowns are riding miniature bicycles, while far into the distance I can just see the girl guides entering the archway, ....'. This example has been chosen deliberately because it blurs the distinctions between space and time as well as between object and event. This may give some hint as to the Kala Lagaw Ya perspective which emphasises what is common between different types of sequences.

On the other hand it must not be thought that Kawa Lagaw Ya speakers are unaware of distinctions between objects and actions. Despite the unusually high degree of similarity between noun morphology and verb morphology, the differences are even more obvious. Other Pama Nyungan languages also have some examples of morphemes of the same shape occurring on both nouns and verbs. The present high degree of similarity between noun and verb suffixes in Kala Lagaw Ya can perhaps be explained as the product of lesser similarity in the proto language, combined with a strongly developed view of uniformity of sequences in space, time, and cognition. We can find evidence of one such possible shift by comparing Mabuig and Saibai dialects of Kala Lagaw Ya. In both dialects the word for yesterday is *ngul*, and again in both dialects the Ablative Case marker is *-ngu*. The Saibai dialect form of the yesterday past tense marker is *-ngu* the same as for Ablative case whereas the Mabuig form is *-ngul*, the same as the free form of the word yesterday. All that is certain is that Saibai dialect now has a greater degree of uniformity between noun and verb suffixes.

It is significant that in the neighbouring Trans-Fly Papuan language *Bine* there is a much more elaborate set of correspondences between tense/aspect suffixes not far removed from the present time and free form time words such

as 'yesterday' and 'today'. (Personal communication with Lilian Fleischmann)

### 3. SEQUENCES, THINGS, EVENTS, AND IDEAS, MAPPING ONTO NOUNS

Table 1 ..... shows syntactic case relations which are grammatically defined and quite frequently have a one-to-one correspondence with morphemes. The semantic roles shown in the right hand column have been labelled largely in terms of a native English speaker's preferred categories.

MORPHEMES	SYNTACTIC CASE RELATIONS	SEMANTIC ROLE
-ngu	Ablative	Motion from Source Avoidance
-pa	Allative	Motion towards Goal Purpose Benefactive
-ia <-pu>	Comitative	Path Companion Vehicle
-nu	Locative	With/In/Near
	Instrument	Controlled means
-n	Ergative	Transitive actor
<-nu> <-∅>	Set plural (anti-passive)	Complete set (all members of a given set. See Bani and Klokeid 1976.)
-∅ <-n>	Accusative	Patient

Table 1

(There are some elaborate morphology interchanges and partial reversals as between masculine nouns, neuter nouns, and pronouns. This results in some overlapping of allomorphs between ergative and accusative cases.)

I wish to argue that the retention of some of the 'native English speaker' categories shown in Table 1. above is unhelpful to an adequate appreciation of indigenous semantic categories. For example Kala Lagaw Ya uses the allative case in each of the following three examples. The suffix -pa is used in each instance.

4. Nuy Townsvill-apa  
*he Townsville-ALL*  
*He went to Townsville*

5. Nuy ay-pa.  
*he food-ALL*  
*He went to get food*
6. Nuy ay-pa amal-pa.  
*he food-ALL mother-ALL*  
*He went to get food for mother*

I believe that in the indigenous view the above three concepts are related, perhaps even inseparable. In other words, the etically differentiated concepts of motion towards, purpose, goal and benefactive are all very closely related. This relationship applies to time orientation as well as to spatial orientation and to the realm of cognition. I realise that here I am engaging in the dangerous practice of imputing thought patterns to the speakers of a language imperfectly known to me. It is probably better, however, to make explicit assumptions than to make implicit assumptions. I claim as supporting evidence:

- (i) There is a growing body of literature showing that for a wide variety of languages, analysts consider that their appreciation of structure and meaning have been enhanced by aligning semantic evidence with grammatical evidence. (N.B. Hopper and Thompson survey (1980) and work by Foley and Van Valin (1979).)
- (ii) Using the assumptions set out above has helped me to understand what Kala Lagaw Ya speakers are saying. Also many assertions by Kala Lagaw Ya speakers suggest directly and indirectly that they perceive their environment in this way.
- (iii) The dialects spoken on Saibai, Dauan, Boigu and previously on Prince of Wales use the morpheme -pa as incompletive aspect marker on verbs and as Allative Case marker on nouns. The dialects of Mabuyag and Badu use the morpheme -ka in the same two applications.
- (iv) In Kala Lagaw Ya the various semantic components that map onto one noun case find a parallel with those mapping onto each of the other noun cases and this parallelism of semantic components would seem to extend to the meanings of various verb tense/aspect suffixes.

I now wish to discuss in more detail parts (i), (ii), and (iv), beginning with the phenomenon of semantic mapping onto morphemes. In the argument above I set out to establish the usefulness of postulating semantic categories which cut across those typical of English thought patterns. I now wish to argue further that it is frequently unhelpful to retain English semantic concepts in thinking about Kala Lagaw Ya where clearly these concepts cut across categories suggested by the grammar of Kala Lagaw Ya. A careful examination and comparison of semantic roles which are distinctively mapped onto various contrastive syntactic cases will reveal the spurious nature of what has been a supposed unity. Other ways of describing these supposedly united semantic components will demonstrate that the components properly belong with several different semantic roles. Each of these has its own unity of thought patterns for speakers of the language.

MORPHEME	CASE	ROLE
-ia	Comitative	Path Companion
-nu	Locative	Vehicle With/In/Near
-n	Instrument	Controlled Means

Table 2  
(A detail from Table 1)

An example of such a focus in Kala Lagaw Ya is Vehicle as a semantic role, see Table 2 above. Dotted lines (2), (3) and (4) on the table represent the supposed semantic role vehicle, mapping onto Comitative; Locative, and Instrument cases respectively. Closer examination soon reveals that Comitative case is used where the Actor is a passenger in a vehicle such as a car, plane, or speed-boat. Locative case is much more likely to be used if the Actor is a passenger or crew member in a slow-moving vehicle such as a sailing craft. Instrument case is used to mark a vehicle driven by the Actor.

ACTOR AS:	TYPE OF VEHICLE	CASE MARKING ON VEHICLE
Passenger	Fast vehicle	Comitative
Passenger or Crewman	Slow vehicle	Locative
Person in charge	Any vehicle	Accusative

Table 3  
(The motive unit such as the sail or outboard motor will be marked instrument.)

I suggest that it is far more meaningful in terms of Kala Lagaw Ya speaker world view to break up the English speaker's concept of vehicles. Three essentially separate concepts join separate concept clusters. They are mapped onto Comitative, Locative, and Accusative cases respectively. Taking the view of an outsider would cause us to want to unite roles which do not readily unite in the semantico-syntactics of the language.

As noted in 2. p.154, different types of sequences are systematically mapped onto each of the syntactic cases. The morphology used for any syntactic case will be the same for all sequence types; event sequences, generally time related; sequence of things, generally space related; and idea sequence, cognition related. For convenience these sequence types will generally be referred to as time, space, and cognition respectively.

The following three examples for Allative case are oriented to space, time and cognition respectively.

7. Ngay lag-apa.  
*I house-ALL*  
*I will go home.*
8. Bathaynga-pa yawa.  
*tomorrow-ALL farewell*  
*Goodbye until tomorrow.*

9. Sena ngay-apa gegeyadh.  
*that I-ALL bad*  
*To me that is bad.*

The next three examples are all for Locative case and are likewise oriented to space, time and cognition respectively.

10. Ngay lag-oenu.  
*I house-LOC*  
*I am at the house.*
11. Sena-bi wath-oenu.  
*that-CR year-LOC*  
*In that year.*
12. Nga-w wakay thoemamay-nu balbaygi-nga.  
*I-GEN pattern thought-LOC correct-having*  
*To my way of thinking that is acceptable.*

The next three examples show the application of Ablative case to space, time and cognition respectively.

13. Ngay lag-oengu.  
*I house-ABL*  
*I come from the house.*
14. Seta-bi goeyg-ingu ngapa ....  
*those-CR day-ABL till+now*  
*From those days until now ....*
15. Za nga-w-ngu yakanur-iz.  
*thing I-GEN-ABL forget-COMP*  
*I had forgotten that.*

Examples 16 to 18 are of Comitative case applying to space, time and cognition respectively.

16. Nuy mura lag-ia.  
*he all house-COM*  
*He moved among all the houses.*
17. Sager mura wath-ia pagay-pa.  
*S.E. wind all year-COM blow-ICOM*  
*The southeast wind blows continually from year to year.*
18. Ngay ngi-bia asi-pa.  
*I you+SG-COM become-ICOM*  
*I am beginning to agree with you.*

Example 19 following relates Ergative case to the physical environment (time and space) whereas I regard example 20 as relating Ergative case to cognition because a discovery relates more to the planning of a constraint upon the undergoer rather than a physical constraint. Planning is cognitive.

19. Nuy-dh na-n matham-an.  
*he-ERG she-ACC strike-COMP*  
*He struck her.*
20. Nuy-dh n-an im-an.  
*he-ERG she-ACC see/discover-COMP*  
*He spotted her.*

	APPLICATION TO SPACE INDICATES	APPLICATION TO TIME INDICATES	APPLICATION TO COGNITION INDICATES
ALLATIVE -pa	to a location, person, or object	Until a time or with respect to a time	cognitive response, evaluation
LOCATIVE -nu	at, in, on, near	at a time, within a timespan	in a person's opinion
ABLATIVE -ngu	movement from, avoidance	from a time	fear of, forgetting
COMITATIVE -ia	movement in a vicinity, vehicle	continuity through a timespan	sharing an opinion
ERGATIVE -n	physical modification		mental constraint, loss of independence

Table 4: A summary of noun case applications  
to space, time and cognition

Table 4 above sets out in summary form the pattern of usage of the various syntactic cases which lead me to believe that Kala Lagaw Ya speakers have a unified view of the semantic roles which map onto each case.

#### 4. PARALLELS IN MORPHOLOGY AND SYNTAX BETWEEN NOUNS AND VERBS

I wish now to discuss evidence for a common semantic thread linking noun case morphemes with verb tense/aspect morphemes of the same morphological shape. Tense/aspect markers in Kala Lagaw Ya break readily into a dichotomy of those which define event boundaries precisely and those which do not (see Table 5).

The set of tense/aspect markers used to indicate precise event boundaries includes distant past (completed before yesterday) -dhin, yesterday past (completed yesterday) -ngu, immediate past (already completed today) -nu, and future (not yet begun) -ne. The set of tense/aspect markers which do not define event boundaries precisely are the completive -n, and the incomplete -pa. Habitual aspect is also indicated, the suffix -pu is used. The language also distinguishes continuous aspect for past, present and future but these are not dealt with in the present paper.

Of the two suffixes used where event boundaries are not in positive focus -n, the completive aspect marker is used to refer to events throughout the past and also to events in present and future to which the speaker foresees no problem hindering their prompt fulfilment. It conveys decisiveness or rapid pace of action. -pa is the incomplete aspect marker. It is used for general references to the future and to incomplete actions in the present, including present continuous actions. It may be used for actions in the past where the speaker wishes to emphasise purposiveness or goal orientation. Thus it bears similarity semantically to Allative case on nouns. These and the other tense/aspect morphemes are shown in Table 5.



COMMON MORPHEME	NOUN CASE	VERB TENSE/ASPECT	POSTULATED COMMON UNDERLYING SEMANTIC CONCEPT
-n	Ergative/ Accusative, Instrument	Completive	Strong control. With noun case, involves control of involvee. With verb tense/aspect, a decisive occurrence.
-pa	Allative	Incompletive	Purposive approach or attempt.
-pu -ia	Comitative	Habitual	Continual occurrence. Involvee not under a forceful constraint from involver.
-ngu	Ablative	Yesterday Past	Movement from.
-nu	Locative	Immediate Past	State of rest/occurrence complete.

Table 6

(Both the allomorphs <-ia> and <-pu> occur for comitative case, though <-ia> is by far the more common. Habitual aspect has only the one allomorph <-pu>.)

Having made some direct comparisons between noun cases and verb tense/aspects that are indicated by identical suffixes, I now wish to give a few examples illustrating how the selection of noun case is a significant indicator of the interaction of participants. The semantic roles which map onto the subjects of both transitive and intransitive clauses, will here be referred to by the general term involver. Roles mapping onto objects or onto nominals which behave somewhat like objects will be referred to as involvee roles. The terms have been chosen in an effort to embrace roles relating to both action and non-action verbs. In examples 25 and 26 below the same verb-stem is illustrated in its transitive and intransitive forms. In the transitive example, no.25, the involver is very forcefully placing a constraint on the involvee. Example 26 describes a moderately forceful attempt by the involver to constrain the involvee. The possibility is left open for the involvee not to answer thereby refusing to be constrained. By contrast, example 25 contains the underlying assumption that the involvee has no such option.

25. Tisa-n        na-n        yapu poeyba-n  
*teacher-ERG she-ACC word ask-COMP*  
*The teacher questioned her (demanding an answer).*
26. Tisa        nabe-pa yapu poeyb-iz  
*teacher she-ALL word ask-COMP*  
*The teacher asked her a question (answer optional).*

Where the speaker wishes to indicate deferential behaviour on the part of the questioner, a different verb must be used as well as a different noun case for the involvee.



27. Tisa-n kuyku mabayg-ia kuyk wakaya-n.  
*teacher-ERG head person-COM origin search+for idea-COMP*  
*The teacher sought the information by going to the head man.*

The use of noun case to make such distinctions is basic to Kala Lagaw Ya semantics and comparable examples are extremely common. (See Bani 1979). Although the shapes of morphemes vary somewhat between Saibai Dialect and the Mabuiag Dialect Bani refers to, clearly the same principles are operating. Re-reading Bani's article after preparing the first draft of this paper was a great help in enabling me to see that a hierarchy of involvee constraint was an important factor in the selection of noun case.

Those suffixes, (-n, -pa, and -ia/-pu) which on nouns behave as a hierarchy of indicators of involvee constraint, appear to operate in a very similar way with verbs where tense/aspect markers are important indicators of the decisiveness a speaker associates with an event. The three examples below illustrate this.

28. Nuy wap-ia lume-pu  
*he fish-COM search-HAB*  
*He searched around for fish, (not knowing whether any were to be found.)*
29. Nuy-dh kay wapi lumay-pa  
*he-ERG then fish search-INCOM*  
*He will search for fish, (known to be in the area.)*

See Bani (1979:38-40). Even though Bani addresses himself primarily to the issue of different noun cases and their relationship with pre-supposition, there is a high correlation in Saibai speech patterns between noun cases and verb tense/aspects. Those utterances where the noun case selected indicates a high level of involver/involvee interaction tend also to employ verb tense/aspects which indicate a decisive event. See example 30 below.

30. Kunamaynbayga-n bangal ngi-n luma-n  
*policeman-ERG later you-ACC search-COMP*  
*The policeman will certainly search for you.*

This example shows the use of a verb form normally used to indicate present or past action but it is used here of the future to indicate determination. Otherwise -pa would be used, or if the speaker wished to emphasise that the event had not begun yet, he would use -ne. More research needs to be done in this area and hopefully there will be a substantial contribution from several indigenous islander linguists. One more radical solution which requires investigation is as follows.

#### 4.1 Alternate analysis of noun verb parallels

Of the morphemes shown in Table 6 we would argue that the five noun case morphemes are not just the same shape as 5 corresponding verb tense/aspect morphemes with related underlying semantic concepts but that they are the same morphemes and have the same underlying semantic concepts whether they happen to be attached to nouns or to verbs. We may argue that the morpheme -n indicates a decisive trend towards closure or the attainment of a sequence boundary. In example 21 there is a decisive trend towards the onset of motion along a path, a new stage in a sequence of activities. This is indicated by the morpheme -n on the verb. In example 24 the collective plural involved carries this suffix -n indicating closure (see Bani and Klokeid 1976). In example 25 this same

morpheme occurs three times. Normally these three occurrences are analysed as ergative case, accusative case and completive aspect respectively but all three of these occurrences along with the cases and aspect classifications relate to a decisive trend towards closure or completion. The argument that -pa is similarly an indicator of an indecisive trend towards closure may be supported by comparing example 22 with example 21 and by considering examples 7-9. Likewise -pu/-ia may be associated with the absence of a decisive closure trend - no sequence boundary. See examples 16-18. -ngu may be associated with a clear trend to anti-closure, or the separation of two referents by an intervening item. See examples 13-15. -nu may be associated with closure attained. Two referents are together in a sequence thereby defining a sequence boundary. See examples 10-12.

It has been argued above that the morphemes -n, -pa, -pu/-ia, -ngu, and -nu attaching to nouns indicate differences in closure of a sequence. Likewise these same morphemes indicate similar differences in decisiveness of a verb argument. See above examples 21-23. Because these three examples all refer to actions in the near future the verbs carry different suffixes only to indicate different event probabilities. If we equate high event probability with high closure then we may say that the suffixes have the same signification whether occurring on verbs or on nouns. -n indicates determination or high closure, -pa indicates probable closure, while -pu indicates indecisiveness or lack of closure. Parallel examples occur using -nu and -ngu but only for events in the immediate past and yesterday past respectively.

31. Nuy-dh wapi luma-nu.  
*he-ERG fish search-IMMP*  
*He has searched for fish, (and now has stopped).*

This is an example of a static situation; it has present closure.

32. Nuy-dh wapi luma-ngu  
*he-ERG fish search-YESP*  
*He searched for fish yesterday.*

This is an example of anti-closure. Whereas the immediate past form indicates that the event and the reporting of that event are adjacent events in a sequence, the use of yesterday past indicates that there is separation or anti-closure between the event and the reporting of that event. The start of a new day is another event in the sequence which divides event from report.

The concept of closure appears to have valuable explanatory power with respect to the phenomenon described by Bani and Klokeid (1976:269-283) as Ergative switching. By way of illustration the two examples following give normal ergative morphology and switched ergative morphology respectively.

33. Yoepkazi-n wapi gasam-pu.  
*woman-ERG fish catch-HAB*  
*The woman generally catches fish.*
34. Yoepkaz wapi-n gasam-pu.  
*woman fish-COLLECTIVE+PLURAL catch-HAB*  
*She was quite a fisherwoman, just consider all the fish she caught.*

In this example it is the collective plural which is in focus and could be said to have a high degree of closure because it is a complete set representing all the fish the woman ever caught. Of course it is meaningless to divorce the completeness of this set from the woman's relationship with the elements of the set. The Kala Lagaw people tend to emphasise events in totality and to have

a lesser enthusiasm for analysis. It is initially very puzzling to an outsider to observe the apparently disparate range of uses of -n as a morpheme. Its uses include:

- Ergative case on common nouns
- Accusative case on singular pronouns
- Accusative case and genitive case on masculine proper nouns
- Collective plural marker on common nouns whether these nouns occur in what would otherwise have been ergative, nominative or accusative slots
- Completive aspect marker on verbs

Dealing with all these occurrences of -n will require another whole paper. It is sufficient to say here that all these uses can be related to definite or probable closure.

5. PARALLEL TERMINOLOGY APPLIED TO SPACE, TIME, AND COGNITION

As stated above, the use of parallel terminology for basic references to time and space, or should we say event sequences and sequences of things, suggests that this analogy is very strongly developed in the world view of Kala Lagaw speakers. I know of no words in the language which can be used to describe space but not time. I know of only three words used to describe time but not space; these are thonar meaning *time*, sob meaning *a moderately long time*, and bangal meaning *later*.

WORD	TIME ORIENTED MEANING	SPACE ORIENTED MEANING
sena	<i>then/earlier or later</i>	<i>there</i> (example 36)
ina	<i>now</i> (example 37)	<i>here</i> (example 38)

Table 7: Demonstratives that have omnidirectional references

- 35. Kayn wath sena boey amadhan. Time  
*new year then approach near*  
*The new year is drawing close.*
- 36. Waru sena. Space  
*turtle there*  
*There is a turtle.*
- 37. Ina kayb ngay kayn mabayg. Time  
*now today I young person*  
*Now today I am a young person.*
- 38. Ina dhamu. Space  
*here seaweed*  
*Here is seaweed.*

WORD	TIME ORIENTED MEANING	SPACE ORIENTED MEANING
paypa	<i>backwards in time</i> (example 39)	<i>to windward</i> (example 40)
pawpa	<i>forward in time</i> (example 41)	<i>to leeward</i> (example 42)
parunu	<i>before</i> (example 43)	<i>in front of/to windward of</i> (example 44)
kalanu	<i>after</i> (example 45)	<i>behind/to leeward of</i> (example 46)

Table 8: Direction words, where the direction of the wind is the analog of time passed

39. Kay paypa kulay ngay za-ginga. Time  
*then back+in+time early I thing-negative*  
*Long ago I did not exist.*
40. Waru kay paypa guythuy-an. Space  
*turtle there up+wind escape-COMPL*  
*The turtle has escaped there upwind.*
41. Ngalpa koezi pawpa matha zagethan. Time  
*we+PL from+there forward+in+time just work*  
*From this time on we will continue to work.*
42. Sapu-l kula-ngu pawpa katpalgi-moey-pa. Space  
*spray-PL stone-from down+wind jump-PL-ICOM*  
*Spray is flying from the rock.*
43. Wa koewbu paru-nu... Time  
*yes war before-LOC*  
*Yes, before the war...*
44. Thana kaypay paru-nu. Space  
*they+PL there+upwind face-LOC*  
*They are there to windward.*
45. Wa ngurpay kala-nu... Time  
*yes school after-LOC*  
*Yes, after school, ...*
46. Thana Kaypun kala-nu. Space  
*they+PL there+down+wind back+LO*  
*They are there to leeward.*

WORD	TIME ORIENTED MEANING	SPACE ORIENTED MEANING
kulay	<i>before</i> (example 47)	<i>In front of speaker</i> (example 48)
wagel	<i>after</i> (example 49)	<i>Behind the speaker</i> (example 50)

Table 9: Direction words where the direction of origin of the speaker or the direction he has his back to, is the analog of time past

47. Wa kulay thonar kedha. Time  
*yes previous time thus*  
*Yes in early times it was like this.*
48. Wa ngitha kulay. Space  
*yes you+PL ahead*  
*Yes you all go ahead.*
49. Ngalkan Kazi-w ngep-aw thonar boey wagem. Time  
*our+PL child-GEN grandchild-GEN time approach later*  
*The time will come for our children and grandchildren.*
50. Wa thana wagem. Space  
*Yes they+PL behind*  
*Yes, they are behind us.*

### 5.1 Wider evidence for space, time, and cognition parallels

It is well known that any language tends to develop highly efficient systems for dealing with items and concepts of general importance to native speakers of that language. There is a great deal of evidence to the effect that winds and wind directions are of central importance to Kala Lagaw Ya speakers.

- (i) Sea currents are named for their direction relative to the wind blowing at the time because this combination determines the safety of canoe travel. Sea currents are called *kulis* if they flow approximately with the wind, causing waves to flatten. Currents against the wind which cause waves to rise sharply are called *guthaths*.
- (ii) In Kala Lagaw Ya mythology sorcerers frequently use magic to control wind direction thereby facilitating canoe journeys. Even today some people are believed to have this power.
- (iii) The place of departed spirits was regarded as being far to the west or downwind with respect to the prevailing trade wind. As a person journeyed towards the land of the spirits as he departed this life he was regarded as travelling *pawpa* in respect to space, *to leeward* and also of travelling *pawpa* in respect to time, *to the future*. It is probable that no sharp distinction was drawn between spatial sequence, event sequence, and idea sequence with respect to the passing of human life; rather the whole appears to be viewed metaphorically as the analog of a canoe blown and drifting on the sea. By way of contrast the expression *paypa* the command which means literally *travel up-wind*, is very frequently used as an injunction meaning, *Look lively there, do your best work*. It is just the command a bosun would give to a crew hoisting the sails.

Another interesting piece of evidence concerns an unexpected use of the verb *yakanuriz* meaning *forgot*. As would be expected this verb is almost always used to refer to idea sequences, not sequences in space. The following rather colloquial use is an exception.

Wapi-nu dagul yakanur-iz.  
*fish-LOC spear forget-COMP*

*The fish is swimming off with the spear stuck in it. Forgot* or rather *yakanuriz* is here used to indicate a motion which produces separation between the user of

the spear and his spear. A similar utterance is made with respect to a person's sandal if he should temporarily lose it while walking through heavy mud. Both these utterances are metaphorical extensions of language but it is enlightening to note the direction the metaphors take. In English we may say 'It's gone from me.' as an alternative to saying, 'I have forgotten it.'. Though metaphoric extension of space oriented utterances to refer to time or cognition is common in English I am unaware of any extensions of cognitive oriented utterances to refer to time or space. This is another indicator that links between time, space, and cognition are more highly developed in Kala Lagaw Ya than in English.

## 6. CONCLUSIONS

There is a considerable body of evidence suggesting that for native speakers of Kala Lagaw Ya parallels between time, space, and the cognitive domain are highly developed. This evidence will here be reviewed briefly.

In section 2 it is argued that Kala Lagaw Ya speakers tend to take a less abstract world view than do English speakers. There is a tendency to think of sequences of events rather than of time, of sequences of things rather than space, and of sequences of ideas rather than of cognition. This trend predisposes Kala Lagaw Ya speakers to emphasise similarities between different domains whereas English speakers tend to emphasise differences. It may be, however, that as propensity to abstract varies widely between different English subcultures, related barriers to communication exist between these subcultures. There is need to discover how frequently working class school children are reprimanded by middle class school teachers for using space oriented terminology to refer to time or to cognitions.

In section 3 differences are noted between the ways in which English speakers group semantic roles and the patterns Kala Lagaw Ya speakers prefer. The morphology of Kala Lagaw Ya suggests the grouping of such semantic roles as source, with time or origin, with avoidance, and of destination, with time goal, with benefactive. These groupings lend further support to the argument that Kala Lagaw Ya speakers emphasise similarities between the domains of time, space, and cognition.

In section 4 semantic and morphological parallels are drawn between nouns and verbs. In that nouns tend to refer to things while verbs refer to events this further emphasises similarities between the ways in which Kala Lagaw Ya speakers draw parallels between space and time. Similarities between sequences of things and sequences of events are emphasised.

Section 5 sets out evidence on the use of the same functor words and patterns of morphology to discuss space, time, and cognition, further emphasising similarity.

Section 6 refers briefly to related cultural issues.

Kala Lagaw Ya speakers appear to take a less abstract view of the world than do English speakers. Similarities between different domains are emphasised where English speakers tend to emphasise differences. Anybody wishing to communicate effectively with the Kala Lagaw or Western Torres Strait people needs to examine such evidence of differences in world view.

## NOTE

1. This is an expansion of a paper of the same name given at the LSA Conference at Monash University in August 1980. Sections have since been added to deal with (i) sequences of things, events and ideas and (ii) ways in which Kala Lagaw Ya indicates intensity of event or of interaction.

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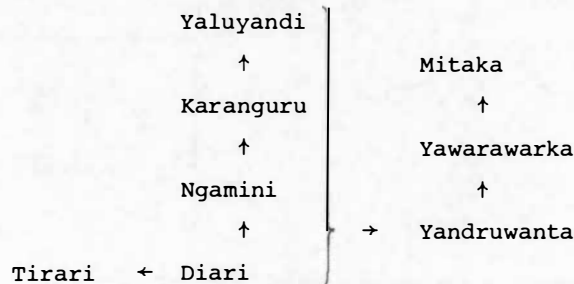
## DIARI SEGMENTAL PHONOLOGY

D. Trefry

### 1. INTRODUCTION

#### 1.1 Background

Diari<sup>1</sup> is a dialect of an unnamed language belonging to the Karna group of languages extending north and east from the east coast of Lake Eyre, South Australia. The actual number of linguistic communities which existed in the region prior to European contact is uncertain, as is the degree of relationship between each of the groups. J.G. Breen and P. Austin<sup>2</sup> have both done preliminary work in sorting out the relationships, and on the basis of their work, together with my field notes, it seems that in terms of cognates a diagram indicating the degree of relationship between Diari and other Karna communities will look like the following. (See map.)



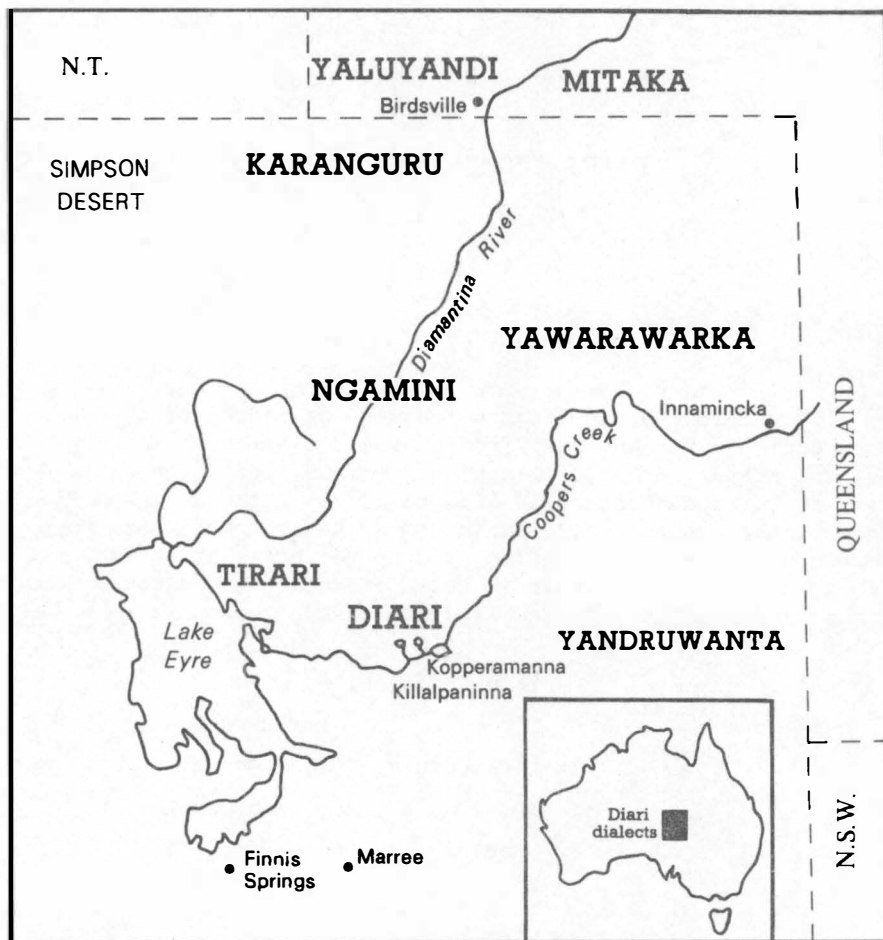
This probably means that there are two languages each containing various dialects, but see Breen and Austin.

In 1861, it was in Jandruwanta country that the explorers Burke and Wills perished during their return from a south-north crossing of Australia. A few years later, (1867), the Lutheran Church established a mission station at Killalpaninna, a lake along the course of Cooper's Creek. The lake was in land occupied by people who spoke the Diari dialect, and as the mission adopted this speech form for communication with the Aborigines, it soon became the best-known one in the area.

The fortunes of the mission varied over the years, largely according to the weather pattern of the region. Years of rainfall were good years for the mission, years of drought were bad years. Unfortunately, years of drought were more frequent than years of plenty so the Lutheran Church soon felt the need for a more favourable site. Such a site was found at Hermannsberg, west of Alice

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Map 1: Geographical location of the five Diari dialects

Springs, and the development of this new site meant the eventual abandonment of the work among the Diari.

Though missionary endeavour among the Diari was destined for extinction, it did persist for fifty years, and was quite successful as far as climatic conditions would allow. Compared with other places the Killalpaninna/Kopperamanna mission showed good judgement in its method of communicating with the local population. Schooling and religious instruction was conducted in Diari. The missionaries learnt Diari rather than expecting the Aborigines to learn English. Fifty years after the demise of the mission it was possible to converse with Mrs Mary Dixon, a Diari, a Christian, literate in Diari, in English, and relatively fluent in German.

The work in Diari was largely sponsored by churches in Germany. At the outbreak of World War I, the mission has to contend with lean finances as well as inclement weather and soon went into debt, but the final blow was dealt by the South Australian government, which for reasons of patriotism closed the German-run mission in 1917. The property was sold to graziers. The Diari people

dispersed and fifty years later it required considerable effort to locate five fluent male speakers able to be subjects for the spectrographic study included in this monograph.

Of the five adult male speakers, Mr Alec Edwards was exceedingly helpful, and he became the main language consultant. His father, an itinerant helper to an Afghan camel driver, left Alec at Killalpaninna on the death of his wife. According to Alec he was about 'knee-high' when he arrived. Information gleaned from Mary Dixon and the two younger Murray brothers<sup>3</sup> makes it seem probable that he was about three years of age. When the mission closed he was a young man working as a drover. In 1968 he was a fluent reader of English and also of the Diari religious writings.

The Lutherans published several religious writings in Diari, the chief of which was the New Testament. The most linguistically important, however, is the Reuther manuscripts, held at the Museum of South Australia, which contain an extensive dictionary, and accounts of the *mura mura*, or dreamtime ancestors. Though the dictionary is important, Reuther sometimes failed to differentiate between Diari vocabulary and the vocabulary of neighbouring languages, with the result that occasionally the information is misleading.

## 1.2 Eliciting the material

Diari language material was initially elicited for three reasons, to gain access into the language, to check previous work, and to be the corpus for a phonological study.

Elicitation in order to gain access into the language was at various levels. Informants were asked to give Diari equivalents of English words. They were also asked to translate English sentences, usually in sets of sentence frames, where each sentence differed in only one aspect from its predecessor. Later, text material was recorded, the narrator simply being asked to talk on a topic that interested him. The material was then carefully transcribed in the presence of the narrator, and with his help. At this stage any performance errors were corrected and a literal and free translation was taken down. Conversations were also recorded and dealt with in the same way.

At first, vocabularies by previous investigators were checked to get cues to help in interpreting their orthographies, but it proved to be more a measure of the credibility of their material. The work of four people was checked; that of S. Gason, C.A. Meier, Rev. J.G. Reuther, and T. Vogelsang. Vogelsang's work was essentially that of editing the earlier material of Meier. Gason was a police trooper stationed among the Diari during the 1860s and 1870s. Meier was a lay missionary from 1878 till sometime in the mid 1880s. Reuther was a missionary from 1888 till 1906, and Vogelsang was the son of one of the original missionaries to Killalpaninna. He was born at the mission and spoke Diari as a child. His alteration of Meier's work was done in the early 40s.

In order to obtain suitable material for acoustic analysis, words of two syllables were elicited. These were of the pattern CNCN, where C equals one or more consonants, and N (nucleus) equals one or more vowels. The pattern was chosen because of the relative frequency of its occurrence, and the relative ease of analysis of this type of word. To get sufficient number of words of this pattern, Reuther's dictionary was culled and those of this type, together with a few others located previously, were brought to the attention of Alec Edwards for his comments. These reduced an original list of 484 words to 462.

The words deleted were either meaningless to Alec or were words belonging to other dialects or languages. Initially it was intended to record the informants saying each word in a sentence frame, but it proved difficult for some of the informants to do this; not only would the frame be varied but often a close synonym would be substituted for the target word. In the end it proved satisfactory to have Alec say each of the words on the list three times. This established a 'shopping list' type of rhythm which gave a fair degree of constancy. The list was then shortened to 200 words and the four other available male speakers<sup>4</sup> of Diari were asked to record the words in a similar fashion.

### 1.3 The analysis

The analysis is essentially concerned with the phoneme structure of Diari. The first part involves the segmentation of the speech stream. Non-ambiguous vowels and consonants are isolated, and then, on the basis of the pattern set by them, the other contoids or vocoids are specified as consonants or vowels. Other elements are examined to determine whether they should be interpreted as single segments or as sequences of segments.

Part two is concerned with establishing the contrasting set of consonant phonemes, including allophonic variations when applicable.

Part three determines the set of vowel phonemes, then with the use of data obtained from acoustic equipment, decides the limit of variation allowed for each phoneme, and the degree to which the variation is conditioned by the linguistic environment.

## 2. THE SEGMENTATION OF DIARI SPEECH

The segmentation of Diari speech is possible because words are divided into syllables. Syllables are considered to be breath pulses<sup>5</sup>, which are normally characterised by sequences of increasing and decreasing amounts of energy caused by the control of the flow of air from the lungs during speech.

Though syllables, or breath pulses, are based upon physiological conditions affecting the air-flow from the lungs, once a pattern is established in phoneme sequences, these sequences can exert structural pressure upon the physiological syllable so that another identity which Gimson refers to as a 'linguistic syllable' may become functional within a language.<sup>6</sup>

### 2.1 The basic Diari syllable

Within the syllable each energy peak is called the nucleus, and the trough between peaks is called the coda/onset. That part of the trough which leads into the nucleus is the onset, and that which occurs during energy decay is the coda. Therefore, each syllable will consist of an onset, a nucleus, and a coda. Vocoids<sup>7</sup> typically occur as nuclei of syllables, and contoids<sup>7</sup> as the onset or codas. As vocoids are defined as central resonant orals, it is easy to understand why they should typically occupy the nucleus position in the syllable. In their production there is no impediment to the air-flow once it is past the larynx, so it may readily increase in volume with a consequent increase of

energy. Contoids on the other hand restrict the air-flow and therefore reduce the energy, unless extra force is exerted at some point along the way, or the air can readily escape through another channel. In Figure 1, mingograms of three Diari words demonstrate the ideal syllabic structure. Each mingogram gives three tracings. The top tracing indicates the relative intensity of the speech wave during the time interval of the word. The second gives an oscillograph reading during the same time interval, and the third indicates the fundamental frequency of the speech wave during the period the vocal folds are vibrating.

An examination of the mingogram tracings enable an observer readily to discern the onset, nucleus and coda pattern, and from this the contoids can be segmented from the vocoids, and by reduction [ŋ], [n], [p], [k], [t], [i], [ʌ] [u] and [u] can be extracted.

Other contoids can also be segmented in this way. For instance, the mingograms shown in Figure 2 enable [ṭ], [t], [m], [ŋ], [ḷ], [l] and [ʃ] to be isolated.

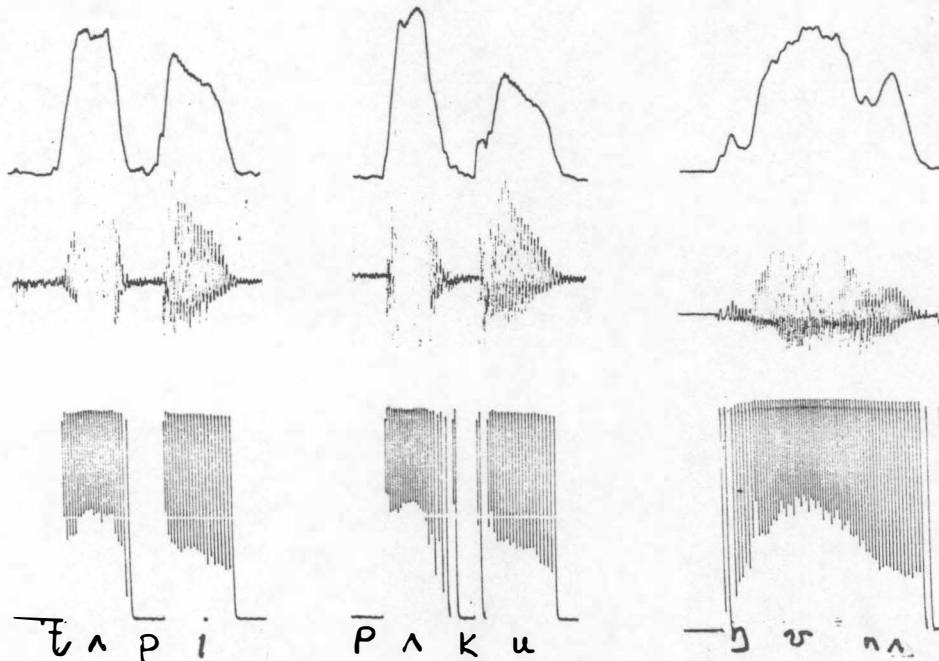


Figure 1

Mingograms of three Diari words, [tʌpi] *calm*, [pʌku] *purposeless* and [ŋvʌʌ] *arm*, illustrating the syllable structure of onset, nucleus and coda.

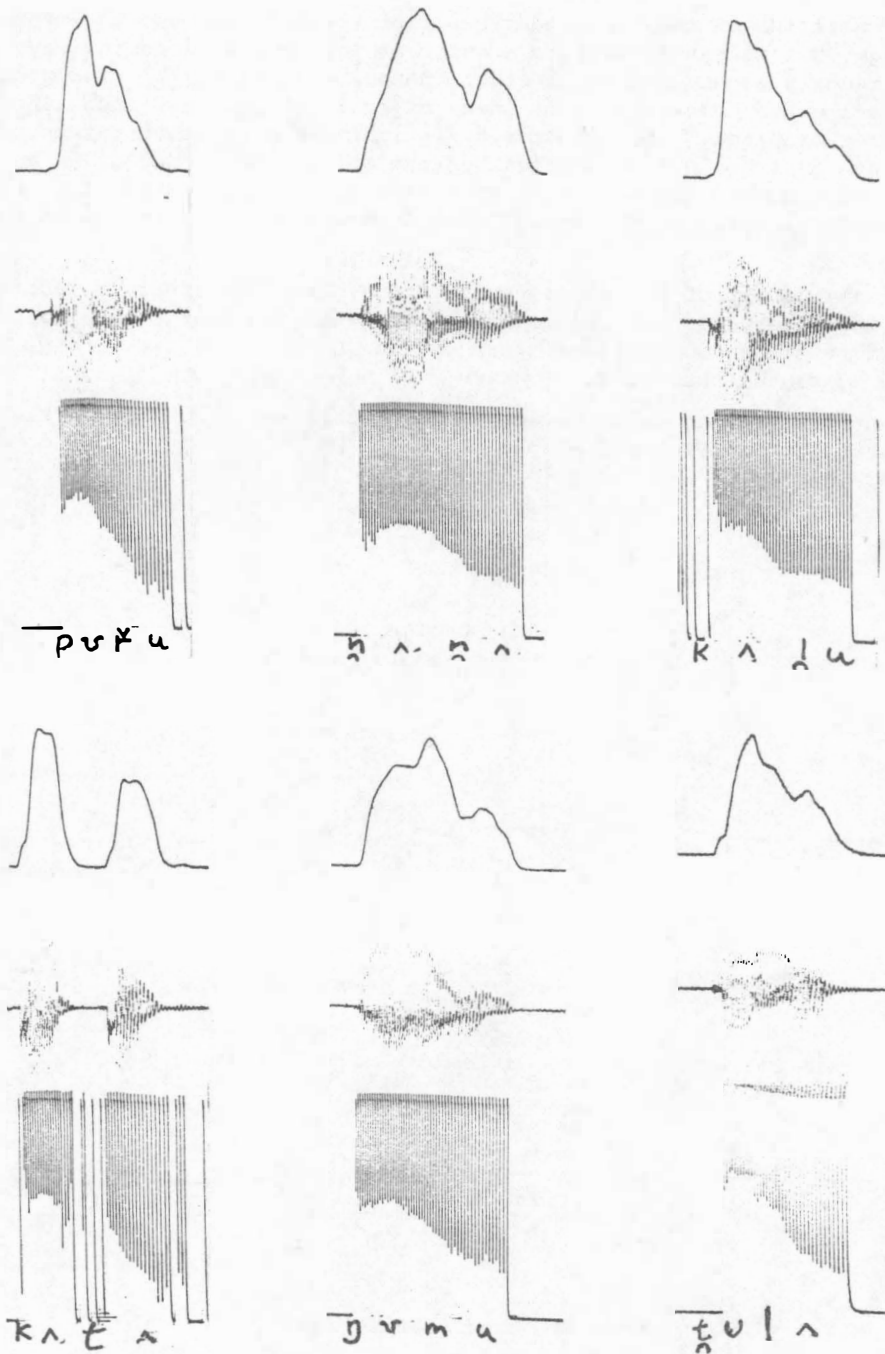


Figure 2

Mingograms of [puʔu] *dew*, [ɲʌɲʌ] *her*, [kʌɫu] *liver*, [kʌtʌ] *louse*, [ɲumu] *good*, and [ʔuɫʌ] *stranger*, illustrating syllable structure and justification for segmenting [ʔ] [ɲ] [ɫ] [t] [m] [ɫ] and [ʔ]

## 2.2 The basic linguistic syllable

As has already been stated, not all syllables follow the ideal pattern. Resonant contoids such as nasals and laterals can be produced with a considerable amount of energy, for, though the air stream is obstructed it still has an easy escape route. This results in the ideal syllable structure not always being realised, with

1. The onset/coda no longer appearing as a trough between nucleus peaks.
2. The contoid functioning as the nucleus.
3. The contoid functioning as a combination containing the nucleus and the onset or coda.

Figure 3 gives examples of Diari words where resonant contoids behave in these ways.

Provided it is accepted that the linguistic syllable need not be identical with the phonetic one, a satisfactory explanation can be given for the discrepancy between them. Phoneticians have shown that there is a linguistic principle in language which results in non-suspicious syllabic patterns exerting phonemic pressure upon the rest of the language.<sup>8</sup> In Figure 3 the resonant contoids must all be interpreted as consonants occupying the medial coda/onset position, because of the structural pattern already established.

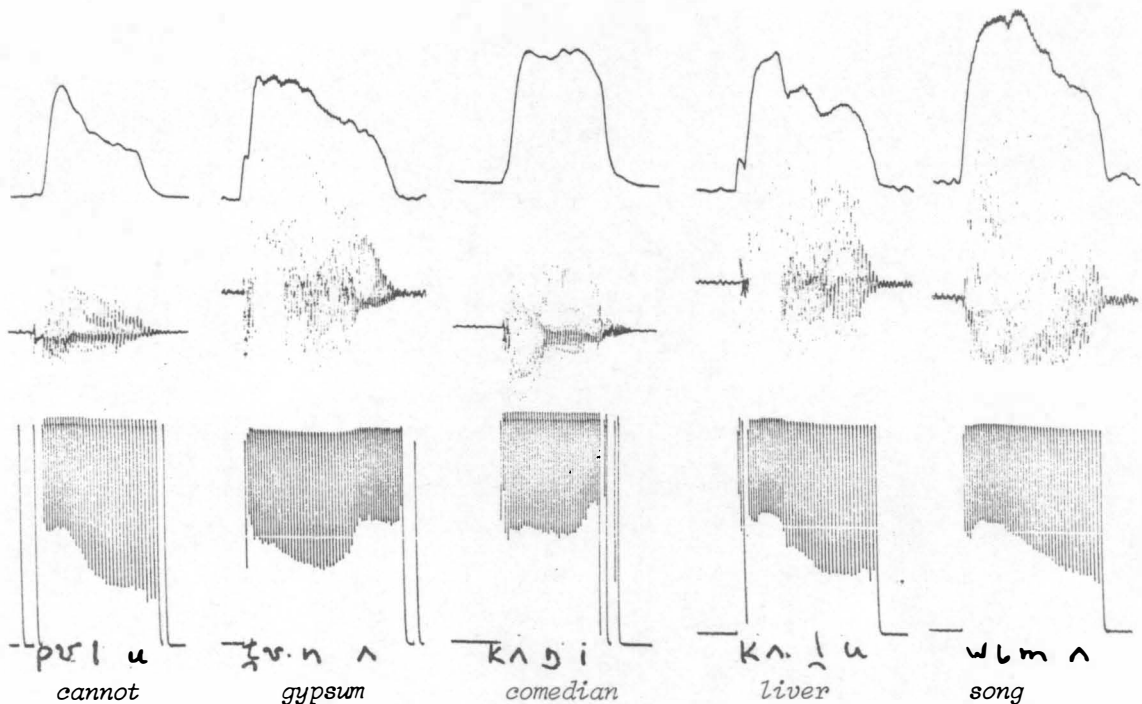


Figure 3

Mingograms of words containing medial resonant contoids not occupying trough positions of the 'ideal' syllable type.

2.3 Contoid clusters and the Diari syllable

It was stated that the Diari phonetic syllable consists of an onset, a nucleus, and a coda, and when two or more syllables come together in a word, the medial contoid can function as the coda of one syllable and the onset of the next. There is another possibility however, for two syllables of the pattern ONC<sup>9</sup> coming together will make the new pattern ONCONC. So far in the discussion the medial -CO- combination has consisted of only one contoid. However, often this is not the case, for the onset of the second syllable may be a different contoid from that forming the coda of the first syllable. In Figure 4 Diari words of this type are illustrated.

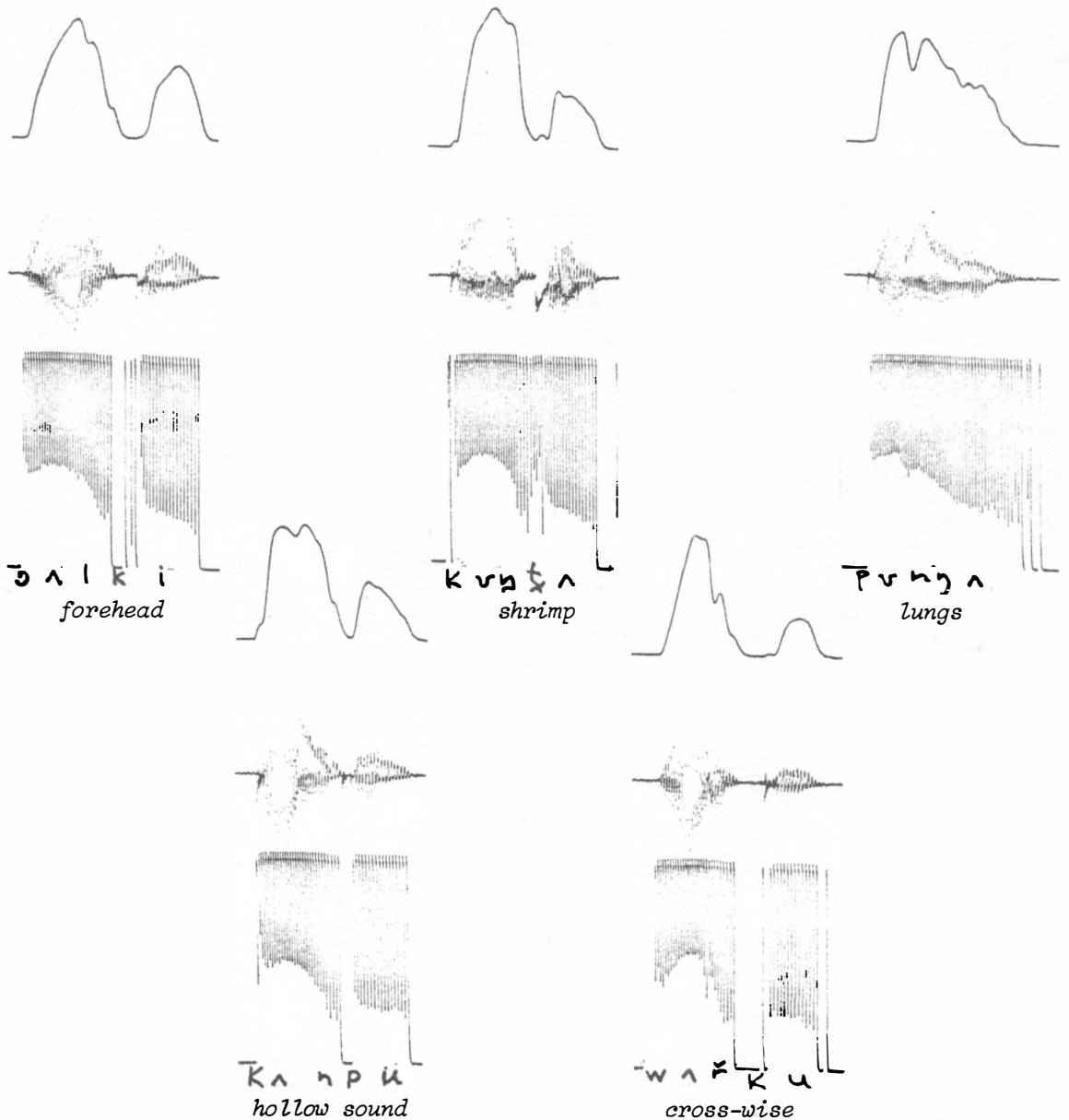


Figure 4

Diari words with medial contoid sequences, where the first contoid is the coda of one syllable and the second is the onset of another.



## 2.4 The interpretation of a suspect contoid

In Figure 2 the alveolar flap [ɾ] was presented as a medial coda/onset. Sometimes, instead of a single flap, a sequence of three or four flaps are produced rapidly in a word medial position. (See Figure 5) This sequence of flaps is considered suspicious because it could be interpreted as a single complex segment, or as a series of segments. In this analysis it has been interpreted as a single segment for three reasons.

1. The number of flaps in the sequence varies, which suggests that providing there is more than one, the actual number is not significant.

2. The absence of any other supporting evidence of geminate clusters makes it unlikely that this one sequence should be interpreted as such a cluster.

3. As is displayed in Figure 6, sequential flap occurs in sequence with other contoids and no more than two non-suspect contoids occur in sequence. Therefore, it is unlikely that sequential flap can be considered to be anything but a single complex segment.<sup>10</sup>

It is therefore interpreted as the alveolar trill [r̄].

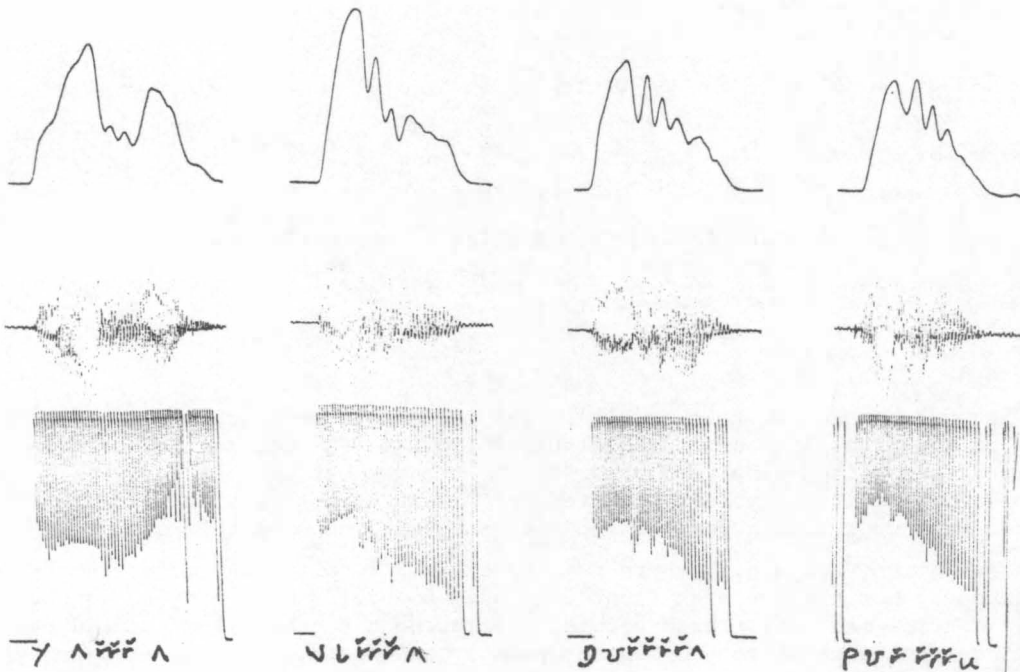


Figure 5

Mingograms of [γλῥλ] *away from here*, [wɪῥλ] *wattle type*, [ɲuῥλ] *continuous*, [pυῥλ] *exclamation*, illustrating sequences of alveolar flaps produced rapidly.

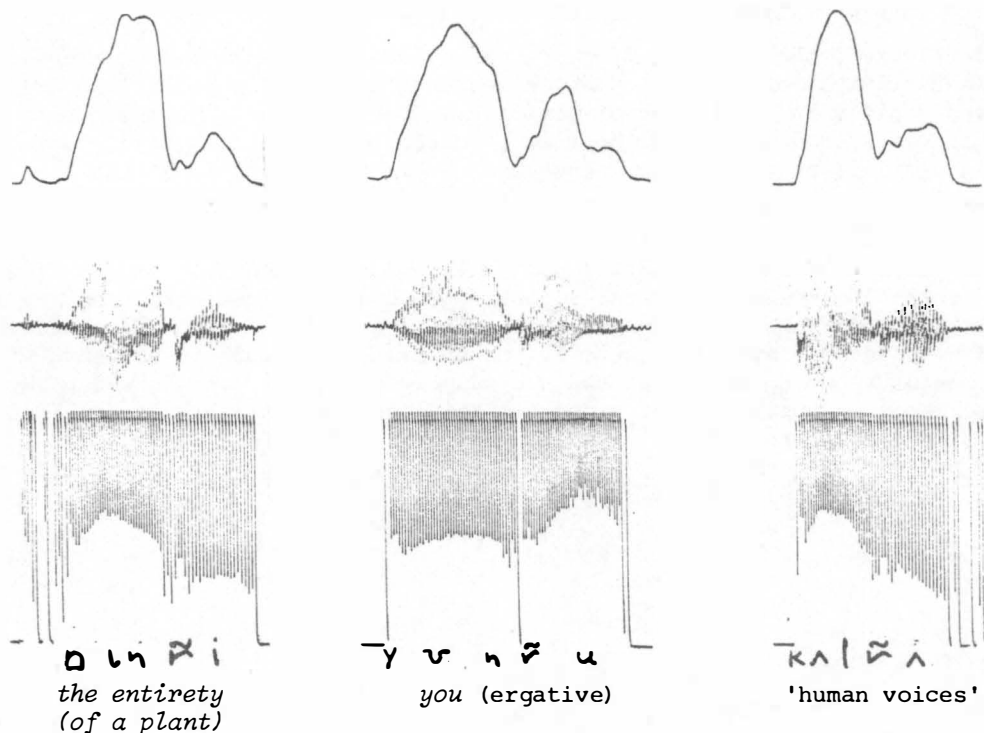


Figure 6

Alveolar trill [ɾ] occurring as an onset when it follows a contoid in word medial coda position.

## 2.5 Non-syllabic vocoids

It has been shown that atypical contoids sometimes occur during the energy peak of a syllable. Vocoids can also be atypical. Instead of occurring as syllabic peaks they sometimes occur in the troughs between peaks. When this happens in Diari, the vocoid is interpreted according to the structural pressure of non-suspect syllable patterns and is assigned a consonantal role.

As in many languages, there are three Diari vocoids that occur in the consonantal position: a high front unrounded vocoid, a high back rounded vocoid, and a central mid retroflexed vocoid. Following the generally accepted practice of linguists, when these vocoids occur in a consonantal position they are given the consonant symbols usually ascribed to them. The high front vocoid is interpreted as the palatal consonant [ɣ], the high back rounded vocoid is interpreted as the labio-velar consonant [w], and the central retroflexed vocoid is interpreted as the retroflexed resonant consonant [ɾ]. Figure 7 shows mingograms of words containing these vocoids in medial coda/onset position.

Two of the above vocoids also occur as onsets in word initial position. In this position they are interpreted as the consonants [w] and [ɣ]. Their interpretation in word initial position depends less upon the fact that they are onsets, than upon the fact that non-suspect vocoids never occur word initially. The established Diari word pattern always has one, and only one consonant at the

beginning of every word. Figure 8 and Figure 9 display mingograms of words beginning with high vocoids. In the figure, the initial vocoid is always different from the one in the nucleus, but the words shown in Figure 9 have only one high vocoid in the initial syllable. In these instances the vocoid is interpreted as consisting of a consonant vowel sequence, in order to agree with the non-suspect CV pattern and will be written [yɪ] or [wU].

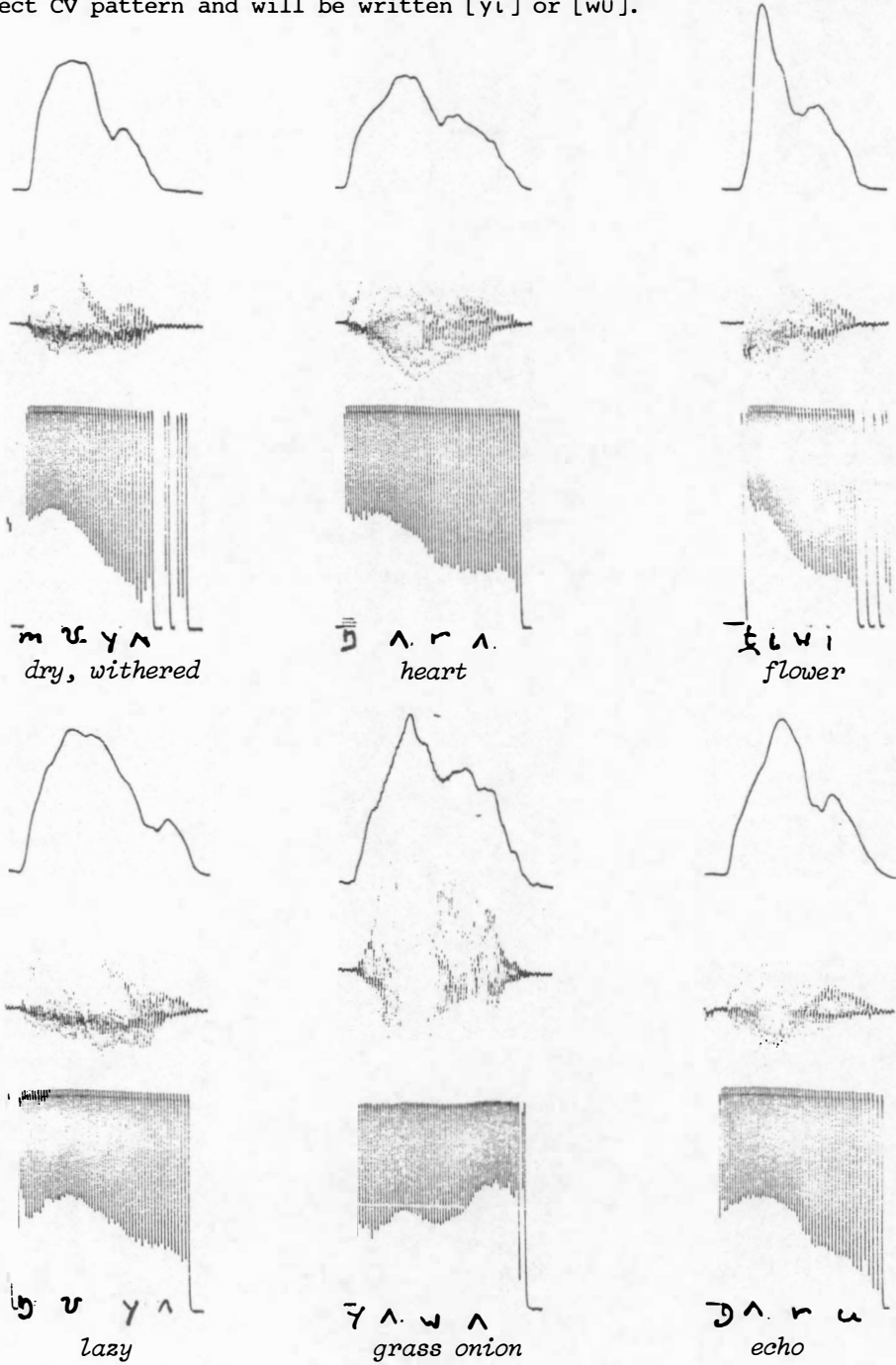


Figure 7

Vocoids occupying consonantal positions in the syllable structure and therefore interpreted as the consonants [y], [w] and [r].

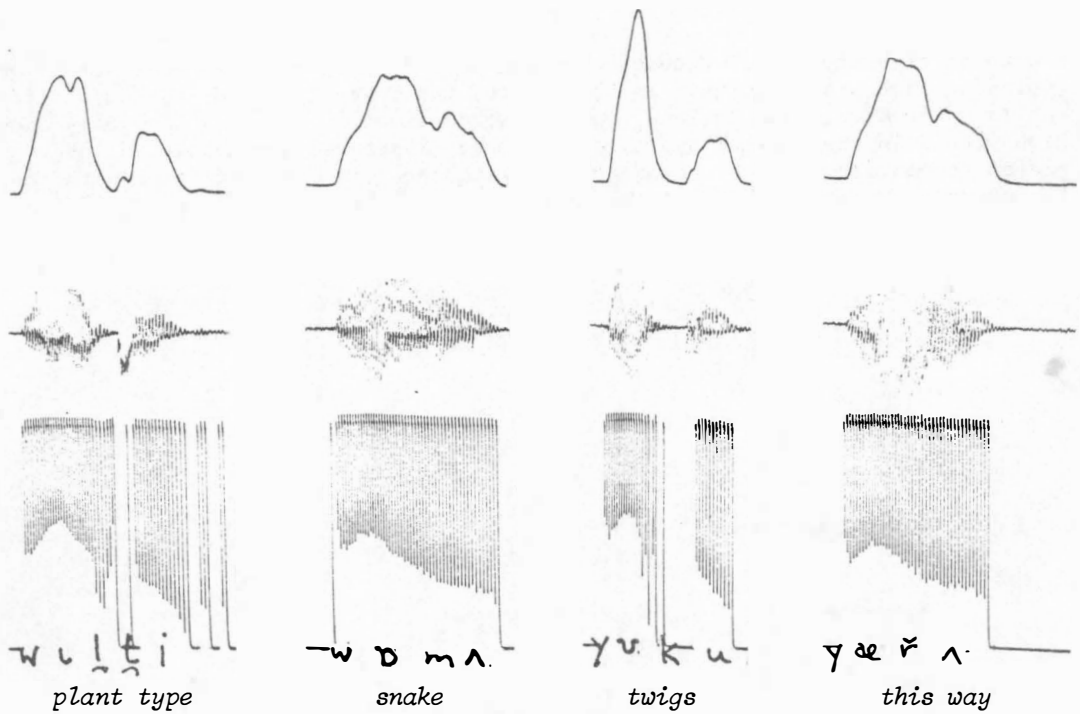


Figure 8

High vocoids occurring as word initial onsets.

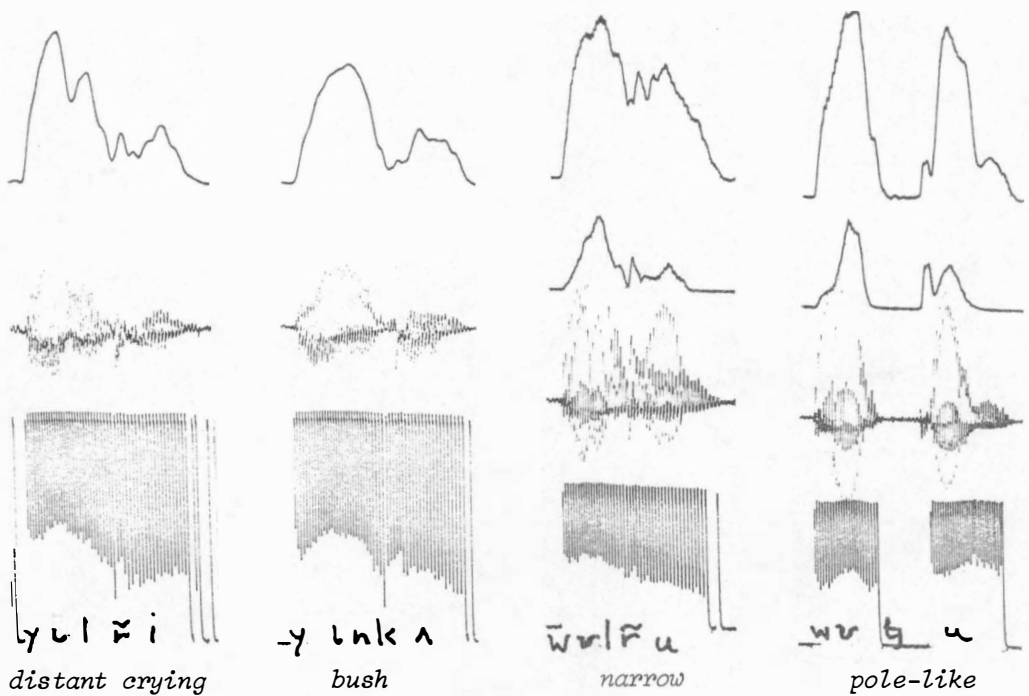


Figure 9

Word initial high vocoids interpreted as consonant vowel sequences [yɹ] and [wɹ].

## 2.6 The interpretation of vocoid sequences

Interpretation procedures so far discussed have included vocoids which occur in typically consonantal positions, either at the beginning of the word, or in the troughs between syllables. These have been interpreted as sequences made up of consonant-vowel (see Figure 8), vowel-consonant-vowel (see Figure 7), or consonant-vowel-consonant-vowel ( $\gamma\lambda\lambda$  *grass onion*, Figure 7).

There are other words in Diari with vocoid sequences that do not obviously fall into this consonant-vowel, or vowel-consonant-vowel pattern. Such sequences are interpreted differently, but their interpretation depends on a prior statement of the non-suspect Diari word pattern. All Diari words begin with a consonant and end with a vowel, and consonant clusters of two can occur word medially, but not initially. These facts of the language are substantiated by the examples given so far, and they become the basis for further interpretations involving vocoid sequences.

In the discussion so far it has been shown that high vocoids occurring in sequence with the low vocoid [ $\wedge$ ] are interpreted as [w] or [y] when they occur at the coda/onset border of syllables. Some vocoid sequences, however, do not occur across syllable borders but occur within the nucleus of the syllable and should be considered separately as they may function as vowel sequences or as vowel glides. The sequences detected in this situation include the following: [ $\wedge\iota$ ], [ $\wedge\upsilon$ ], [ $\iota\wedge$ ], [ii], [ $\upsilon\upsilon$ ], [ $\wedge\iota\wedge$ ], and [ $\iota\iota$ ]. Figure 10 displays oscillograms with intensity and pitch readings of words containing these sequences. Of the two-vocoid sequences, [ $\iota\wedge$ ] must be interpreted as a two-vowel cluster. Should [ $\iota$ ] be interpreted as consonantal [y] it would transgress the Diari CV pattern of one and only one consonant as onset of a word initial syllable. [ $\wedge$ ] is never consonantal so unless the structure of the phonetic syllable is ignored<sup>11</sup> the only possibility is to interpret [ $\iota\wedge$ ] occurring in the syllable nucleus as a two vowel cluster.

The other two-vocoid sequences are also vocalic. [ $\wedge\upsilon$ ] as it occurs in [ $\eta\wedge\upsilon$ ] *he*, begins with [ $\wedge$ ], which is non-suspect, but in any case it occurs following an initial consonant which would make it vocalic. The other vocoid, [ $\upsilon$ ] is under the powerful invariant constraint of Diari which causes all words to end in a vowel. [ $\upsilon$ ] being word final, must be vocalic. [ $\wedge\iota$ ] as in [ $\rho\wedge\iota$ ] *to hold* is interpreted as vocalic for the same reasons. [ $\wedge$ ] is not suspect and [ $\iota$ ] is word final.

Though it has been established that all of the vocoids in the two sequences are vocalic, that does not mean that they are necessarily vowel sequences, for they could be interpreted as the glides [ $\wedge\iota$ ] and [ $\wedge\upsilon$ ]. They will, in fact be interpreted as single complex segments, from evidence to be found in the analysis of the two three-vocoid sequences.

The two three-vocoid sequences [ $\wedge\iota\wedge$ ] and [ $\iota\iota\wedge$ ] both contain within them the combination [ $\wedge\iota$ ], e.g. [ $\eta\wedge\iota\wedge\wedge$ ] *we* (inclusive), [ $\tau\iota\wedge\iota$ ] *hits*, but the interpretation possibilities are different because of the difference in the sequential arrangement of the segments.

The CV (consonant-vowel) word pattern of Diari allows two possible interpretations for [ $\iota\wedge\iota$ ], but three for [ $\wedge\iota\wedge$ ]. [ $\iota\wedge\iota$ ] can be interpreted as consisting of the diphthong [ $\iota\wedge$ ] followed by a vowel [ $\iota$ ], or as consisting of the vowel [ $\iota$ ] followed by the glide [ $\wedge\iota$ ]. [ $\wedge\iota\wedge$ ] can be interpreted as consisting of the glide [ $\wedge\iota$ ] followed by [ $\wedge$ ], or as consisting of the vowel [ $\wedge$ ] followed by the diphthong [ $\iota\wedge$ ]. It can also be interpreted as containing three simple segments; [ $\wedge$ ], followed by [y], followed by [ $\wedge$ ].

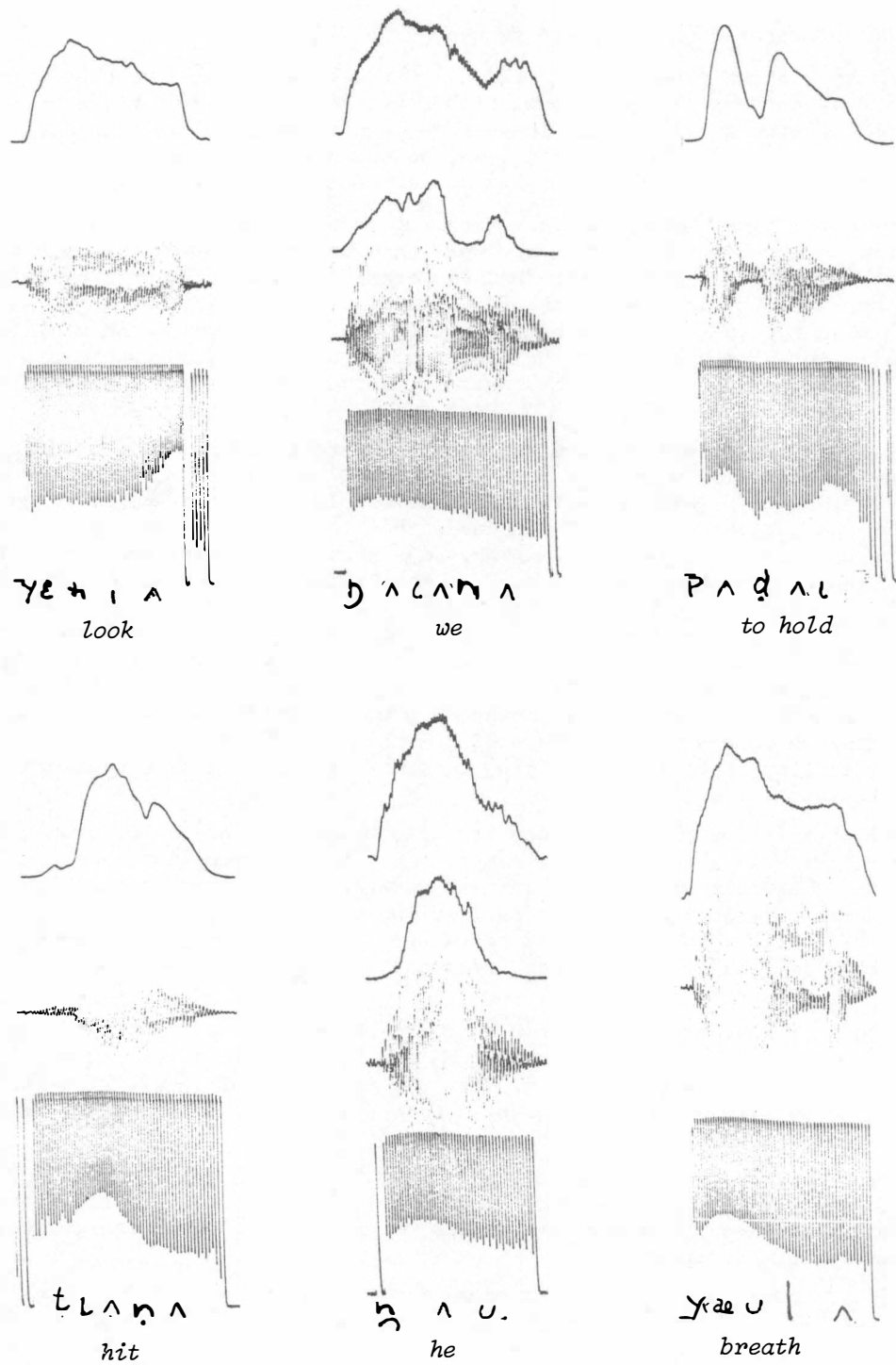


Figure 10  
Diari vocoid sequences.

The last interpretation is rejected for the same reasons given for the two vocoid nuclei.

1) All three vocoids are contained within the one nucleus preventing the medial [ɪ] from being interpreted as a consonantal [ɣ].

2) An initial consonant prevents an immediately following [ɪ] from being interpreted as consonantal [ɣ].

3) A final [ɪ] must be vocalic.<sup>12</sup>

With the exclusion of [ɣ] as one of the possible segment interpretations in the three-vocoid nucleus sequence, there are still two possibilities, either [ʌɪ] or [ɪʌ] could be interpreted as the complex segment.

In order to find a satisfactory solution it is necessary to look beyond the word distribution, and examine the intensity pattern of the vocoid sequences and the duration of the steadystates and transitions of the vocoids. Unfortunately, the acoustic evidence is meagre, as the words recorded for acoustic analysis were taken from a list which was basically of two syllables, usually with a single vowel in the stressed syllable. A few other words were included for possible minor comparisons and among these were three which contained three vocoids in the stressed syllable. Although meagre, the evidence from the analysis of the three words substantiates auditory impressions, and it is worthwhile to include it here as an illustration of the processes involved in differentiating a simple vocoid from a complex glide.

The three words under examination were each uttered by the same speaker three times. They were recorded on a Nagra III tape recorder and subsequently sonagrams were produced on a Kay Sonagraph at the Speech and Language Research Centre at Macquarie University. Figures 11 and 12 display these sonagrams. The table below gives a measurements in centi-seconds for the nine utterances. Four measurements are given for each word.

1. The duration from the beginning of the onset transition to the steady-state position of the first [ʌ].
2. The duration from [ʌ] steady-state to the steady-state of [ɪ].
3. The duration from [ɪ] steady-state to the steady-state of the second [ʌ].
4. The duration from the second [ʌ] steady-state to the end of the coda transition.

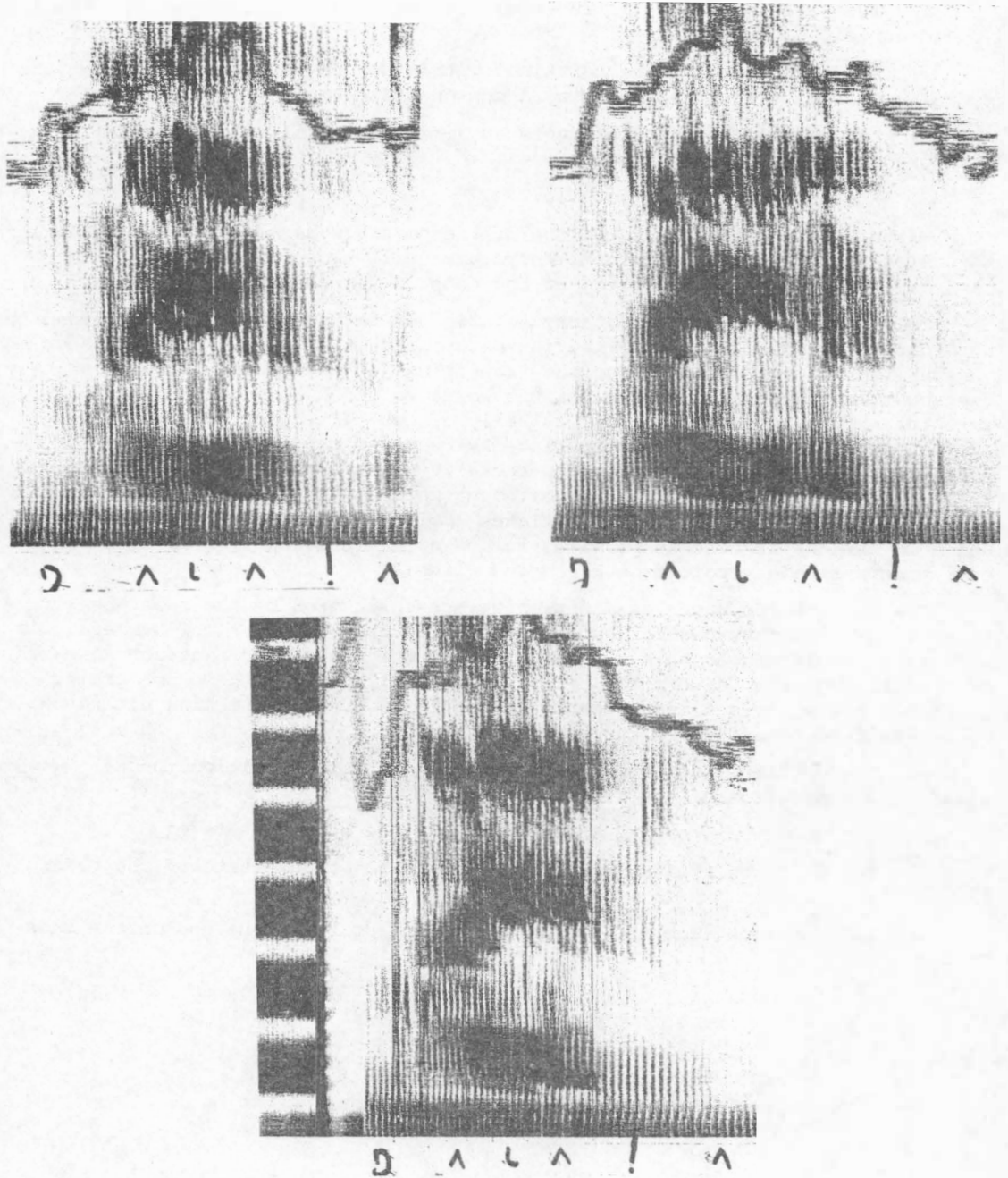


Figure 11

Sonograms of [ŋʌlʌ!ʌ] sounds, indicating the structure of the first three formants. The third sonogram contains a calibrated energy burst marking off each 500Hz.



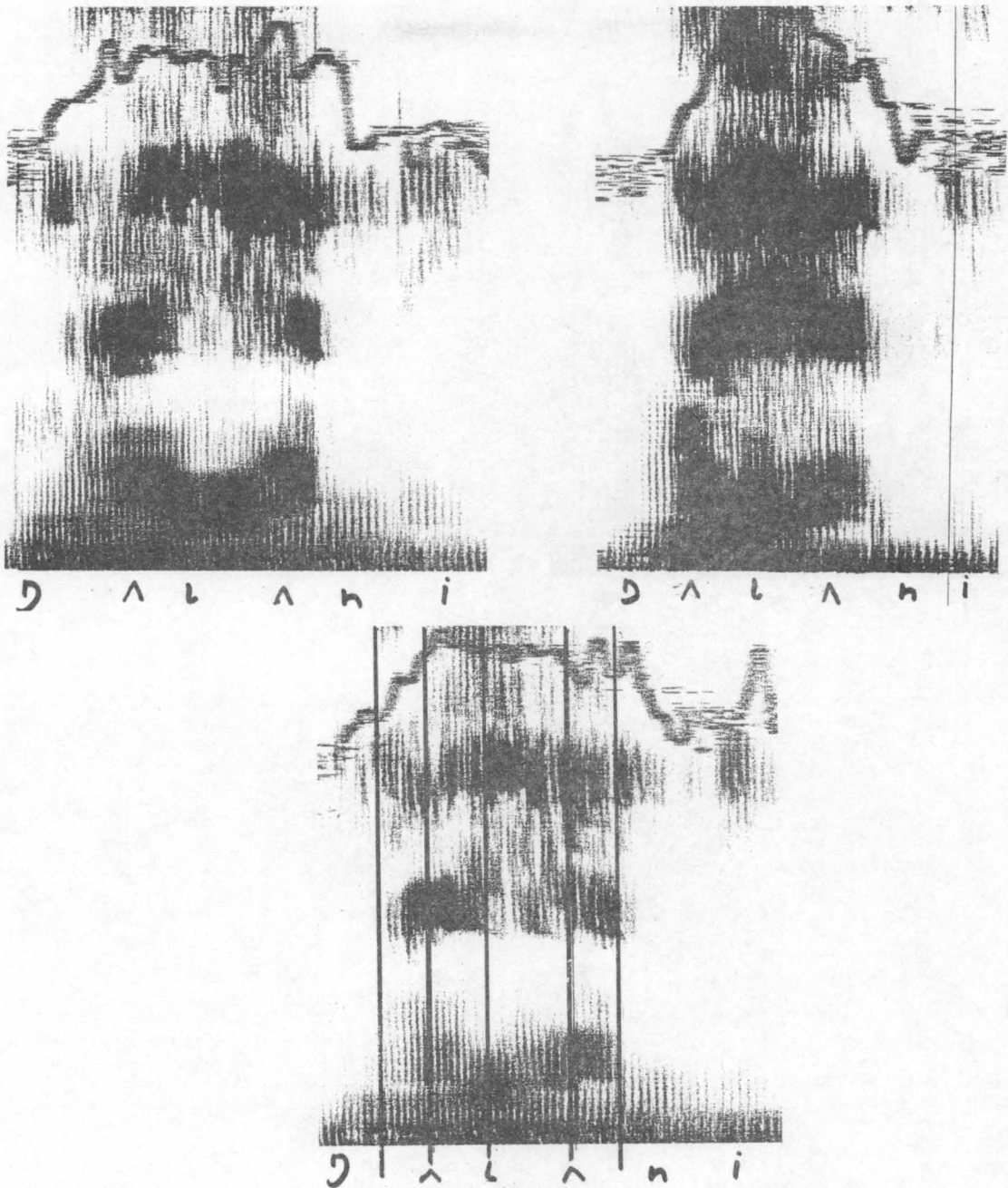


Figure 12

Sonagrams of [ɲʌliʌni]\**we* (exclusive). The third sonagram has vertical lines added to indicate the commencement of vocoid transition, and the centres for [ʌ] target, [ɛ] target, and second [ʌ] target, and finally, the end of final vocoid transition.

\*The second low vowel is often heard as [æ] under the influence of the preceding [ɛ]. The reasons for this are discussed in section 4.

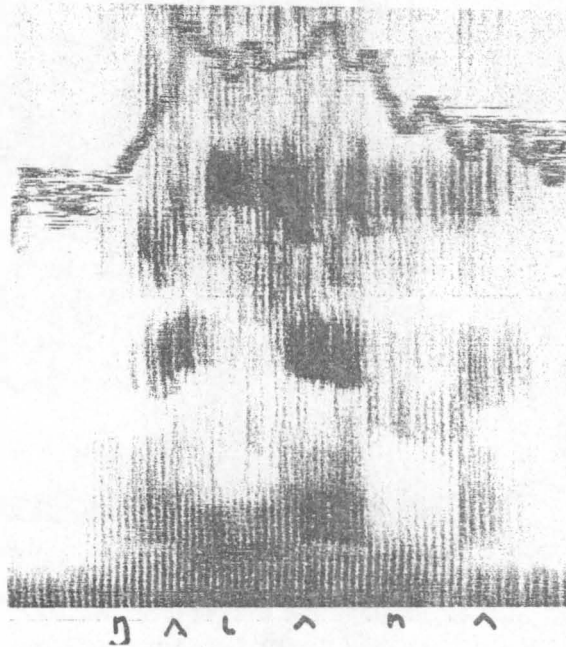
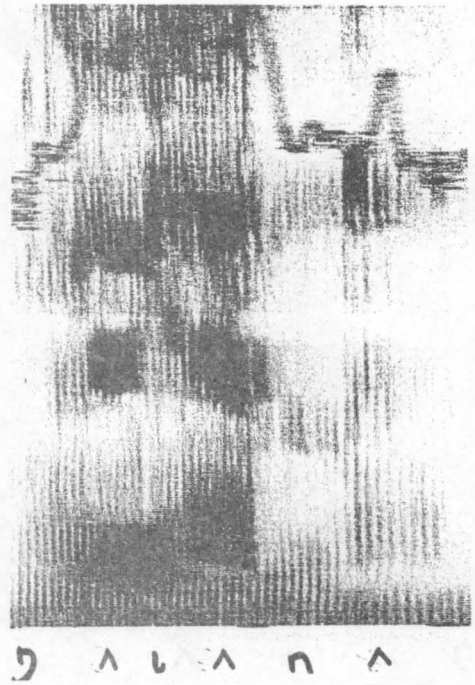
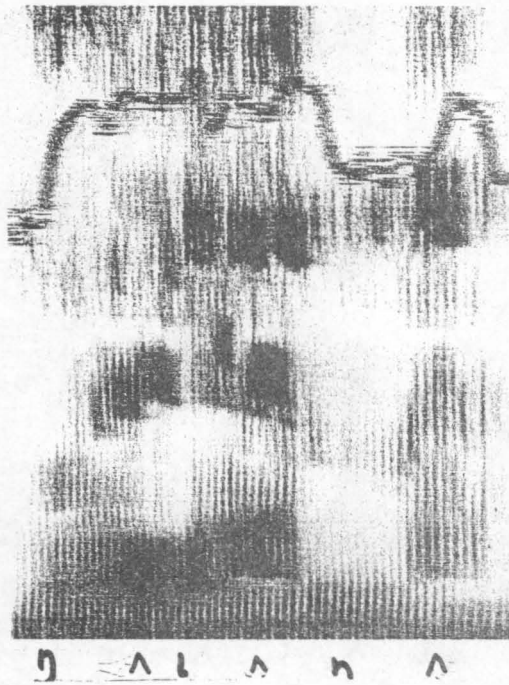


Figure 12 (cont)  
Sonagrams of [ɛlɛnɛ] *we* (inclusive)



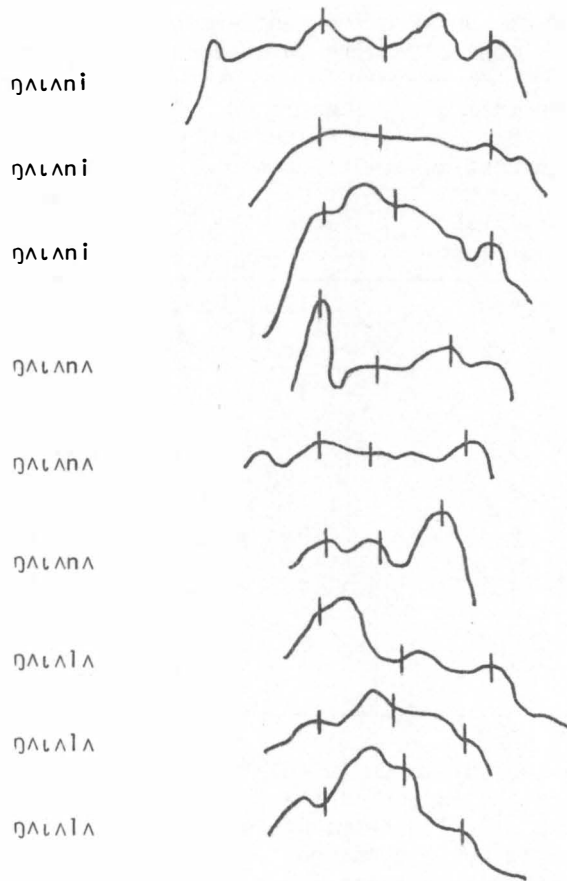


Figure 13

Amplitude displays of three sets of Diari words with intersecting lines where the vocoid target centres are reached in the formant displays.

As well as the relationship based upon duration differences another significant relationship between 1st  $\Lambda$  and  $\iota$  can be observed on the acoustical displays. Figure 13 reveals that characteristically 1st  $\Lambda$  and  $\iota$  are associated with the same intensity peak, usually approximating the target of 1st  $\Lambda$ .<sup>13</sup> The 2nd  $\Lambda$  on the other hand is disassociated from that peak by a minor trough, and instead is associated with a peak of its own.

Thus it can be seen that 1st  $\Lambda$  and  $\iota$  are associated through time and intensity pattern. These two facts together with the auditory impression gained on hearing the words, give good grounds for interpreting 1st  $\Lambda$  and  $\iota$  as the glide [ $\Lambda\iota$ ], and the 2nd  $\Lambda$  as a juxtaposed vowel [ $\Lambda$ ]. Also, based on these findings the sequence  $\iota\Lambda$  is interpreted as the vowel [ $\iota$ ] followed by the glide [ $\Lambda\iota$ ].

The sequence [ $\Lambda\iota$ ] has been recorded occupying the same nucleus with other vocoids but unfortunately these recordings were made of fast speech during text narration and it is uncertain whether or not syllable boundaries would have

occurred if the words were spoken in isolation. However, as has previously been mentioned  $\Lambda U$  does occur sharing the syllable nucleus (Figure 10), which means the sequence in those situations is vocalic without any consonantal interruption. Therefore the sequence should be interpreted as a vowel cluster or as a vowel glide. In this study it is taken to be a vowel glide based on the fact that  $\Lambda U$  is analogous with  $\Lambda \iota$ ,  $\Lambda$  having a velar off-glide on the one hand and a palatal off-glide on the other.

The remaining vocoid sequences to be examined are [ii] and [uu]. Each of these has only been detected as occurring once, [ii] in [nii] *brother*, and [uu] in [kuu] *don't know*. The important point that needs to be noticed here is that geminate vocoid clusters only occur in monosyllabic words. Another important fact that needs to be added to this is that non-lengthened [i] and [u] do not occur in mono-syllabic words but the complex vowels [ $\Lambda \iota$ ] and [ $\Lambda U$ ], do, e.g. [ $\eta \Lambda U$ ] *he* (nom.) and [ $\eta \Lambda \iota$ ] *see*. Thus it is concluded that mono-syllabic word final monophthongs are lengthened, with the result that the vocoid sequences [uu] and [ii] are interpreted as [u:] and [i:].

## 2.7 Interpretation of sequences containing both contoids and vocoids

Sequences involving contoids and vocoids are of two types in Diari. The first type consists of a contoid with a high front vocalic release, which can be interpreted as one of the palatal consonants [tʃ], [ɲ] and [j], or as a consonant followed by the high front vowel [i]. Figures 14-16 indicate with sonagrams the three complex sequences in contrast with similar words which do not have the vocalic release. Apart from [pɪtʃi] it can be noticed that in each pair of sonagrams the transitions of the second formants to and from the contoid loci are more angled for the palatal contoid than they are for the others. This explains the physical basis for the two interpretations of these segments. An examination of [pɪtʃi] *tree bark* shows there is no appreciable variation of the transition as it leaves the contoid locus, and moves towards the vowel target.<sup>14</sup> In other words, the locus of the second formant for Diari palatal contoids approximates that for the vocoid [ɪ].

The interpretation of these contoid, vocoid sequences is relatively straightforward. As [tʃ] and [ɲ] occur word initially and consonant clusters are not permitted word initially, they cannot be considered to be the sequence [ty] and [ny]. Laterals do not occur word initially, but [j] does occur medially preceding [tʃ], and as Diari does not have medial clusters of three, the sequence [tʃj] cannot be interpreted as [lyty]. Figures 17-18 display sonagrams with these three segments in positions which would not allow them to be interpreted as CC.

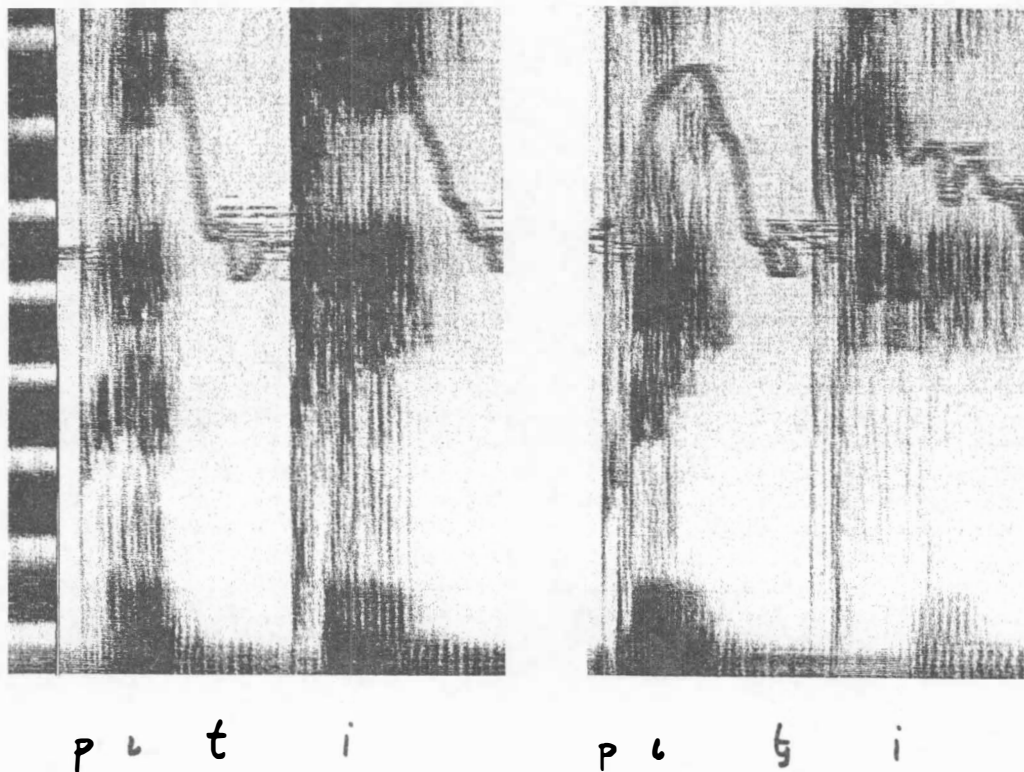


Figure 14

Sonagrams of [piti] *buttocks* and [pʔi] *tree bark*, illustrating the contrast between [t] and [ʔ].

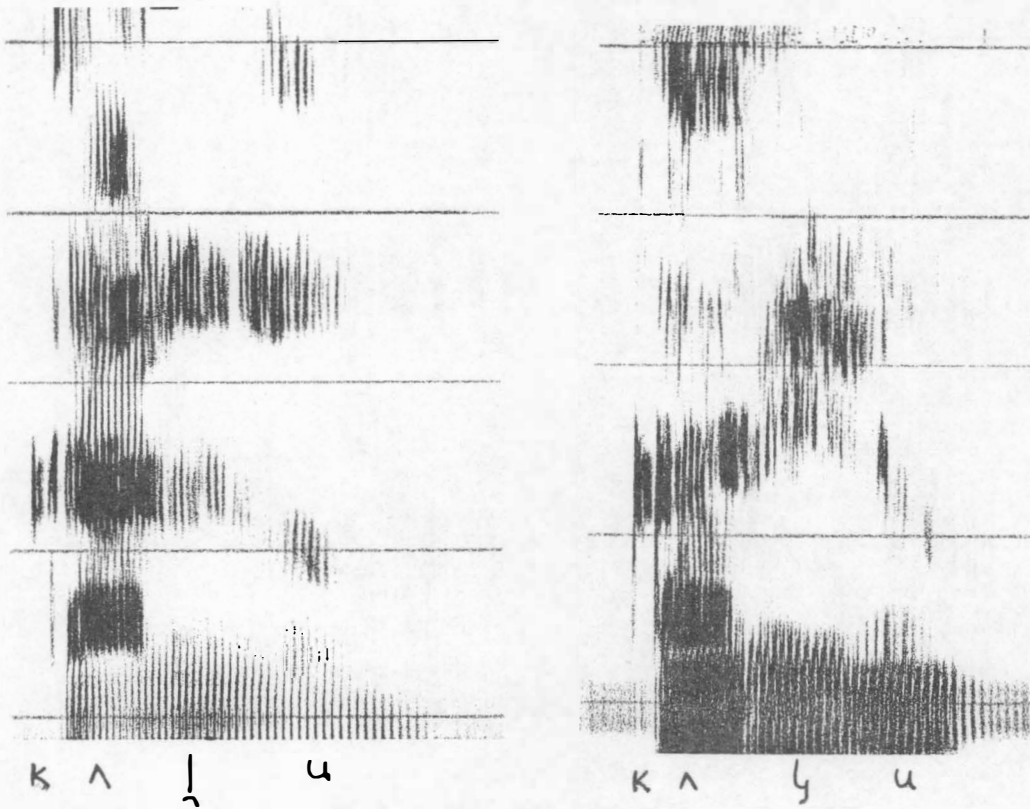


Figure 15

Sonagrams of [kaɿu] *liver* and [kaɹu] *acacia type* illustrating the contrast between [ɿ] and [ɹ].

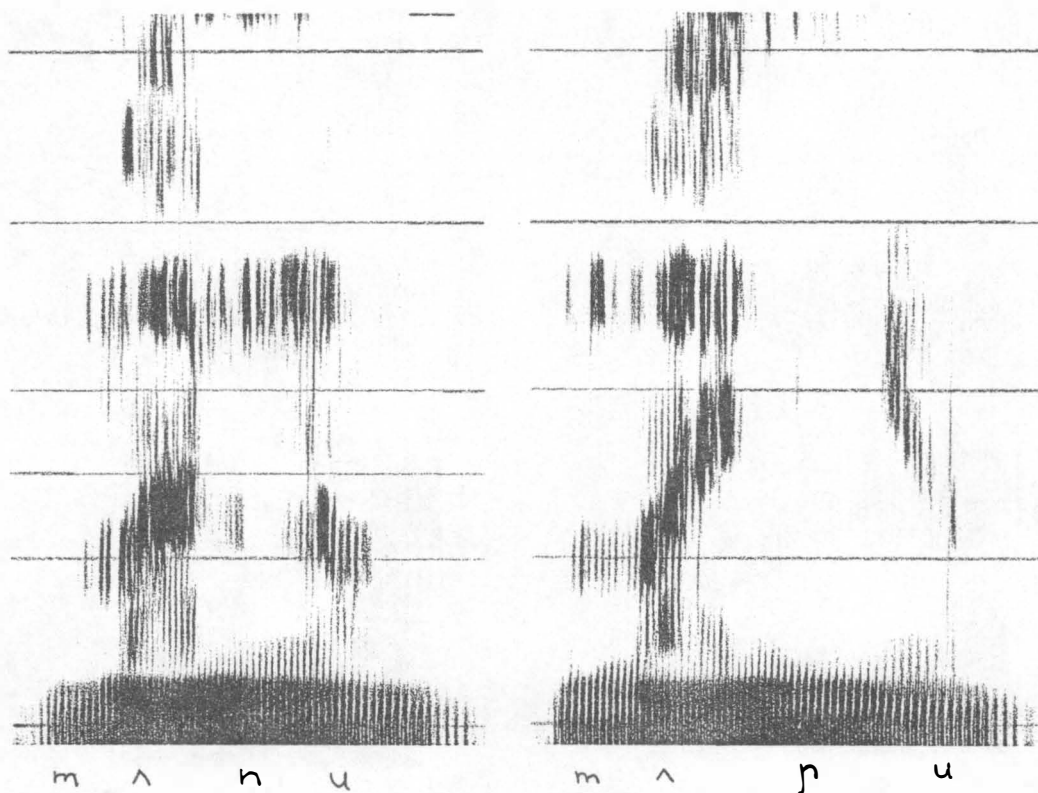


Figure 16

Sonograms of [manu] *soul* and [manu] *sprightly* illustrating the contrast between [n] and [ŋ].



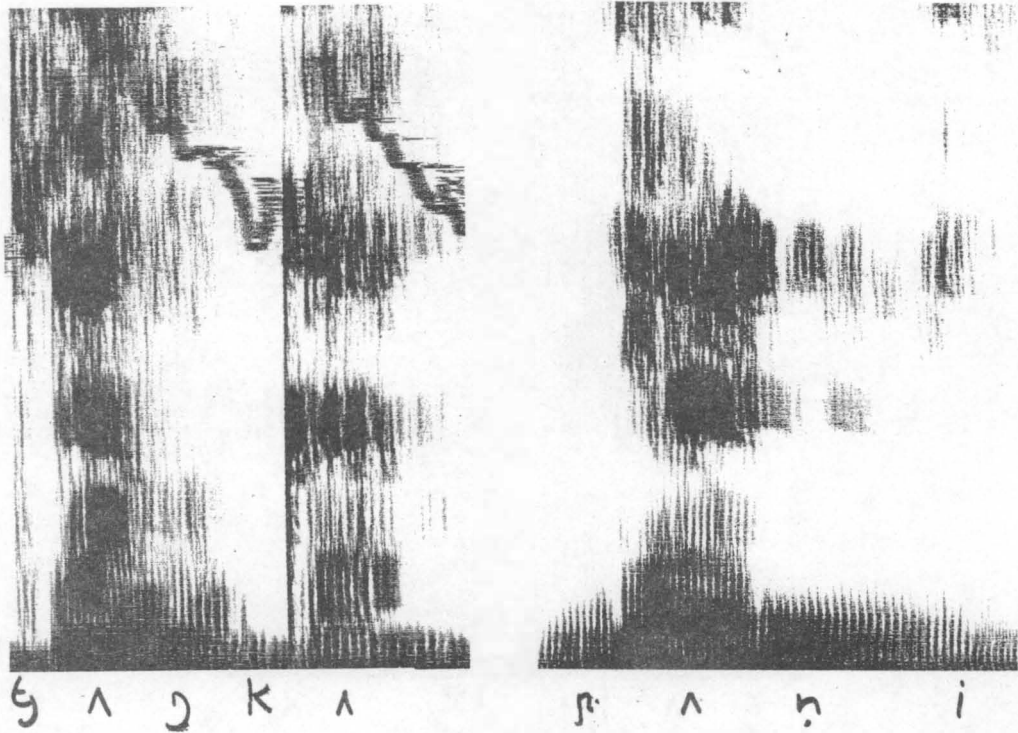


Figure 17

Sonagrams of [ʒʌŋkʌ] *soft* and [ɾʌŋi] *blunt* with [ʒ] and [ɾ] in positions which determine they must be single complex segments.



Figure 18

A sonagram of [ɧʌɫɥʌ] *saliva* with [ɫ] and [ɥ] in positions which determine they must be single complex segments.

That the segments are not interpreted as a consonant followed by /i/ is explained by the fact that [tʃ] and [ʃ] occur word medially before /i/ and geminate clusters (apart from mono-syllabic CV words as mentioned previously) do not occur in Diari. In the data gathered for this study no words were discovered with [ŋ] preceding [i] but because of the analogous structure of [ŋ] with the other two palatals it is assumed it will function similarly to the other two and thus not be interpreted as an alveolar followed by a high vowel.<sup>15</sup>

Since the contoid-vocoid sequences cannot be interpreted as a sequence of consonants or of a consonant followed by a vowel, it is concluded they are single complex palatal segments [tʃ], [ɲ] and [ʃ]. Figures 19-20 illustrate the differences of formant structure between words containing a palatal followed by [i] and words containing an alveolar in the same environment. Again it can be noticed how the second formant vowel transitions are considerably higher under the influence of the palatals.

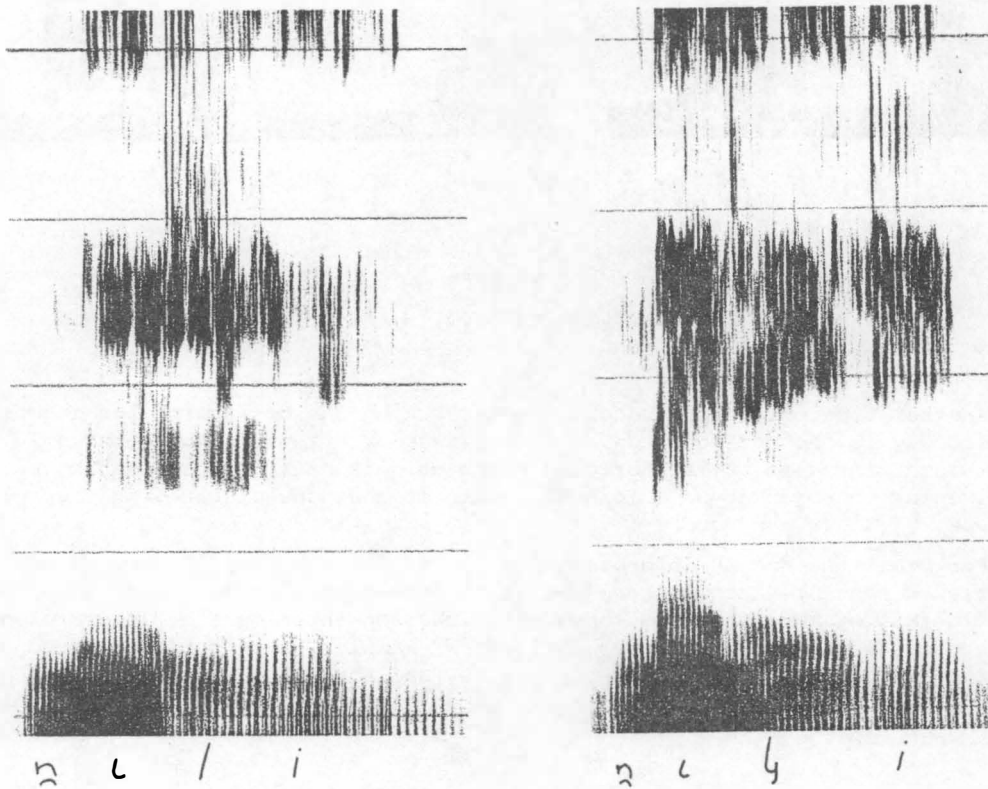


Figure 19

Sonagrams of [nɫi] *needle* and [ŋɲi] *egg white* illustrating the influence [ɲ] and [ʃ] have upon vowel transitions.

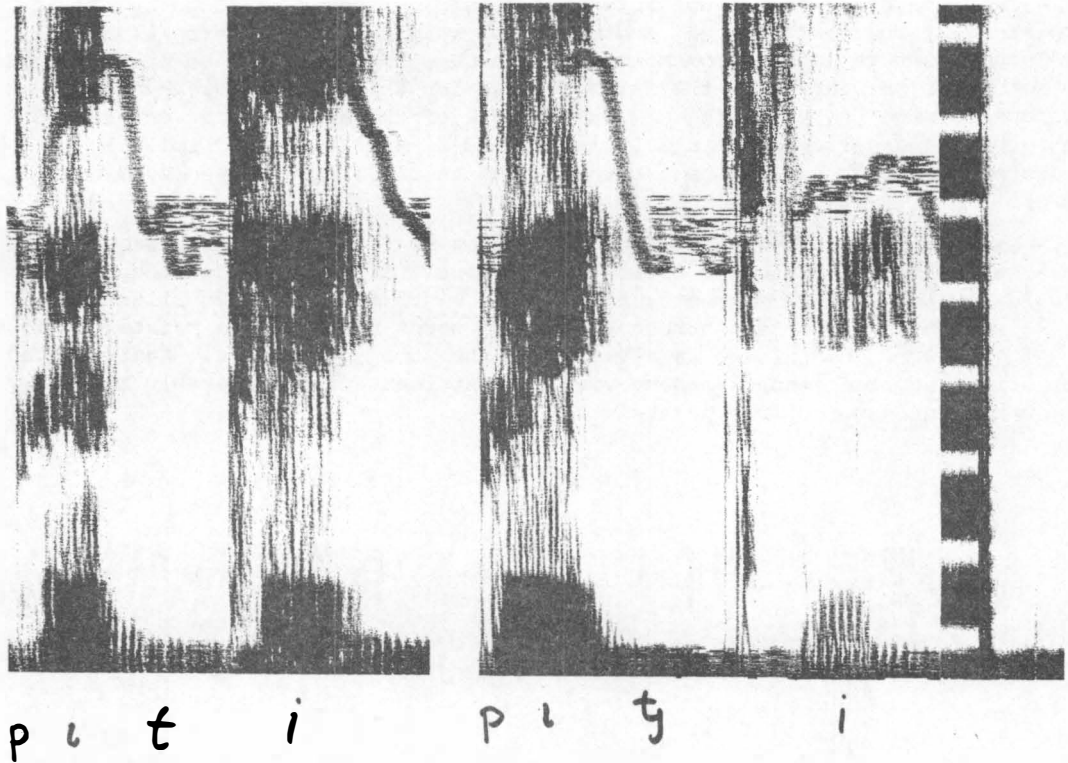


Figure 20

Sonagrams of [pɪti] *buttocks* and [pɪʝi] *tree bark* illustrating the influence [t] and [ʝ] have upon vowel transitions.

Another type of contoid/vocoid sequence which can be interpreted in more than one way is the retroflexed vocoid followed by a retroflexed contoid. This can be interpreted as the retroflexed resonant consonant [r] followed by one of the alveolar consonants, or it can be interpreted as one of the single complex segments, [ʀ], [ɖ], [ŋ] or [ʎ].

For Diari the second interpretation is the correct one, for the reason that retroflexed sequences occur preceding other consonants, and as Diari does not have clusters of more than two consonants, the sequences must be interpreted as single complex segments. Figures 21-22 show examples of retroflexed consonants occurring in clusters with other consonants, and these are contrasted with other words. [ʎ] is also contrasted with [ɪ], the third formant being considerably lowered for [ʎ].

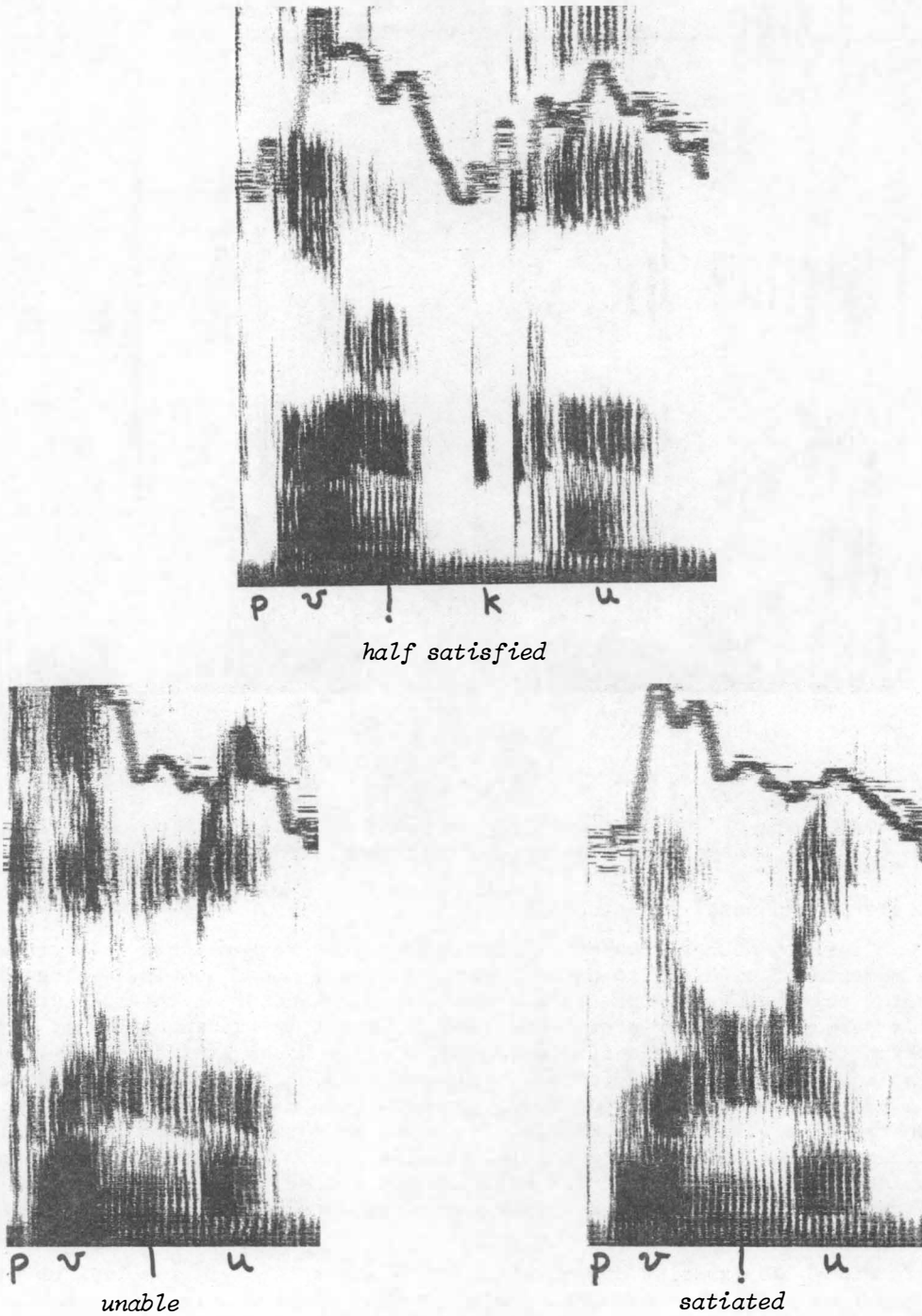


Figure 21

Sonagrams of words containing laterals in order to illustrate [!] occurring in a consonant cluster, and contrasting it with [!] and [l] between vowels.

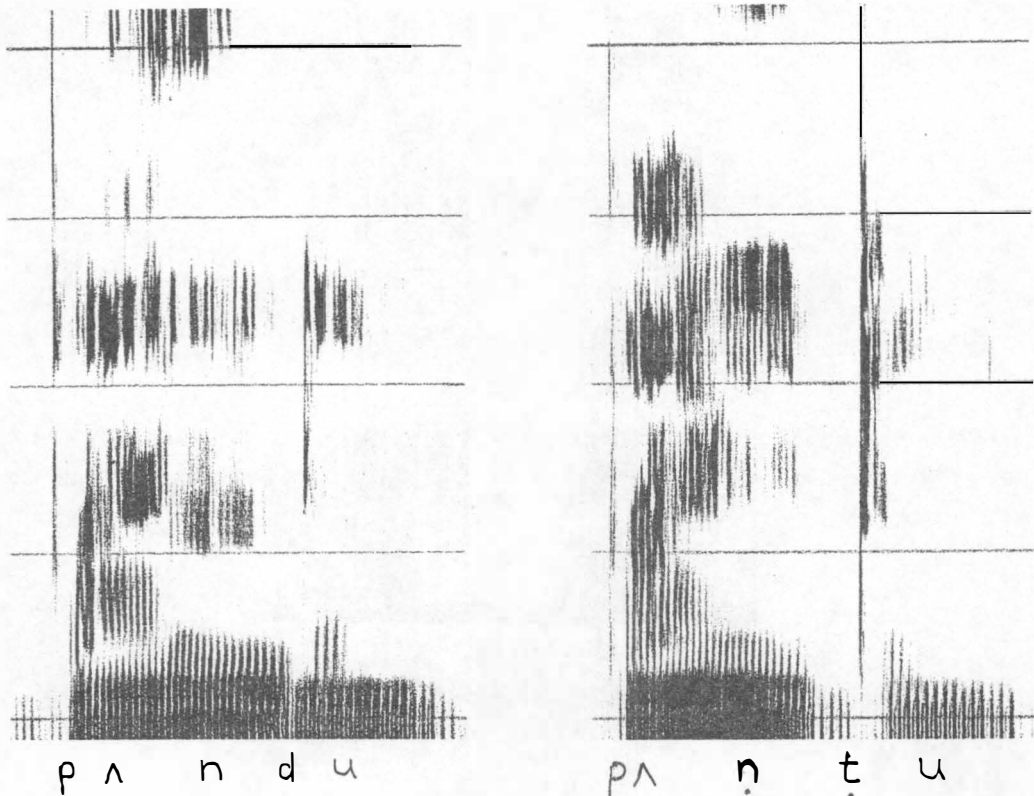


Figure 22

Sonagrams of [pʌndu] *lake* and [pʌntu] *blunt* illustrating [ŋ] occurring in a consonantal cluster and differentiating it from [n].

## 2.8 Lateral and nasal pre-stopping

In Diari, together with other languages of the region there is a tendency for a momentary occlusion to occur preceding laterals and nasals.<sup>16</sup> The occlusion only occurs before dentals and alveolars and often the obstruction of the air passage is incomplete. Sometimes it is not in evidence at all. If the occlusion is complete there is a definite 'd'-like sound preceding the lateral or nasal. Pre-stopping only occurs between vowels. If it occurs following an initial (i.e. primary stressed) vowel the occlusion may be complete. Otherwise the obstruction will only be partial.<sup>17</sup> Also, as noted by Austin,<sup>18</sup> an intervocalic nasal following a word initial nasal will not be preceded by a complete occlusion. In this situation the velum is not raised after the completion of the first nasal so it is not possible for a complete occlusion to occur preceding the second nasal.

In Figure 23 examples are given of words where there is complete or partial pre-stopping. The first example, /puʌ/ [pu<sup>d</sup>ʌ] *they two*, is particularly interesting. There is an almost complete occlusion of 3.7 centi-secs, followed by a duration of 4.2 centi-secs of friction, followed by a moment of air turbulence (seen as a long striation preceding from 1000-4000 Hz) followed by 5.8 centi-secs of 'lateral' sound. The other words in the figure exhibit various degrees of obstruction preceding the lateral or nasal.

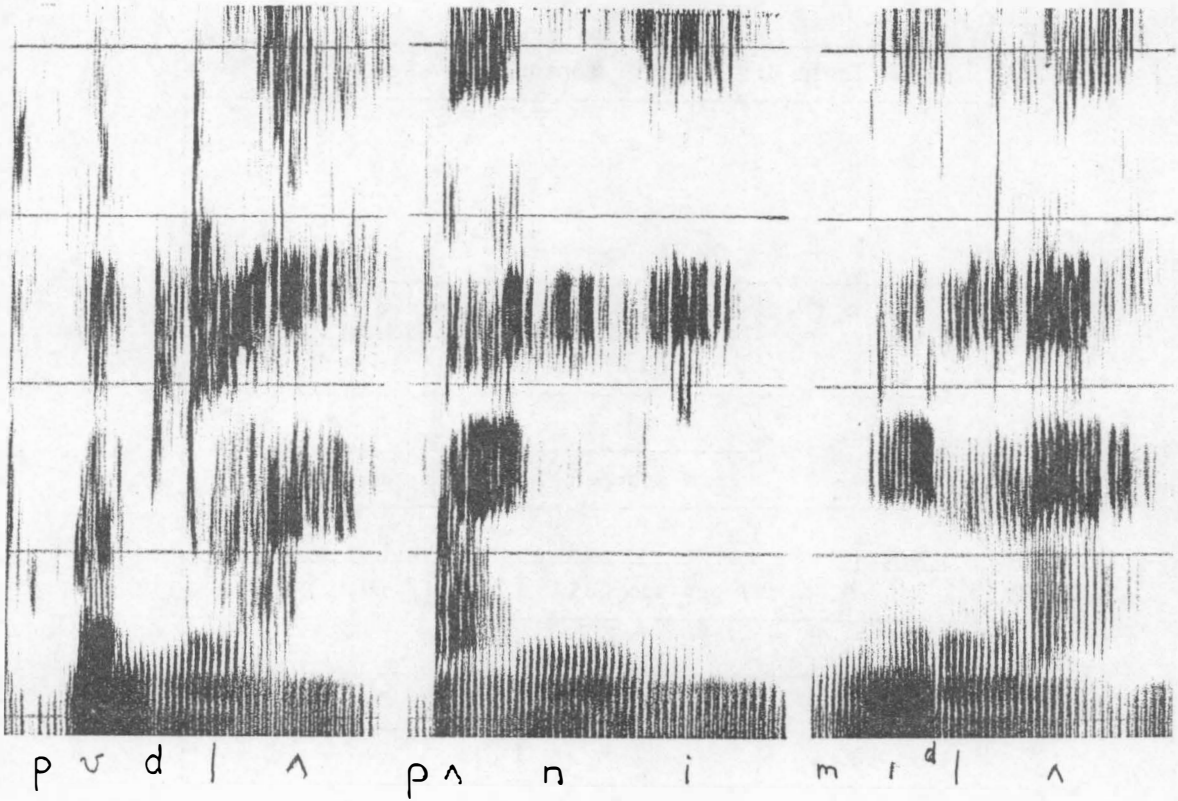


Figure 23

Spectrograms of [pʊ<sup>d</sup>lʌ] *they two*, [mɪlʌ] *thigh bone*,  
and [pʌni] *none*, showing differing degrees of air-flow  
obstruction preceding lateral or nasal consonants.

2.9 Summary of phonetic segments

The segmentation procedures used have resulted in the formulation of twenty-seven consonants and five vowels. If the consonants are indicated by normal articulatory methods, they can be presented by Table 3.

Table 3: Chart of consonantal segments		bilabial	interdental	alveolar	retroflexed	alveopalatal	velar
Stops	voiceless	p	t̪	t	ɽ	t͡ʃ	k
	voiced			d	ɽ̣		
Nasals		m	n̪	n	ɽ̣	ɲ	ŋ
	pre-stopped		ɲ̪	dn			
Laterals			l̪	l	ɽ̣	ʃ̣	
	pre-stopped		ɽ̣l̪	dɽ̣			
Flap			ɽ̣				
Trill			ɽ̣				
Semi-vowel		w			r	y	

The Diari vowels are not so easily described, for as will be shown later the sum of their instances correspond to a two dimensional continuum of sound change rather than a series of discrete entities. If however, the vowels are noted according to auditory impressions gained during field recording, the following Figure can be devised.

	front	central	back
high	ɪ      ɨ̣		u      ʊ
mid	ɛ	ə	
low	æ	ʌ	ɔ

Figure 24

Diari vowel plots based upon auditory impressions

The vowels shown on the above chart are illustrated on the next four pages in the form of sonagrams.



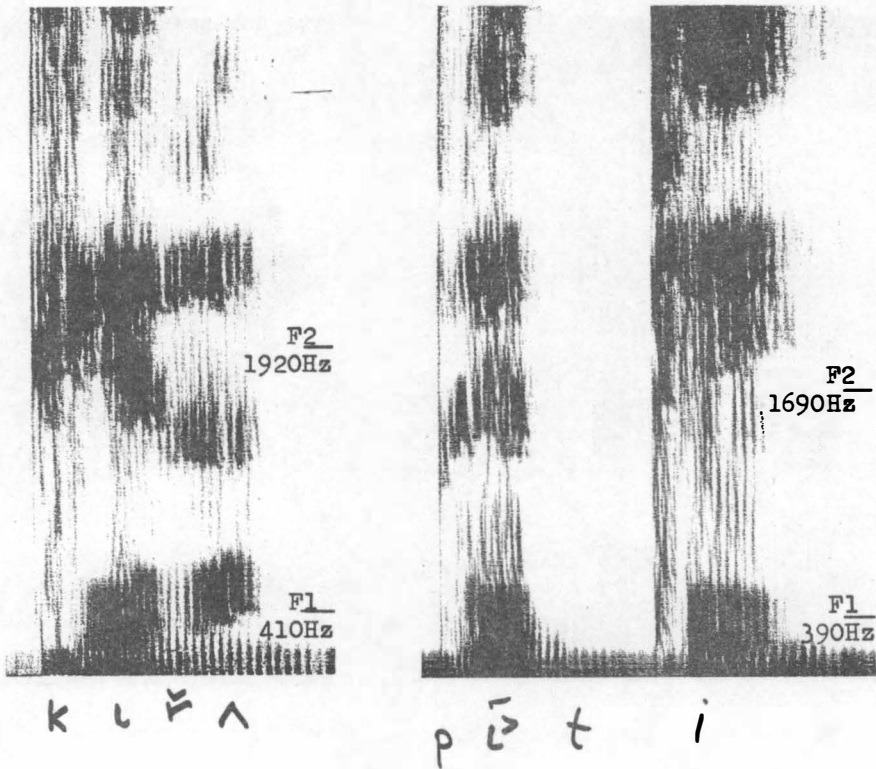


Figure 25

Sonagrams of [kɪʔʌ] *boomerang* and [pɪ̃tɪ] *buttocks* illustrating F1 x F2 formant structures for [ɪ] and [ɪ̃]. Horizontal lines with Herz readings indicate measurements of F1 and F2 at target.

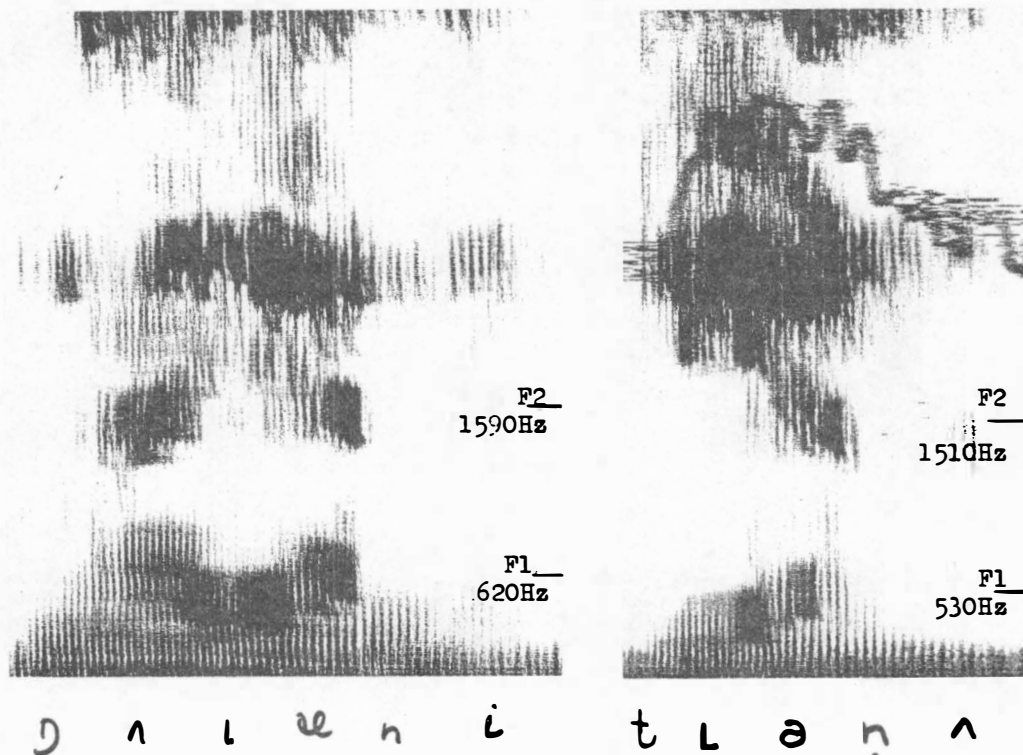


Figure 26

Sonagrams of [ɨʌlɛni] *we* and [tɪɪʌ] *boomeranged* illustrating F1 x F2 formant structures for [æ] and [ə]. Horizontal lines with Herz readings indicate measurements of F1 and F2 at target.

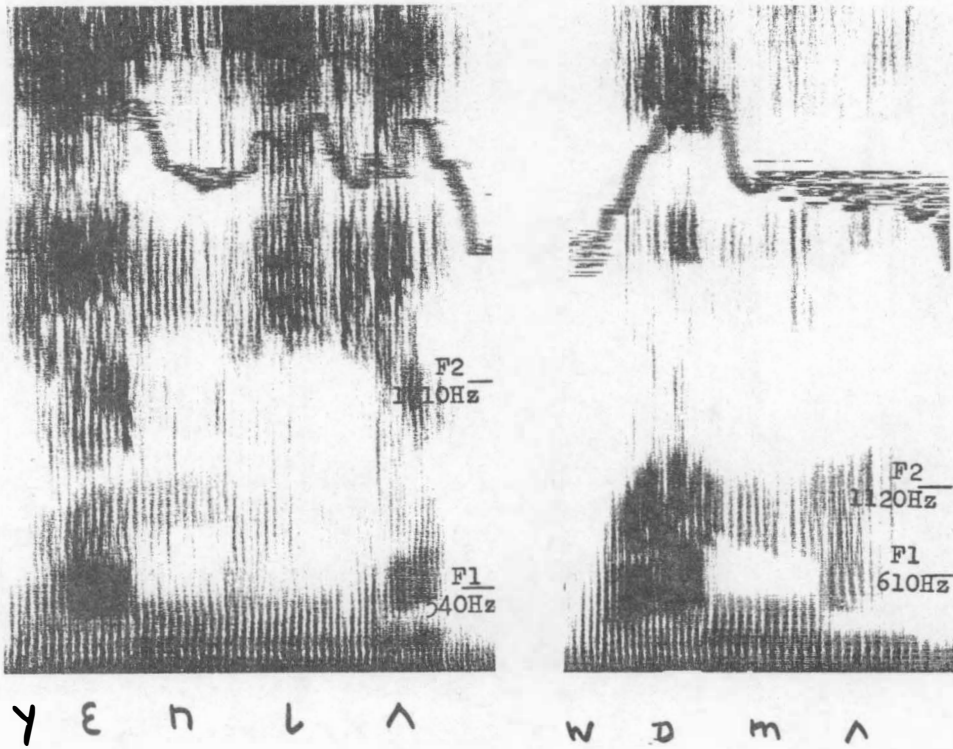


Figure 27

Sonagrams of [yɛnɪʌ] *like this* and [wɔmʌ] *carpet snake*, illustrating F1 x F2 formant structures for [ɛ] and [ɔ]. Horizontal lines with Herz readings indicate measurements of F1 and F2 at target.

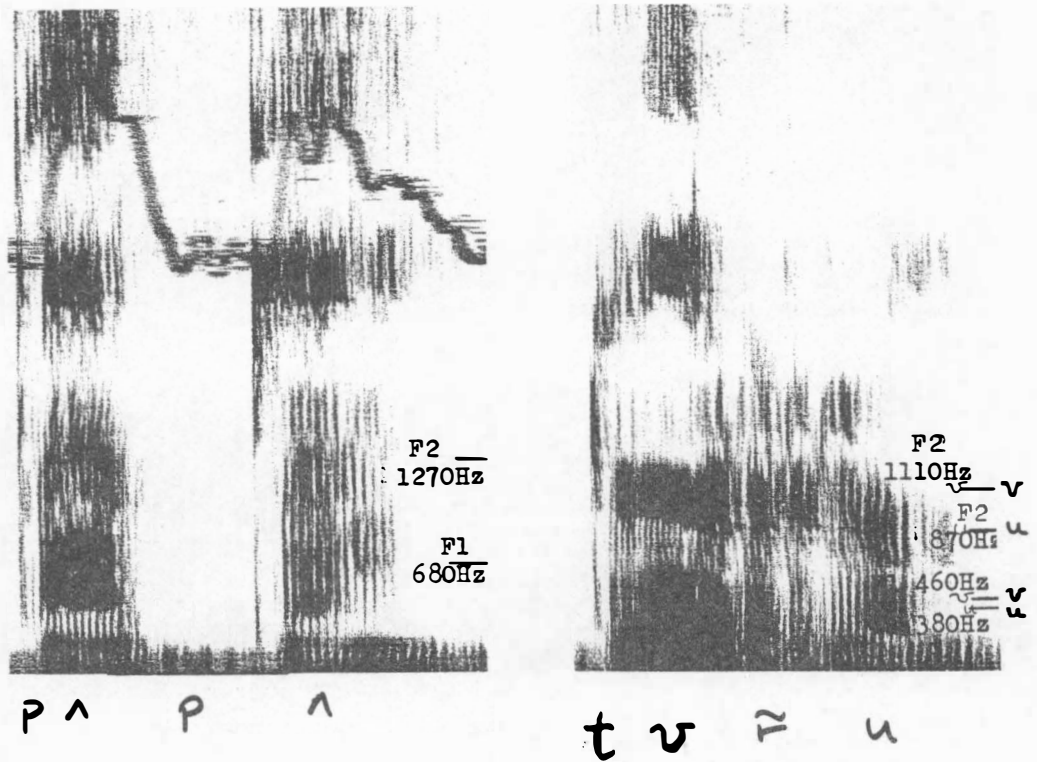


Figure 28

Sonagrams of [pʌpʌ] *father's sister* and [tʊru] *hard ground*, illustrating F1 x F2 formant structures for [ʌ], [ʊ] and [u]. Horizontal lines with Herz readings indicate measurements of F1 and F2 at target.

The vowels indicated on the preceding sonagrams can be plotted on an acoustic vowel graph, and as can be seen in Figure 29 these plots are in agreement with the auditory impressions. However, as will be explained later, it would be very easy to find other words where the vowel targets vary considerably from those given.

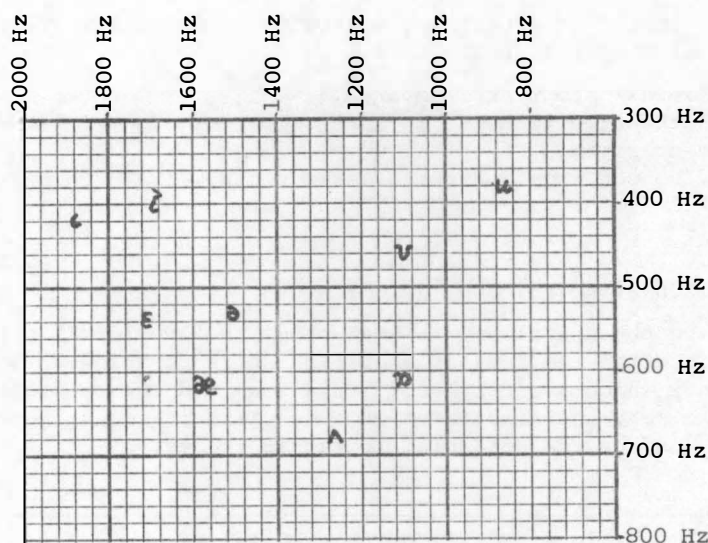


Figure 29

Vowel targets indicated in Figures 25-28  
plotted on an acoustic vowel graph.

### 3. THE CONSONANT PHONEMES

The phonemes of Diari have been established on the basis of contrast. If the substitution in a word of one phonetic segment for another signals a change in meaning it is concluded the two segments belong to different phonemes. If it is not possible to find such minimal pairs, but nevertheless there is no evidence for uniting the segments as allophones, they can be shown to be contrastive in sub-minimal sets. Phonetic segments which are auditorily or articulatorily distinct but not contrastive, are united as allophones of the same phoneme. Uniting segments may fluctuate within a word, or their occurrence may depend upon the phonetic environment.

Consonants have been classified according to articulatory field methods. This means a phonetic symbol is used to represent a segment which has been identified by the observation of the informant's articulatory processes, together with the auditory impression gained by the investigator at that time.

Though it has been stated that phonetic symbols have been used to represent the articulatory sounds, there are some exceptions. Digraphs are used, instead

of the Pike<sup>19</sup> or I.P.A. symbol, for interdental, alveo-palatals, and the alveolar trill. The digraphs representing alveo-palatals are those usually adopted by linguists when recording Australian Aboriginal languages. Those representing inter-dentals are also occasionally used. The digraph [rr] is used to represent the alveolar trill because of the unusual situation which exists in Diari where three 'r' type sounds are contrastive. The laterally released affricate [d͡l̥] is represented as [dlh] to keep it analogous with the other inter-dentals. The modified chart of consonants in Table 4 indicates the symbols that will now be used to describe the Diari consonants.

In order to arrive at a decision on the phonemic status of the segments four major sets of comparisons are made.

1. Apical and laminal stops are compared.
2. Nasals, with the exception of [m], are compared.
3. Laterals are compared.
4. Flap, trill, voiced stop and retroflexed semivowel are compared.

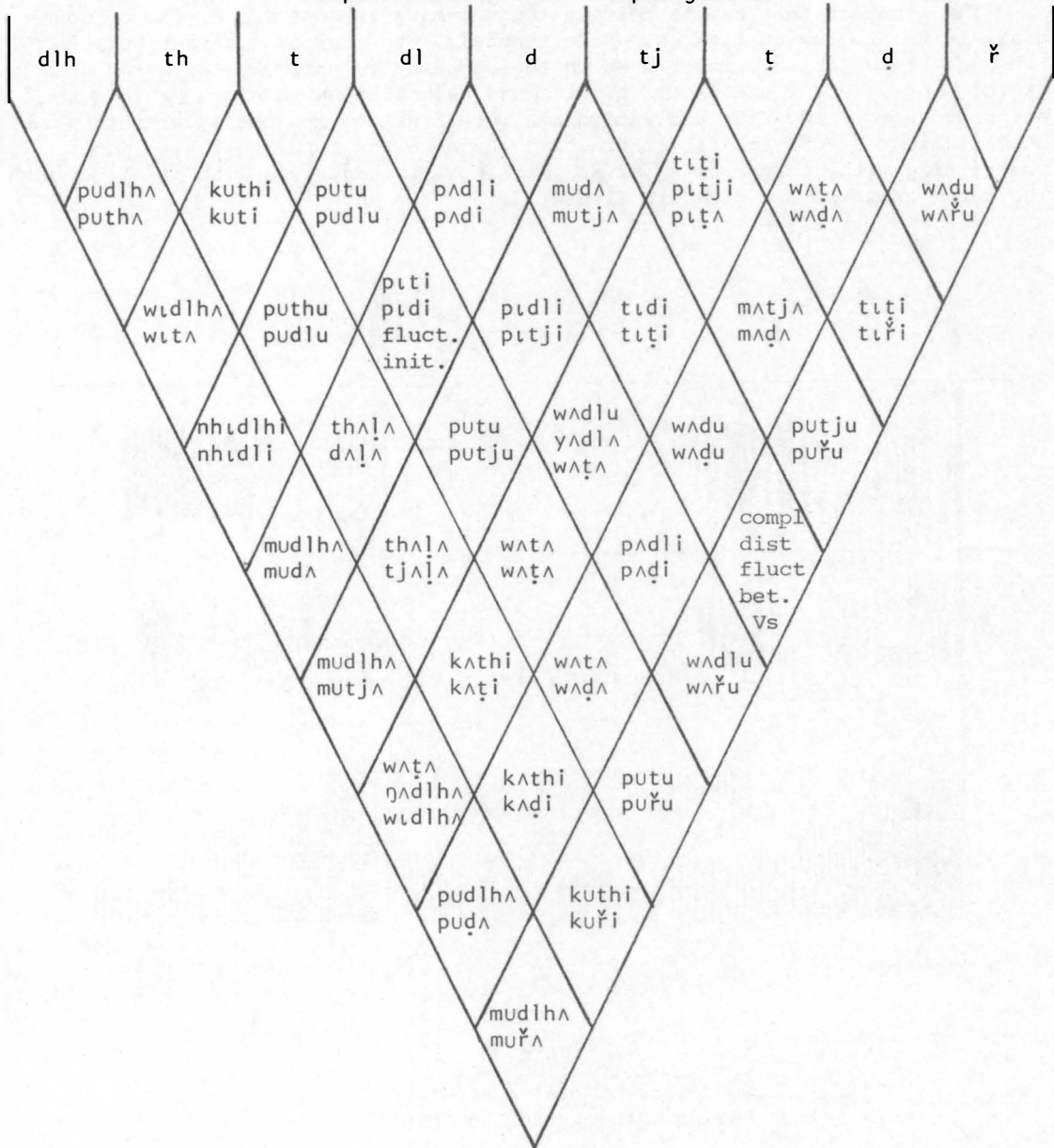
### 3.1 The comparison of apical and laminal stops

Included with the apical and laminal stops is alveolar flap, which, as will be shown, is often realised as a stop of short duration. In all there are eight segments which are compared. This required twenty-eight comparisons, though within the set, the likelihood of some pairs of sounds being united as allophones, [tj] and [d͡] for example, is rather remote.

		bilabial	interdental	alveolar	retroflexed	alveopalatal	velar
Stops	voiceless	p	th	t	ɽ	tj	k
	voiced			d	ɽ̣		
Nasals		m	nh	n	ɳ	nj	ŋ
	pre-stopped		dnh	dn			
Laterals			lh	l	ɭ	lj	
	pre-stopped		dlh	dl			
Flap				ɻ			
Trill				rr			
Semi-vowel		w			r	y	

The chart below indicates the result of the comparisons. If a pair of words are in minimal contrast, the words which indicate this contrast have been written in the comparative box for the two segments. If analogous contrast only has been found, then a three word set has been put in the box. When segments do not contrast, the reasons for uniting them has been indicated, whether this be fluctuation or complementary distribution.

Comparative chart for stop segments<sup>20</sup>



The chart shows that all segments contrast with each other unless the comparison is with [d]. [d] contrasts unambiguously with all segments except [t] and [ʔ]. It contrasts with [t] between vowels but fluctuates with it word initially.<sup>21</sup> [d] is complementary in its distribution with [ʔ] in all positions except between vowels when it fluctuates with it. Due to the partial overlap of the two phonemes, the /t/ phoneme is sometimes realised as [d] word initially when the voicing for the following vowel intrudes into the /t/ occlusion, and the occlusion for the /ʔ/ phoneme between vowels is sometimes prolonged so that it is realised as [d]. The fluctuation with [t] is shown in Figure 30, and the variation of occlusion time between vowels is shown in Figure 31.

The contrast that exists between the segments is depicted by use of sonagrams in the following figures. Unfortunately, the minimal contrast between [th] and [t] which is demonstrated on the comparative chart by the words [kuthi] *out of sight* and [kuti] *black swan*, cannot be shown since [kuthi] was not discovered till after the recordings were finished and the informants were unavailable. A word-initial contrast is shown in the form of [thʌ!ʌ] *name* contrasting with [tʌ!ʌ]/[dʌ!ʌ] *skin*. [thʌ!ʌ] also contrasts with [tʃʌ!ʌ] *piece*. The three examples are given in Figure 32.

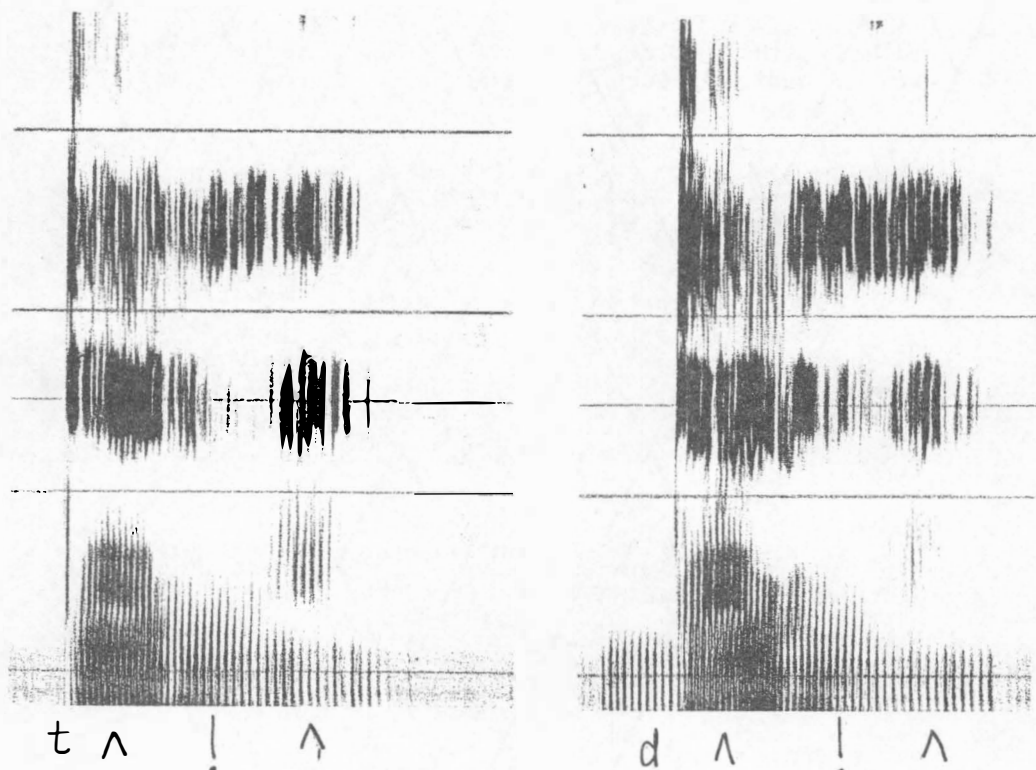


Figure 30

Sonagrams of /ta!a/ *skin* showing [d] fluctuating with [t] in the initial phoneme.



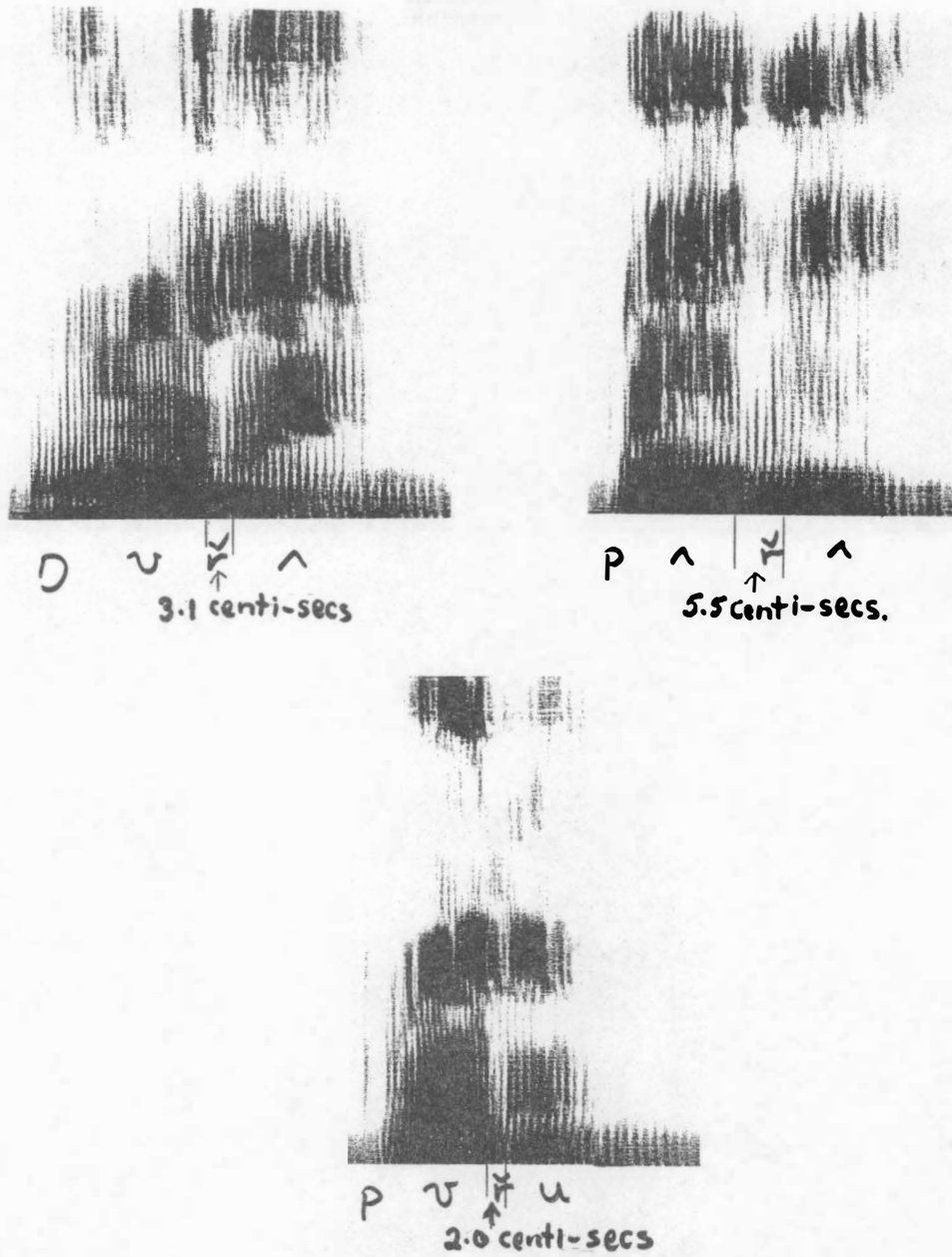
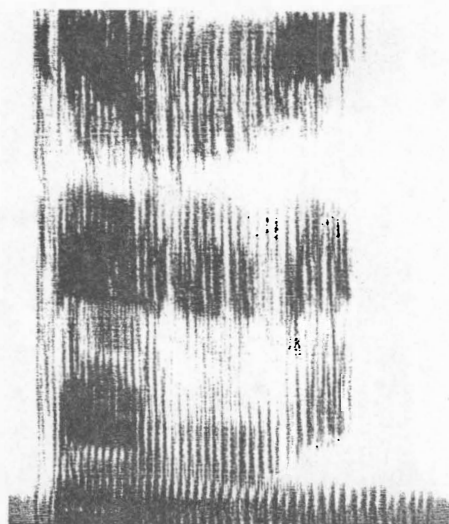


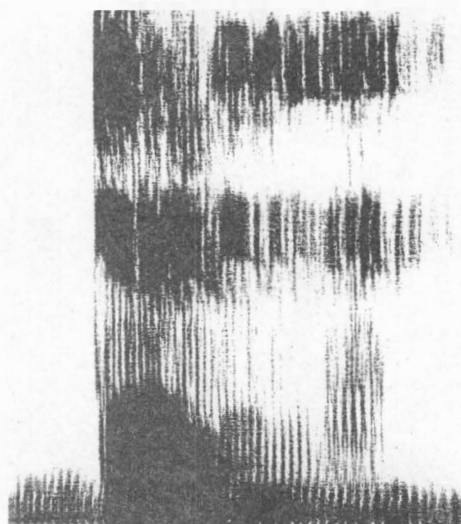
Figure 31

Sonagrams of [ɲʊřʌ] *camp site*, [pʌřʌ] *hair* and [pʊřu] *dew*, illustrating differences in length of duration for the segment [ř].



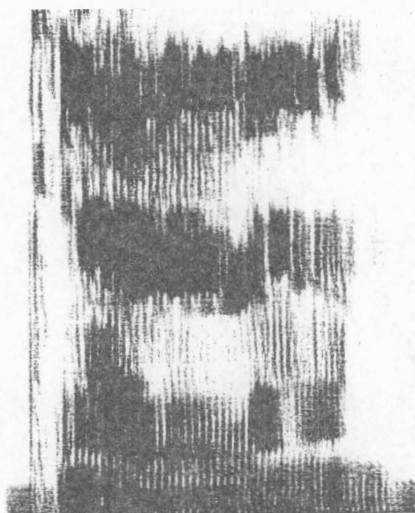
th ^ ! ^

*name*



d ^ ! ^

*skin*



tj ^ ! ^

*piece*

Figure 32

Sonagrams showing the contrast between [th], [t/d], and [tj].

The contrasts between [t], [t̚], and [d] are evidenced by the words [wʌtʌ] *not*, [wʌt̚ʌ] *tree butt* and [wʌdʌ] *head piece*, in Figure 33.

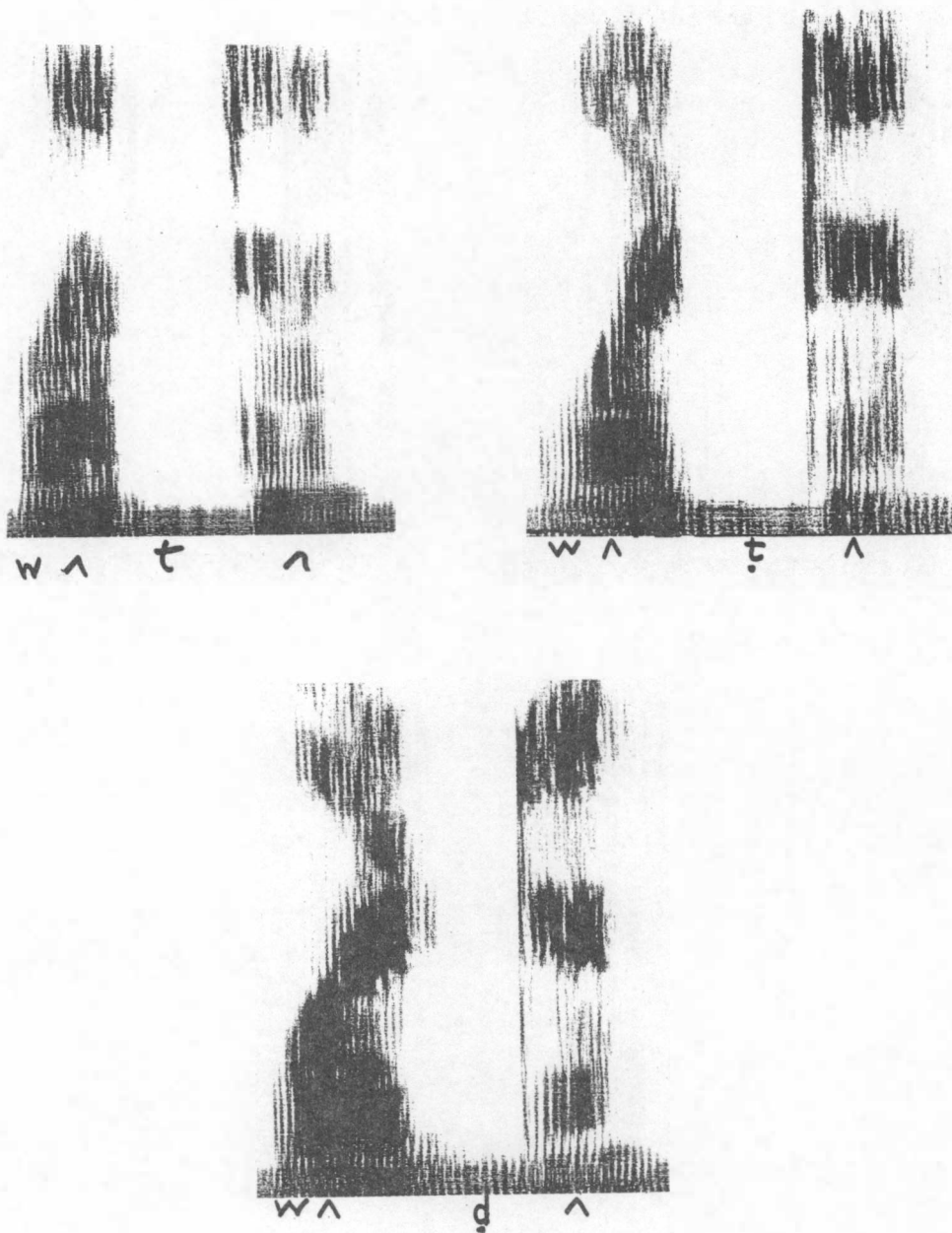


Figure 33

Sonograms illustrating the contrast between [t], [t̚] and [d].

Figure 34 demonstrates the contrast between [th] [t̥], and [d̥], with sonagrams of [kʌθi] *clothing*, [kʌt̥i] *raw* and [kʌd̥i] *wife's brother*. Similarly, Figure 35 demonstrates the contrast between [tj], [t] and [d/ʃ], Figure 36 the contrast between [th], [dlh] and [d̥], and Figure 37 the contrast between [dlh], [tj], and [d/ʃ]. Figures 38-41 illustrate the contrasts between [tj] and [d̥], [t̥] and [d/ʃ], [d̥] and [d/ʃ], and [t] and [dlh].

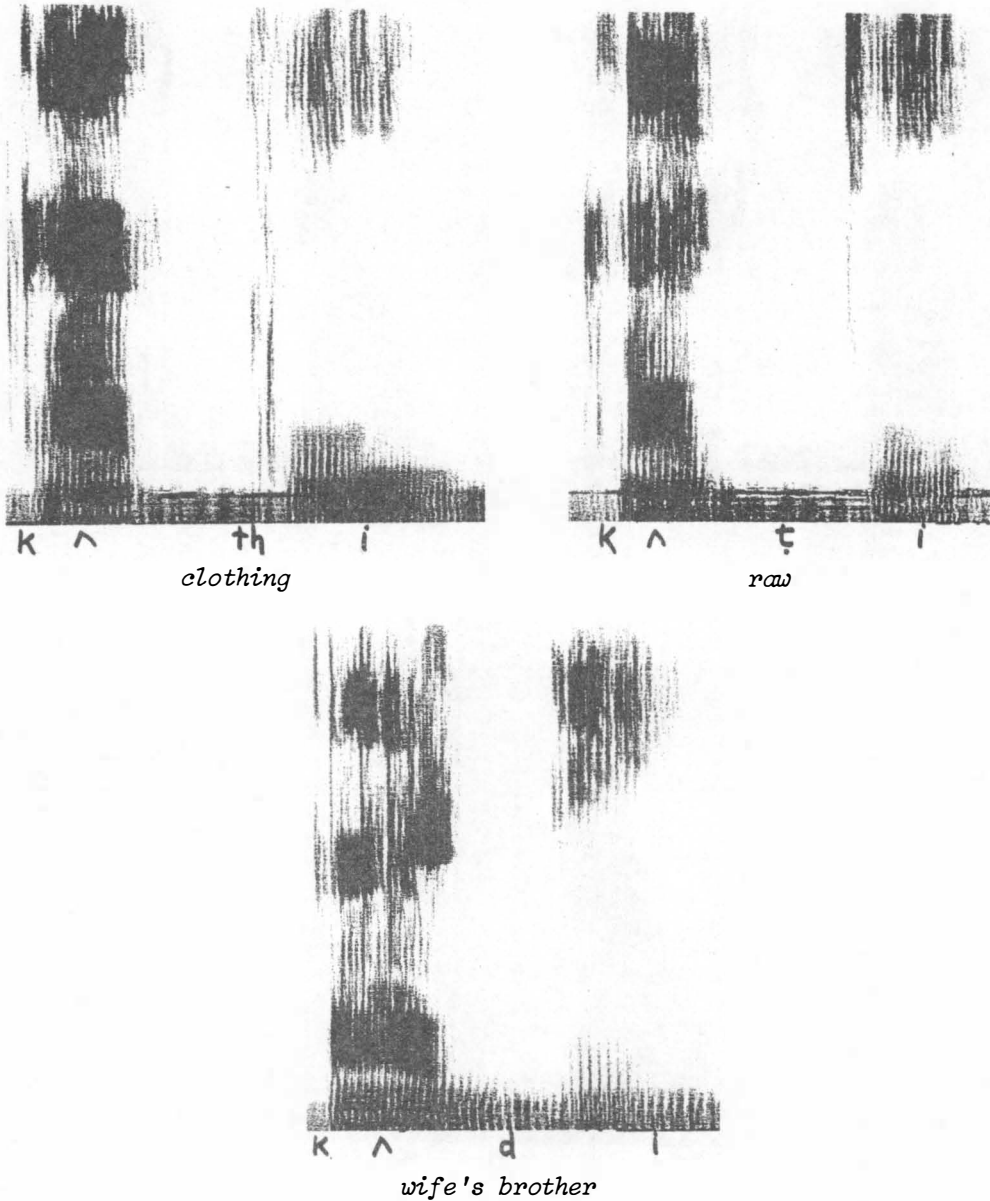


Figure 34

Sonagrams indicating the contrast between [th], [t̥] and [d̥].

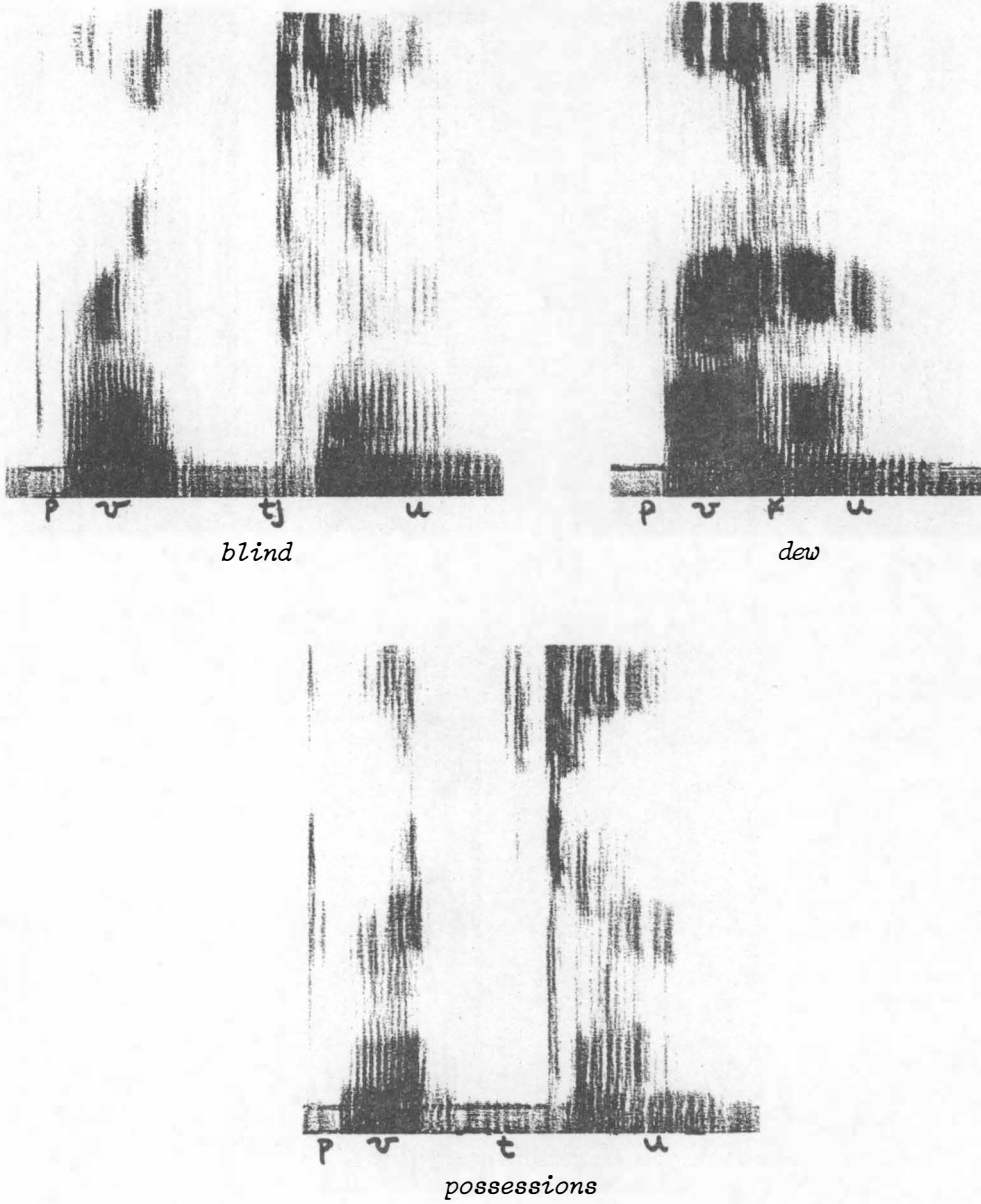


Figure 35  
Sonagrams depicting the contrast between [t], [tj], and [ʃ/d].

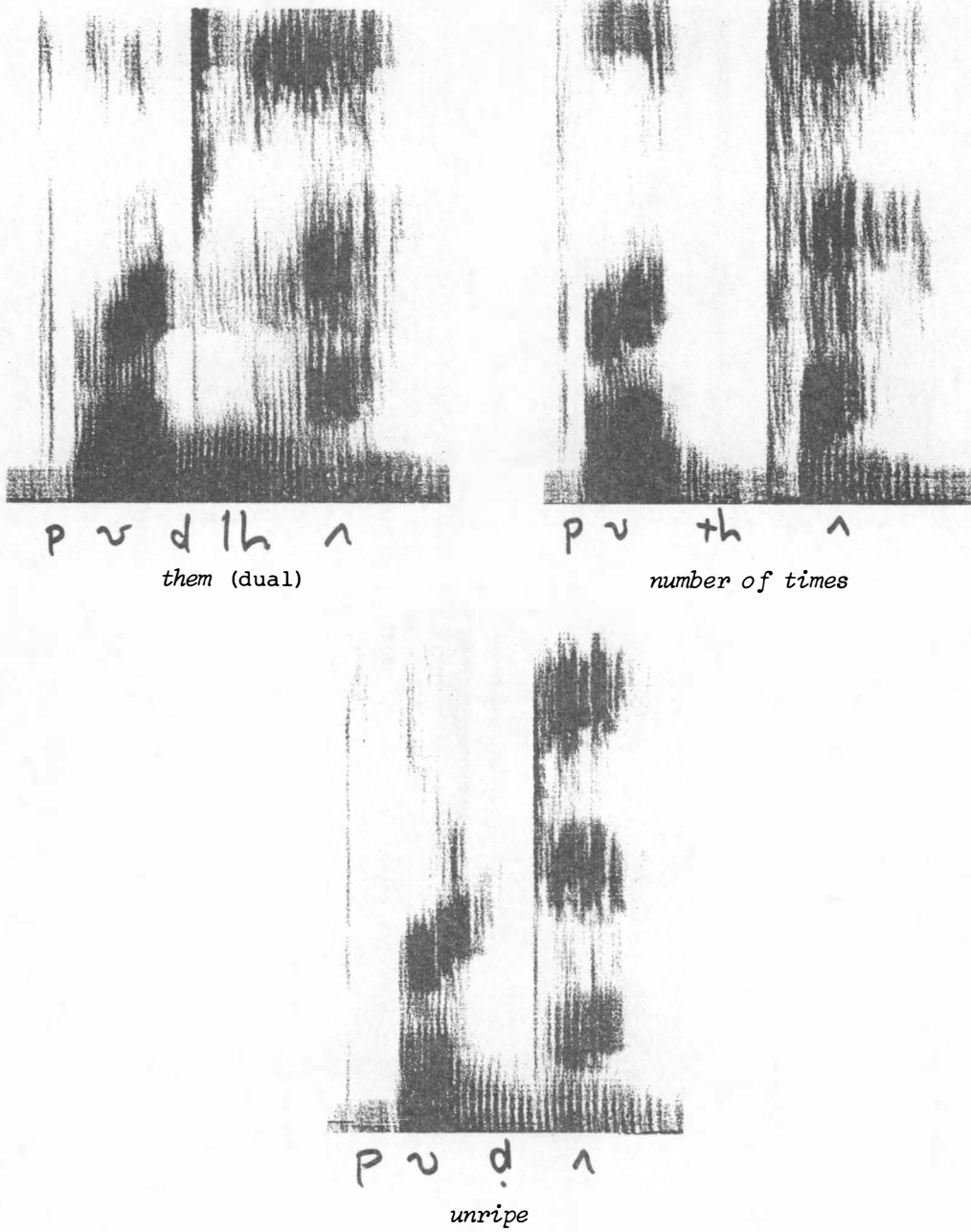


Figure 36

Sonagrams depicting the contrast between [th] [dlh], and [d].

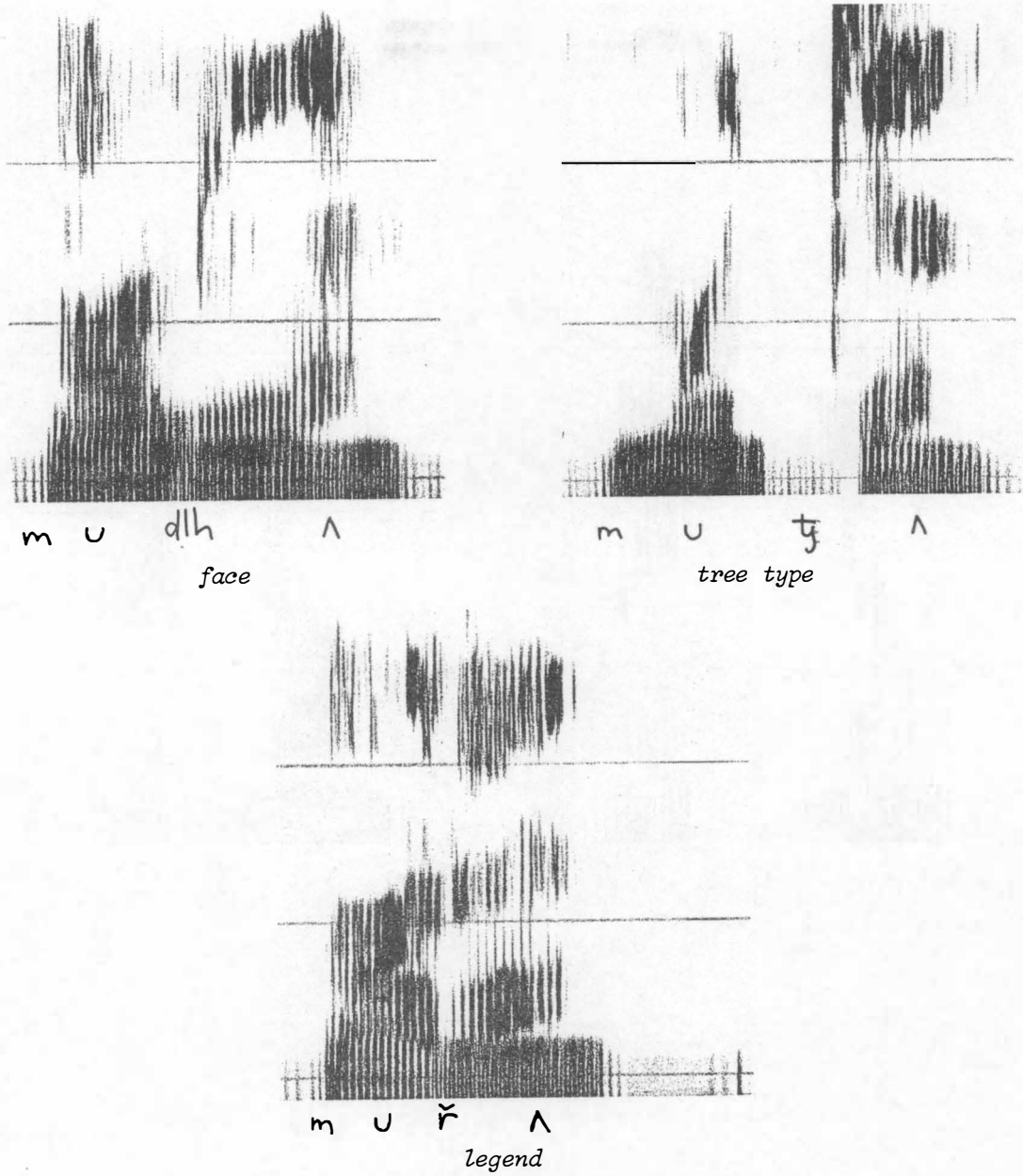


Figure 37  
Sonagrams depicting the contrast between [dlh], [tj] and [ř/d].

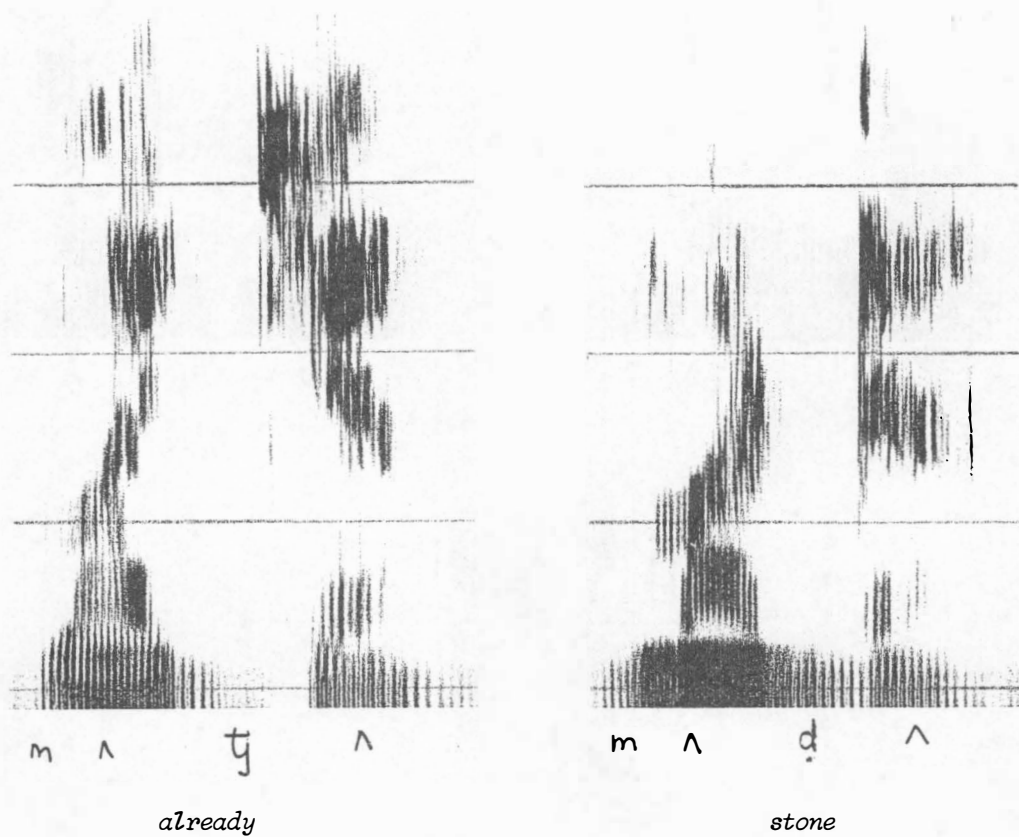


Figure 38  
Sonograms depicting the contrast between [tʃ] and [d].



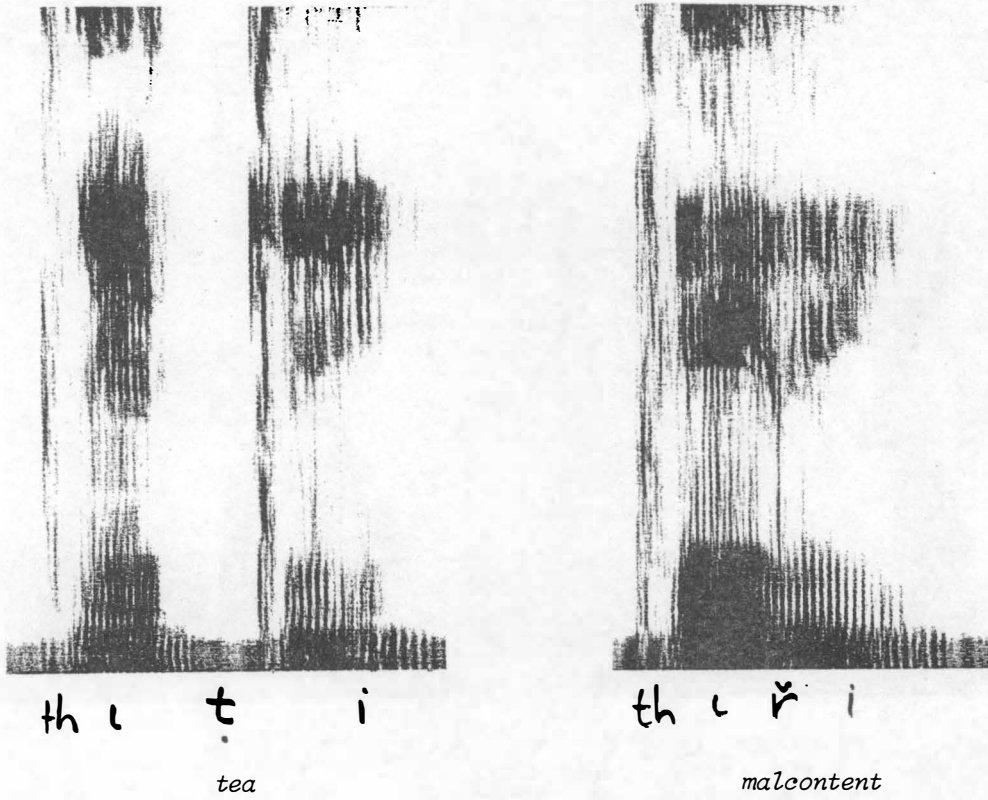


Figure 39  
Sonograms depicting the contrast between [t̚] and [ʁ/d].

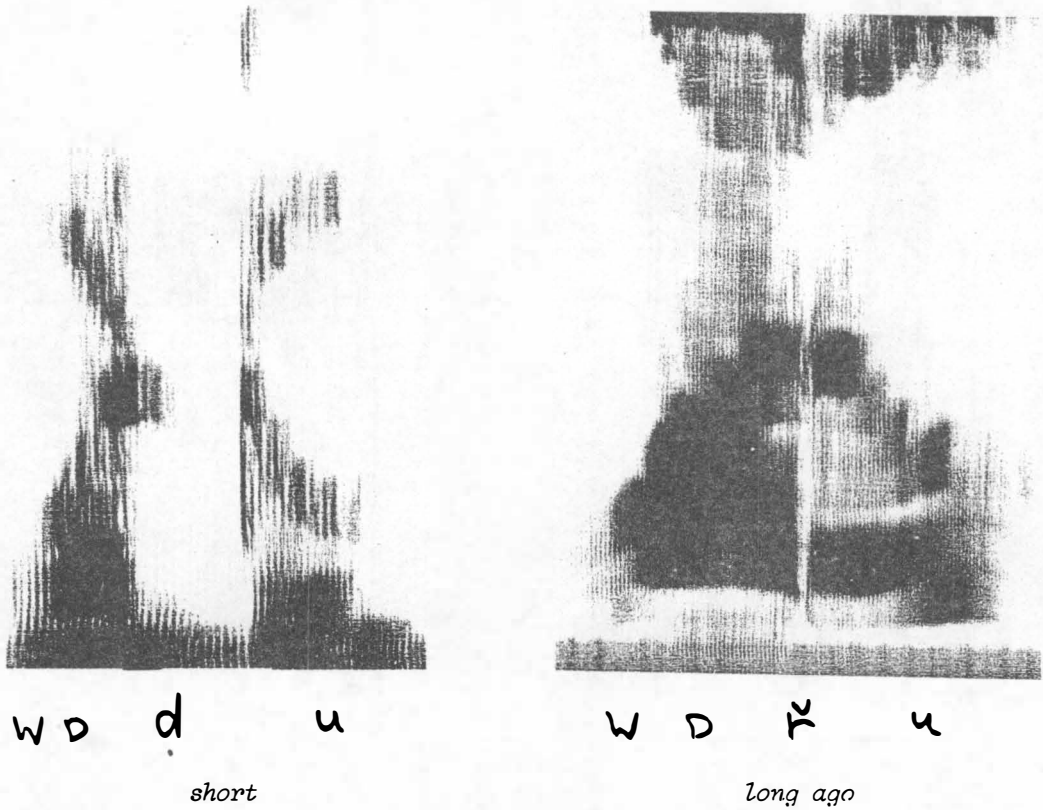
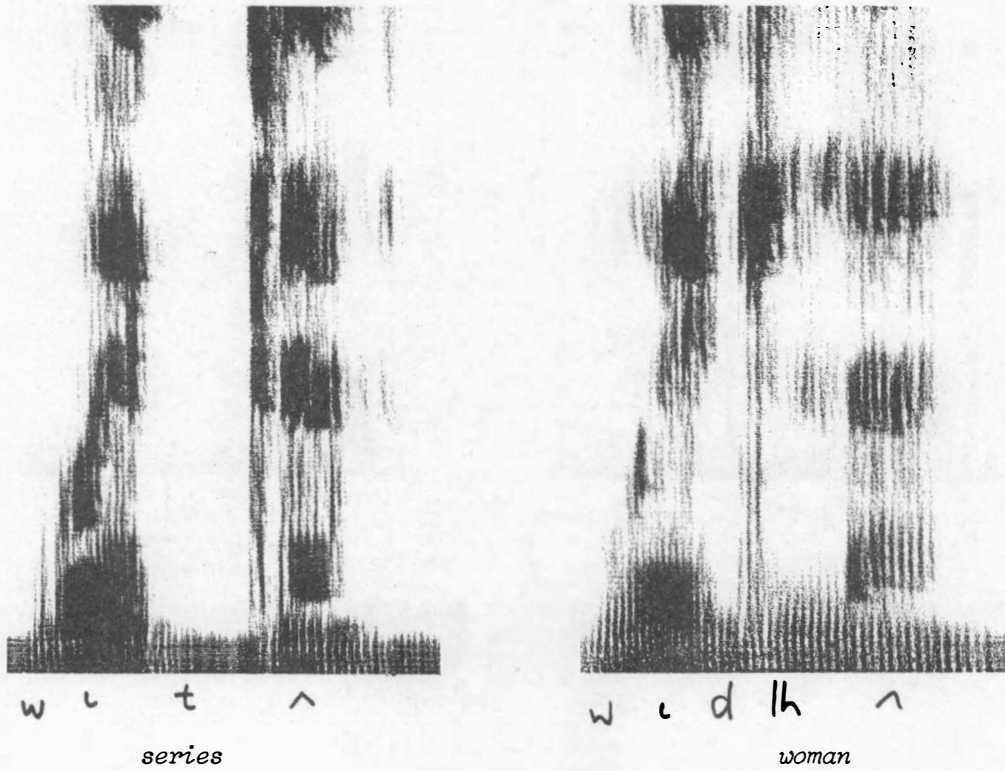


Figure 40  
Sonagrams depicting the contrast between [d] and [ɟ/d].



*series*

*woman*

Figure 41

Sonograms depicting the contrast between [d|h] and [t].

As no words were found which show the contrast between [tj] and [t̥], or for [dlh] and [t̥], in identical environments, the contrast is depicted by use of subminimal sets. Figures 42 and 43 display such sets.

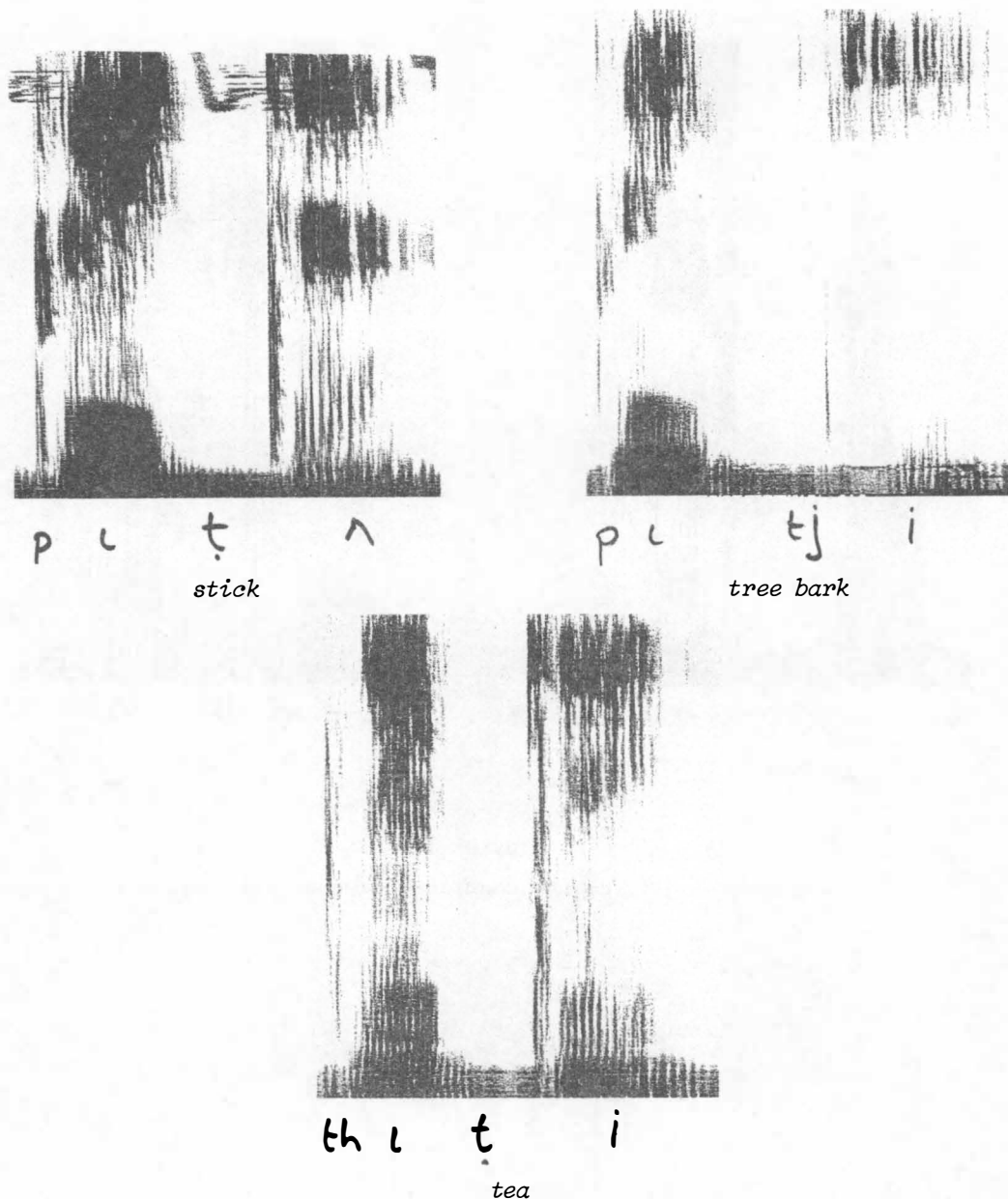


Figure 42

Sonagrams depicting the sub-minimal contrast between [tj] and [t̥].

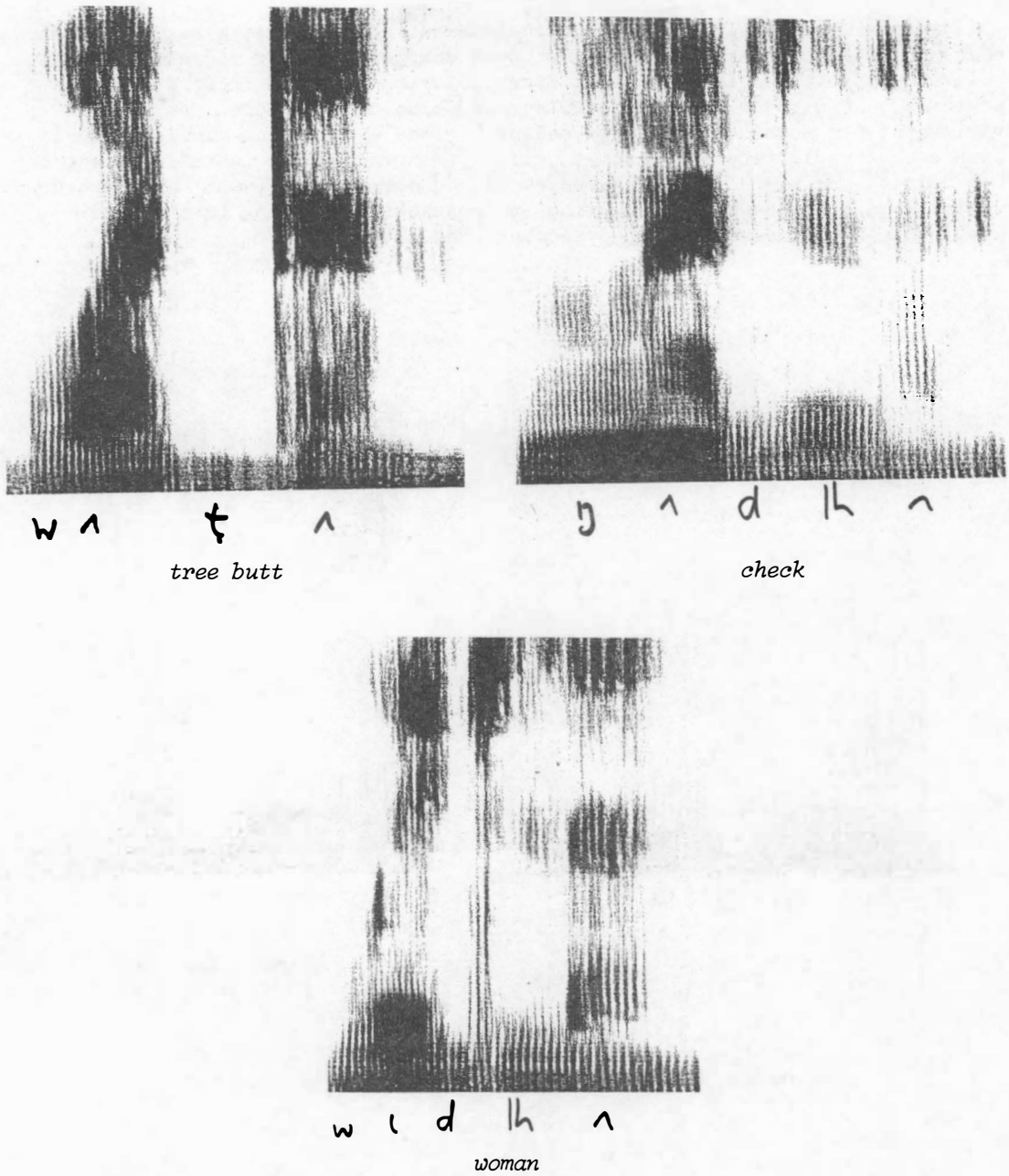


Figure 43

Sonagrams depicting the subminimal contrast between [dlh] and [t̚].

## 3.2 The phonetic segment [d]

Further comment is required on the segment [d]. It has already been shown that [d] is involved in forming prestopped complex phonetic segments [d<sup>n</sup>] and [d<sup>l</sup>] and is involved in allophonic free variation with [t] in word initial position, and with [tʃ] between vowels. [d] also occurs apart from free variation. In sequence with a preceding [n] and a following vowel [d] is in complementary distribution with [t], i.e. [t] never occurs in this context but [d] does.<sup>22</sup> Figure 44 gives instances of [d] occurring between [n] and a vowel, whilst Figure 45 shows [d] occurring in conjunction with [n] to form the previously mentioned pre-stopped segment [d<sup>n</sup>].

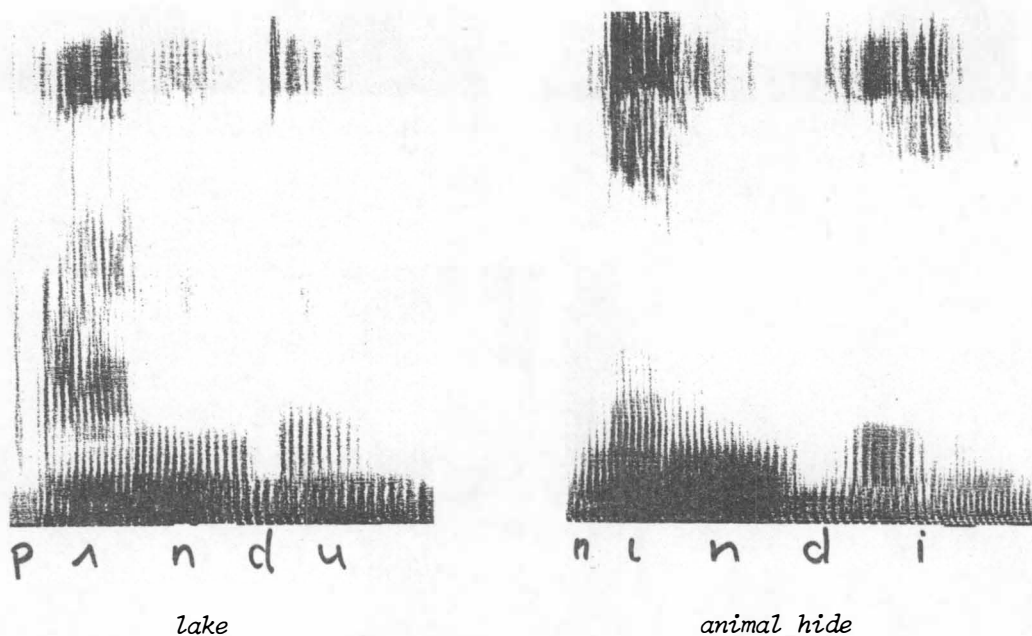


Figure 44

Sonagrams of words which contain [d] following [n].

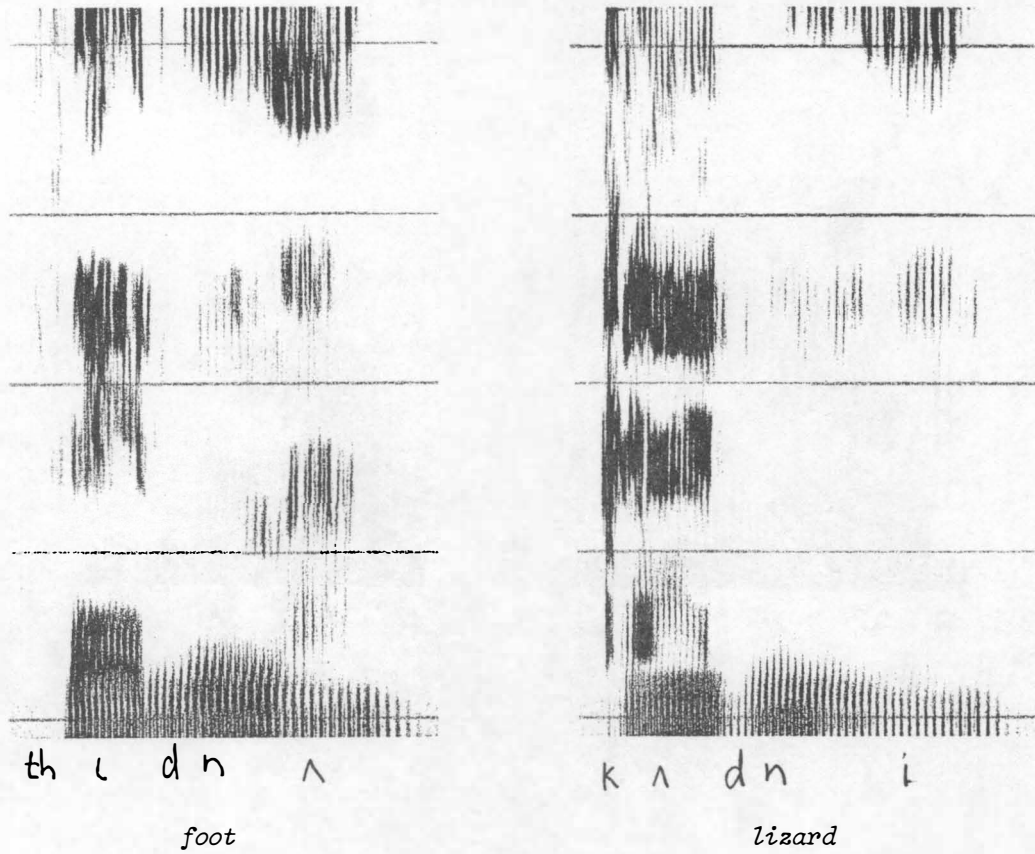


Figure 45  
Sonagrams of words containing [d] preceding [n].

3.3 [ʃ/d] contrasted with [r] and [rr]

Before concluding the analysis if apico/laminal stops three more comparisons need to be made. [ʃ/d], [rr] and [r] have yet to be compared. In Diari the comparison is straightforward as there is a three-way contrast between the segments. This is demonstrated in Figure 46 with sonograms of [puru] *end*, [puʃu] *dew* and [purru] *exclamation of surprise*.

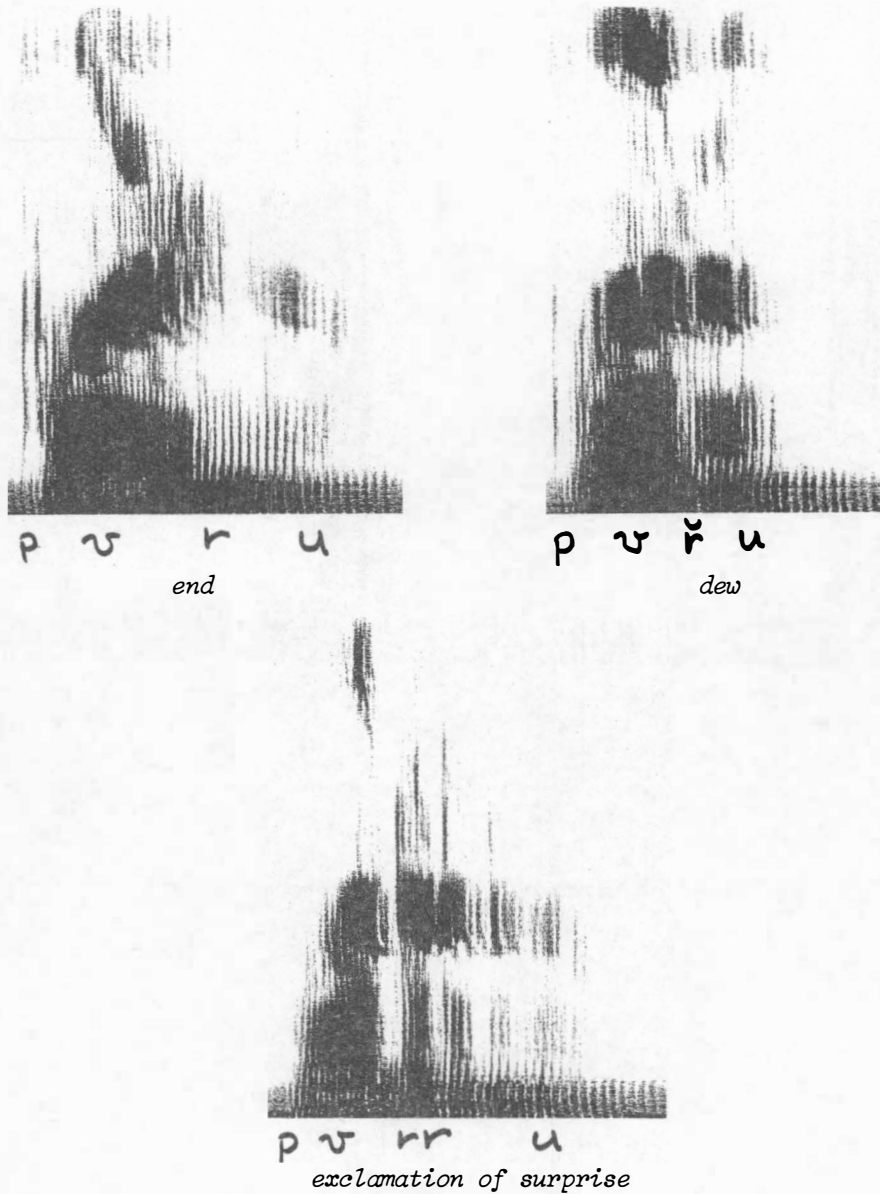


Figure 46

Sonograms of words indicating the contrast between [r], [ʃ] and [rr].



## 3.4 Conclusion for stops, alveolar trill and retroflexed semi-vowel

From the preceding comparisons certain phonemic conclusions can be made. Of the eleven Diari stop consonants, two, [p] and [k] did not require comparisons, and [d] proved to be allophonic with [t] and [ʃ]. The remainder, with the exception of [dlh] and [dl], were found to be contrastive with each other. The two pre-stopped laterals have yet to be compared with other laterals. At this stage, then, the constituency of eight stop phonemes has been determined and two are held over for further comparison. Also, the two other segments compared in this section, [r] and [rr] do not require further comparison and they too may be added to the phoneme list.

Of the phonemes so far compared, one needs further comment. This is the phoneme represented by the retroflexed voiced stop [ɖ]. [ɖ] differs from the other stop phonemes in two significant ways. The most obvious of these is the voicing component. It is the only stop phoneme that is voiced between vowels. For the others voicing may partially intrude into the occlusion, but not very far, and certainly not to half-way. With [ɖ] however, the segment is voiced throughout its entire duration.

The other significant difference is concerned with duration. As can be seen in Table 5 the length of [ɖ] is only half that of other similar stops.

Table 5: Comparison of duration times for [t], [ʃ] and [ɖ] in words used in the sonagram experiment\*

[t]		[ʃ]		[ɖ]			
Word	Duration in centi-secs.	Word	Duration in centi-secs.	Word	Duration in centi-secs.	Word	Duration in centi-secs.
wʌtʌ	16.1	tʃi	15.2	puɖʌ	3.8	kʌɖi	11.7
puti	17.7	kʌʃʌ	15.3	mʌɖu	10.0	piɖʌ	5.2
pitʌ	15.6	wʃʌ	14.7	ŋʌɖu	12.1	mʌɖi	4.2
wʌtʌ	13.2	kʌʃi	18.8	kuɖu	7.1	pʌɖi	6.3
kʌtʌ	16.8	pʌʃi	16.9	wʌɖu	6.4	mʌɖi	13.5
kuti	17.2	wʌʃʌ	14.7	tʌɖi	8.9	kuɖu	9.0
woti	17.7			tʌɖʌ	9.7	mʌɖʌ	11.0
				piɖʌ	7.3	mʌɖu	8.6
				pʌɖʌ	7.7	ŋʌɖu	7.0
				puɖʌ	4.3	kʌɖi	11.5
				wʃʌ	9.6	kuɖʌ	4.1
				pʌɖi	4.5		
[t] mean - 16.3 centi-secs.		[ʃ] mean - 15.9 centi-secs.		[ɖ] mean - 8.0 centi-secs.			

\* See p.260 ff. for a description of the word list used in the experiment. Also for the English meanings of the words.

Phonetically, it is still not a flap, for as Table 6 shows, it is about two and a half times longer than /ř/. Nevertheless, the evidence suggests that [ɖ] has more in common with /ř/ than it does with the stop phonemes. They are both relatively short in duration, and they are both voiced throughout their length. Should, then, [ɖ] be interpreted as the phoneme /ř/ rather than /ɖ/?

Other evidence for considering [ɖ] as a flap instead of a stop is found in the distributional pattern of phonemes. A phoneme /ɖ/ does not fit the pattern at all. There are six other stop phonemes, all distinguished by their place of articulation. [ɖ] is different, for it is differentiated from the other stops by its manner of articulation. However, if [ɖ] is considered to be /ř/ it will help fill out an already existing pattern. It will be one of a set of retroflexed consonants which contrast with their alveolar counterparts.

Words containing /ř/	Duration of /ř/ in centi-secs.
yΛřu	3.9
młři	5.5
kuři	1.3
ɬłři	2.5
puřu	2.0
ɳΛři	4.3
kΛřΛr i	2.3
yΛřΛ	3.8
tΛřΛ	2.9
ɳuřΛ	2.0
ɳΛři	3.0
kuřΛ	2.9
klřΛ	3.0
kűři	2.9
klřΛ	4.9
Mean average duration — 3.2 centi-seconds.	

It is concluded therefore that for phonetic and phonemic reasons [ɖ] functions in Diari as a retroflexed flap and should be symbolised as /ř/.

3.5 'd'-like sounds

As 'd'-like sounds have been involved in a number of the discussions to date but will not be seen in the identifying symbols of any of the phonemes a brief summary will be given outlining the situation in which 'd's may be 'heard' by non-Diari speakers.

The phoneme /t/ will be heard as 'd' by English speakers when it occurs at the beginning of words. In this position it may, or may not be, voiced, just as is the case for English /d/ (see p.210). This phoneme will also be heard as 'd' when it follows /n/, for just as is the case for English /d/, Diari /t/ is voiced in this position (p.224).

The phoneme /ř/ will be heard as 'd' when it occurs between vowels if the duration of the occlusion is extended beyond 4.0 centi-secs (p.210 and 228).

The phoneme /ř/ will be heard as 'rd' as the duration of the occlusion during the production of this phoneme is usually above the perceptive threshold for English stop phonemes (p.227).

The nasal phonemes /nh/ and /n/ and the lateral phonemes /lh/ and /l/ occurring between vowels will often be heard as having a 'short' d preceding them due to the pre-stopping of these phonemes, a feature that has been developed as a regional characteristic (p.200).

The phoneme /ř/ when following /l/ or /n/ is often heard as a sequence of d followed by a trilled r. This is apparently due to the fact that in English the duration of the occlusion of /d/ following /l/ and /n/ is greatly reduced, giving it similar characteristics to the first occlusion of [ř] (see note p.318).

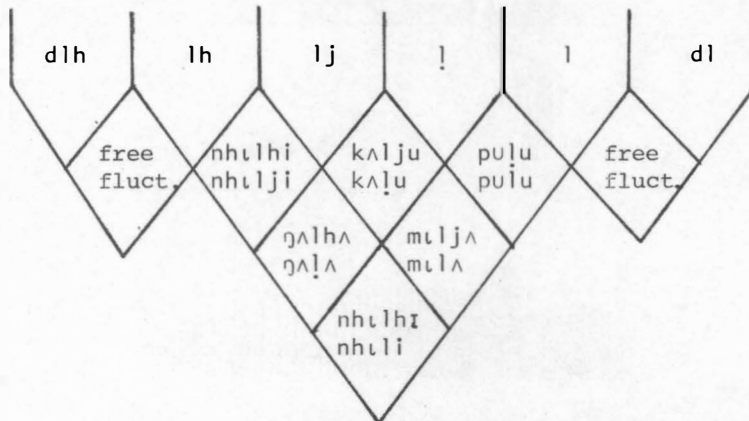
The ten phonemes so far determined are symbolised as:

/p/, /th/, /t/, /tj/, /tʃ/, /k/, /ř/, /rr/, /r/ and /ř/.

3.6 Laterals

There are six lateral segments in Diari. The two pre-stopped laterals [dlh] and [dl] only occur in free fluctuation with their non-prestopped variants [lh] and [l] and so do not need to be compared with the other segments.

A comparative chart of the laterals is as follows;



Comparative chart for laterals

Apart from the fluctuation of the pre-stopped laterals with [lh] and [l] all the segments contrast with each other. Minimal contrast occurs with them all, but between [lh] and [l] the contrast involves loan words, [nhuli] *needle* with [nhulhi] *rat*, and [mili] *one who works* with [mulhi] *mail*.

The following figures depict the contrasts, but in order to avoid loan words Figure 52 uses a subminimal set. Figure 23 illustrates the fluctuation between [lh] and [dlh].

The comparison of the laterals has enabled four more phonemes to be added to the list. These are:

/lh/, /l/, /lj/, and /l/.

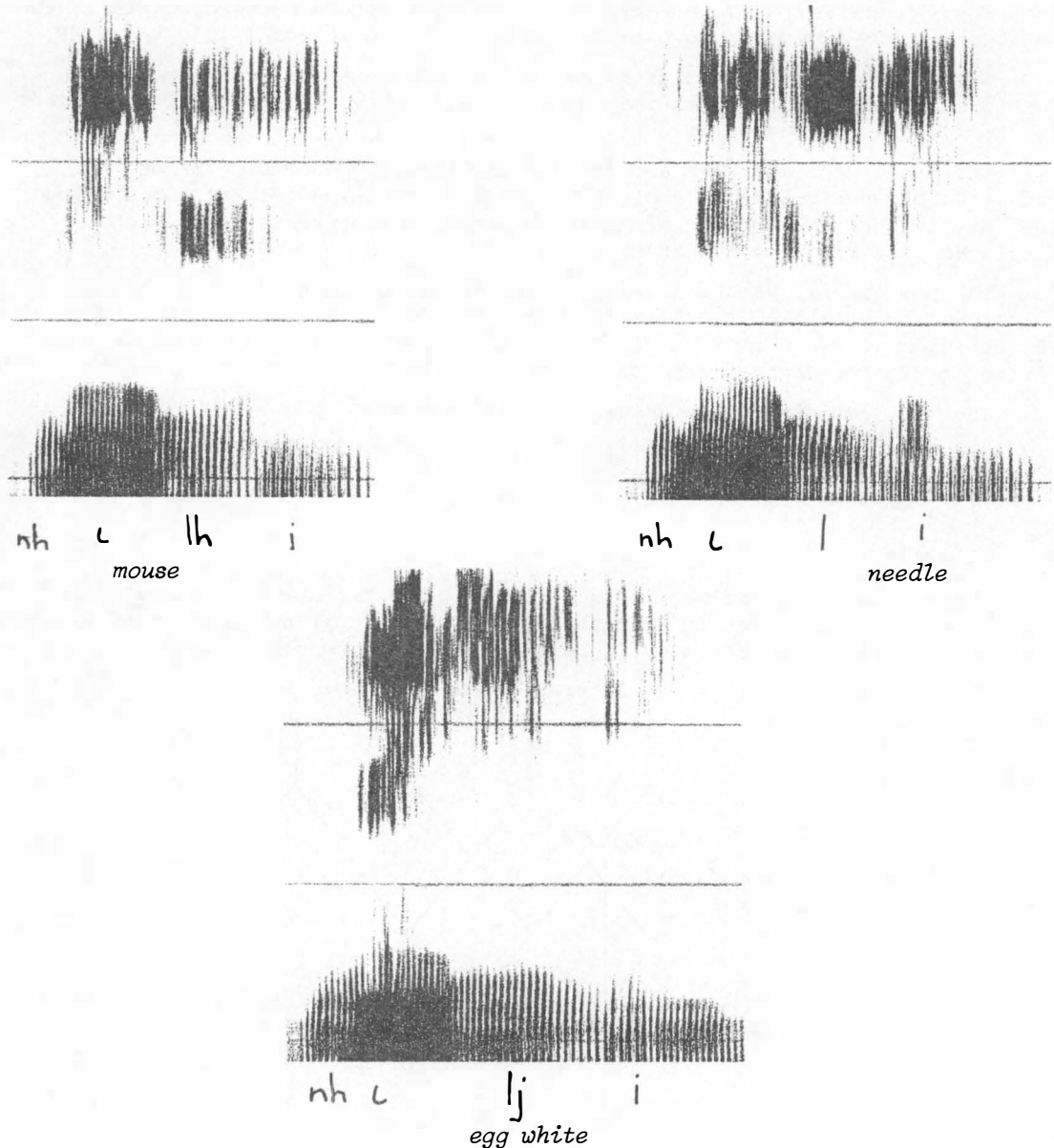


Figure 47

Sonagrams indicating the contrast between [lh], [l], and [lj].

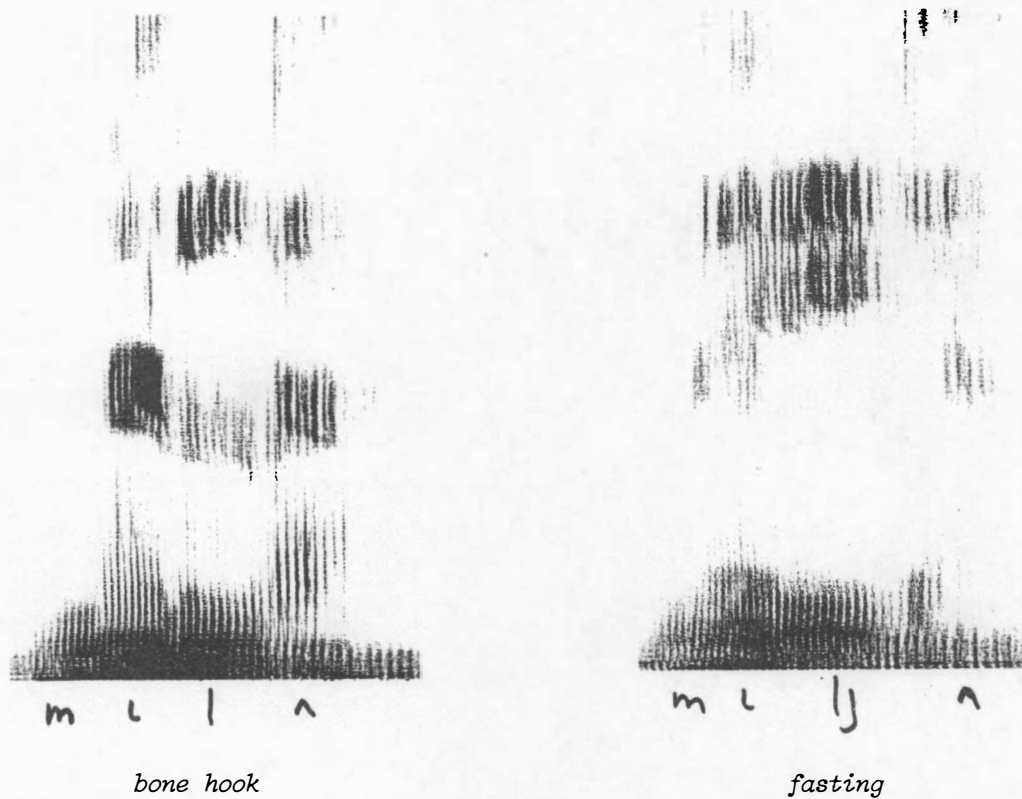


Figure 48  
Sonagrams indicating the contrast between [l] and [lj].

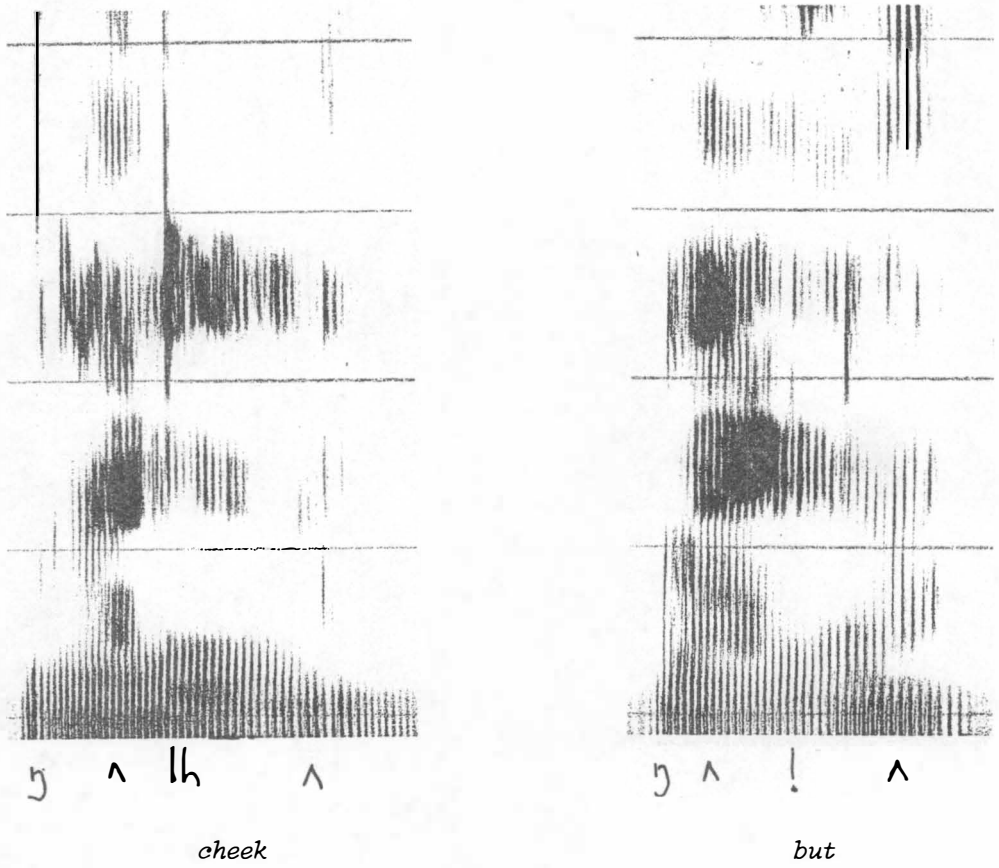


Figure 49  
Sonagrams depicting the contrast between [lh] and [!].

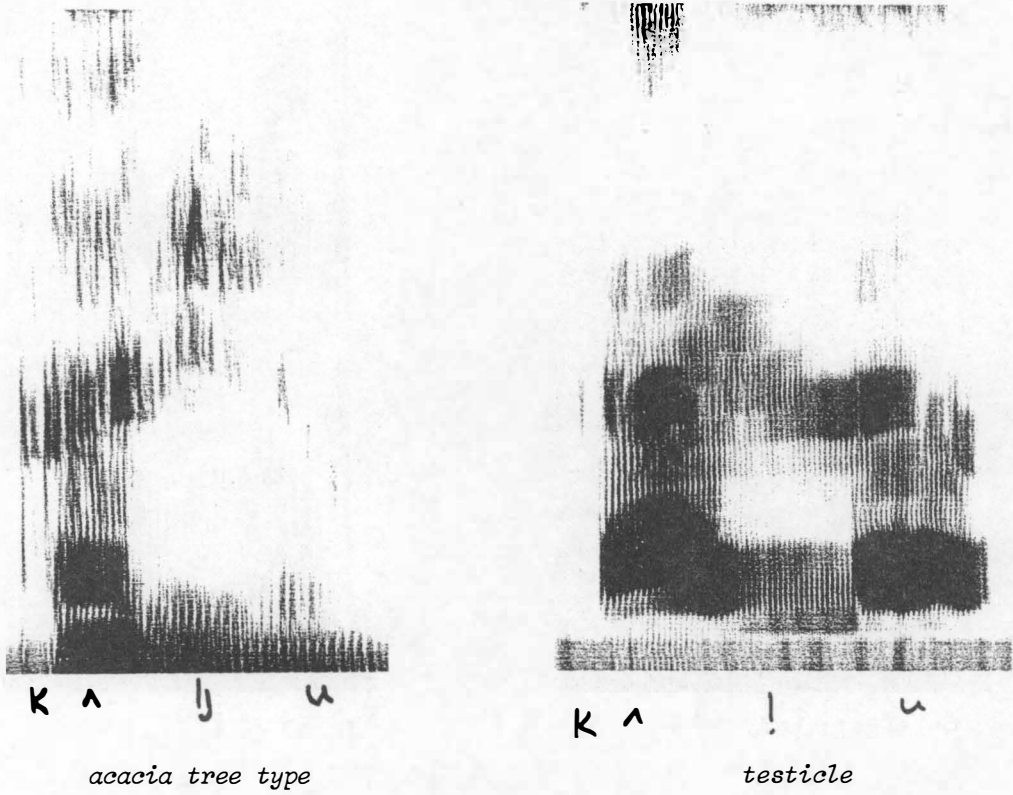


Figure 50  
Sonagrams depicting the contrast between [lj] and [!].

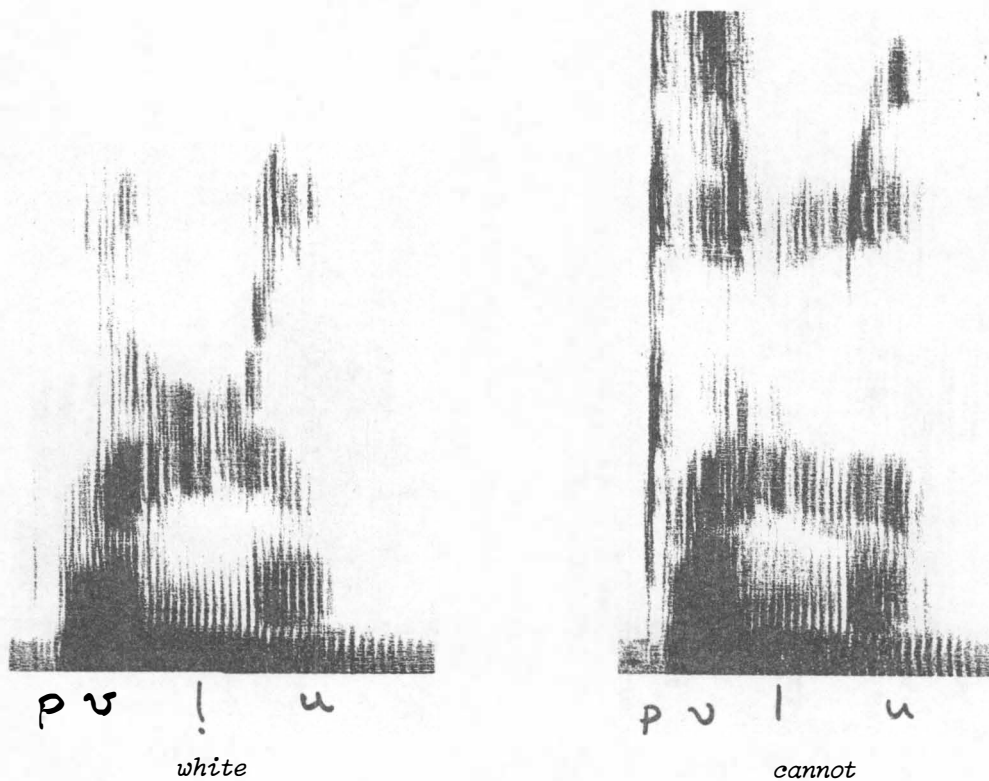


Figure 51  
Sonagrams depicting the contrast between [l] and [ɫ].



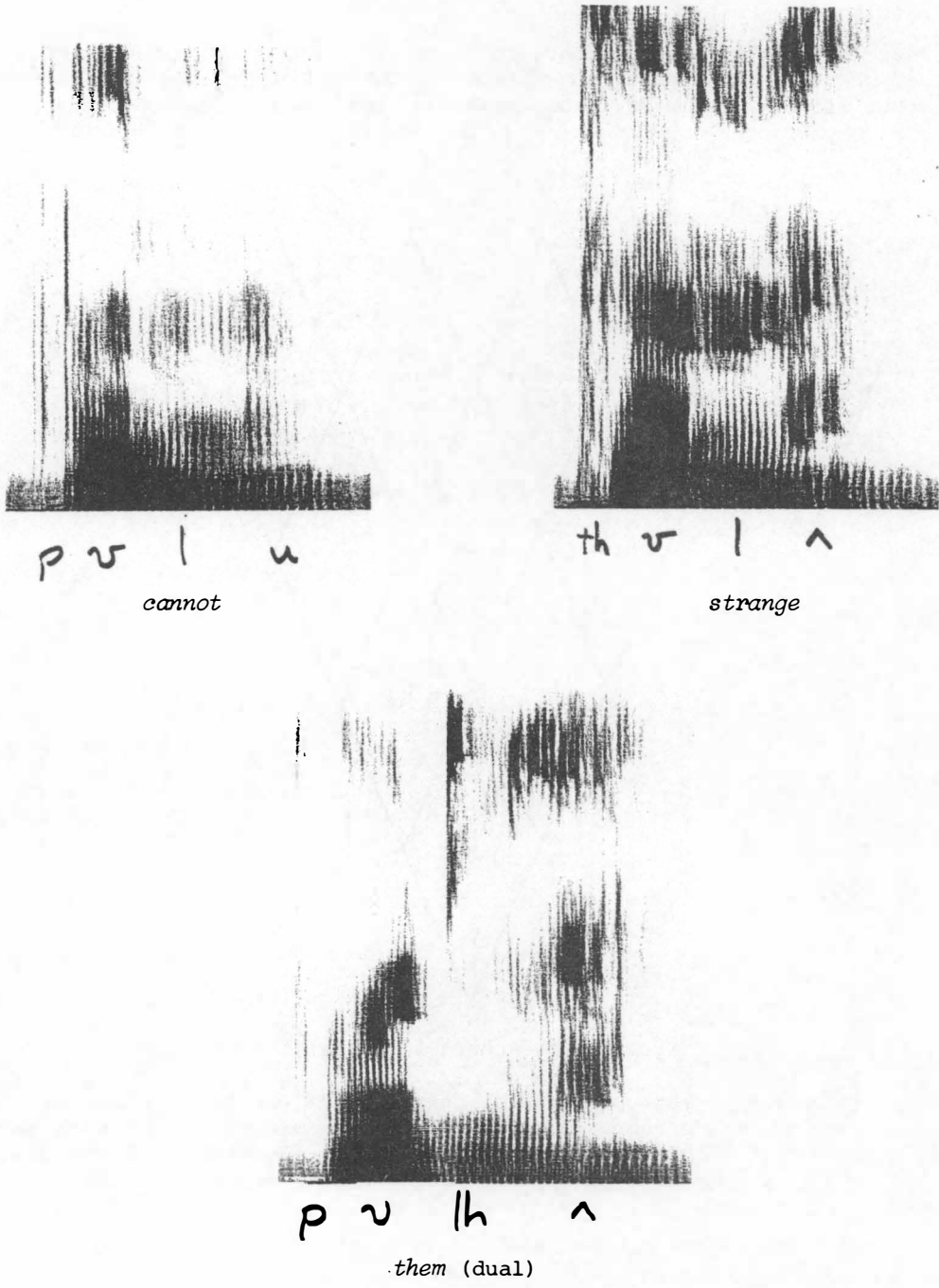
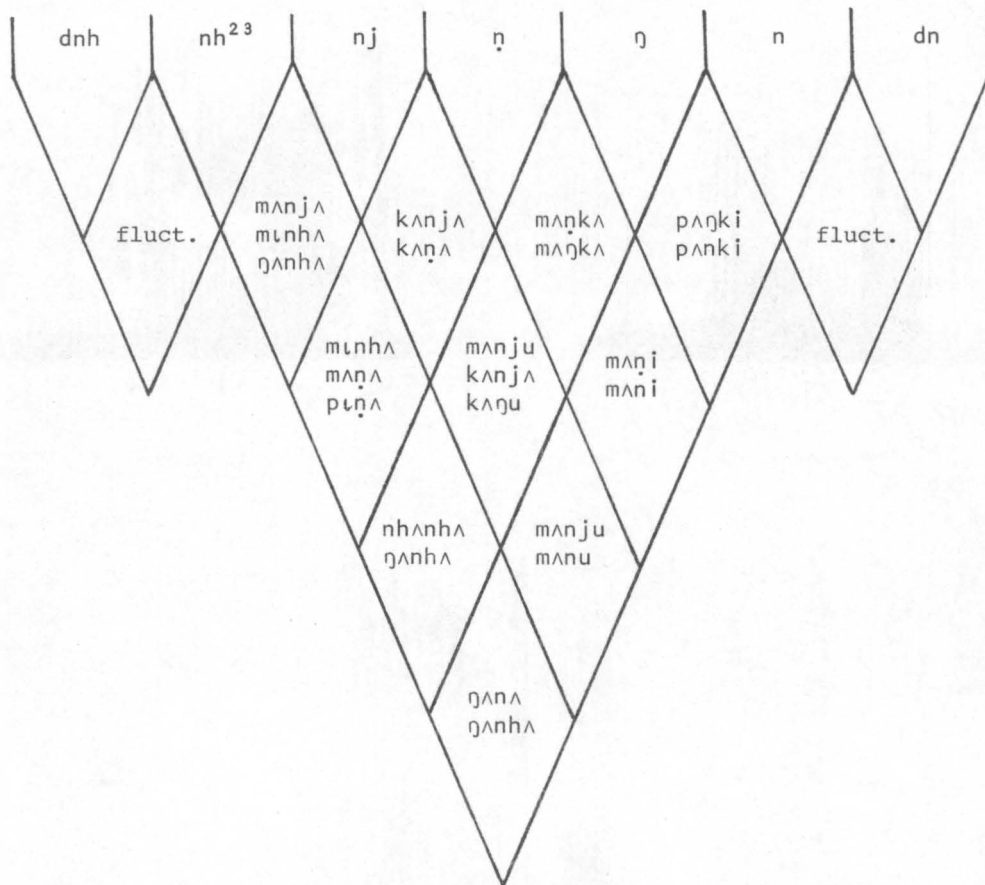


Figure 52

Sonagrams depicting the contrast between [l] and [lh] by means of a subminimal set.

## 3.7 Nasals

There are eight nasal segments in Diari, [m], [nh], [dnh], [n], [dn], [nj], [ŋ], and [ŋ]. [m] is usually not considered suspect of joining with the other nasals but all the rest need to be compared. The chart below shows the results of these comparisons.



Comparative chart for nasals

Apart from the pre-stopped nasals [dnh] and [dn] which fluctuate with the non-prestopped varieties [nh] and [n] all of the segments contrast with each other. However, it should be noted that phoneme alternation exists between [nh] and [nj] in word initial position. For example, /njuɖu/ *body hair* alternates with /nhuɖu/, and /njilpa/ *egg white* alternates with /nhilpa/.<sup>24</sup>

Figures 53-58 depict the contrasts between the phonemes. The minimal contrast between [n] and [ŋ] cannot be shown as [mani] *getting*, was not discovered till after the word lists were recorded. A subminimal set will be given instead.

The completed comparison of nasals results in a further six phonemes added to the list, /m/, /nh/, /n/, /nj/, /ŋ/ and /ŋ/.

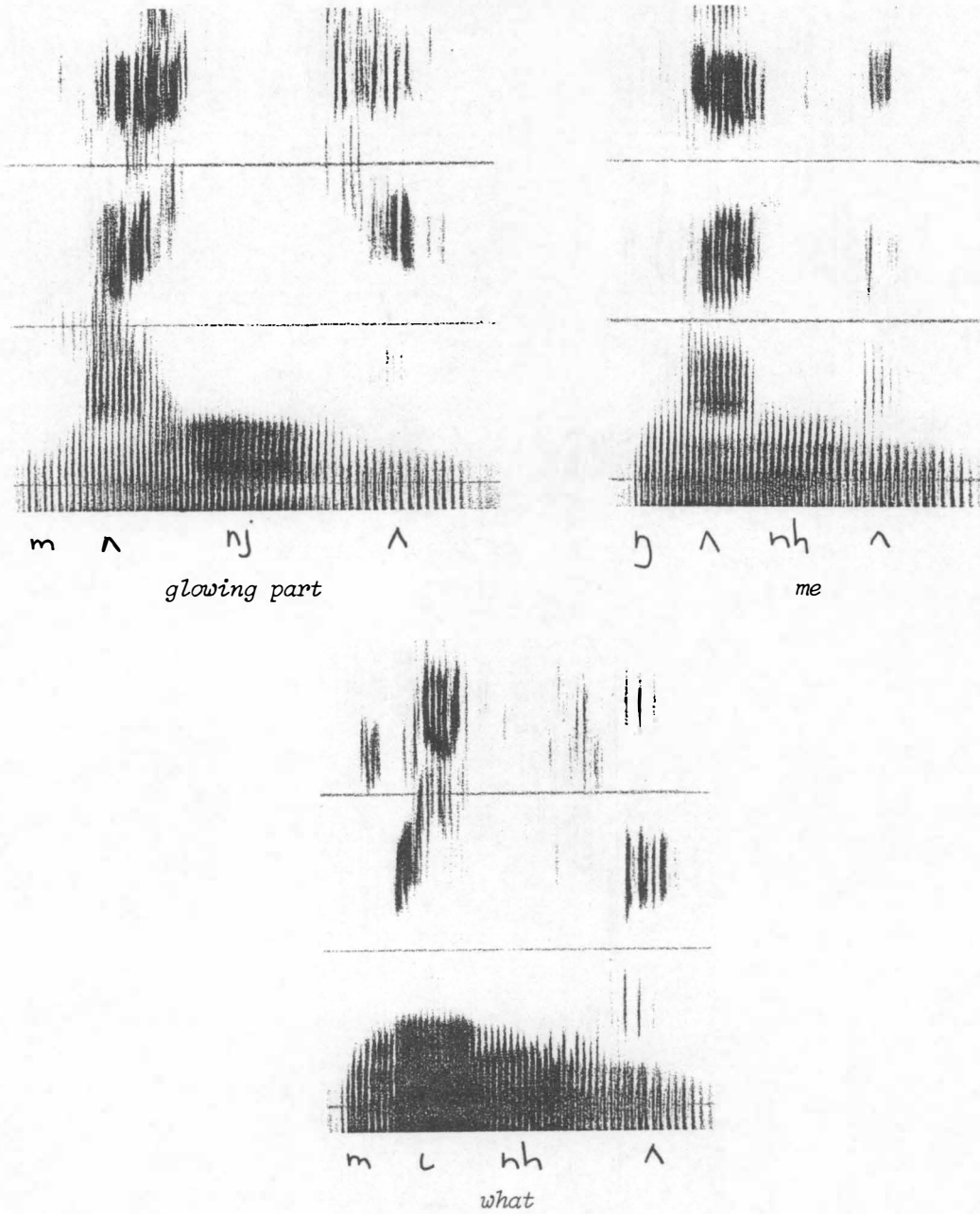


Figure 53

Spectrograms depicting the contrast between [nh] and [nj].

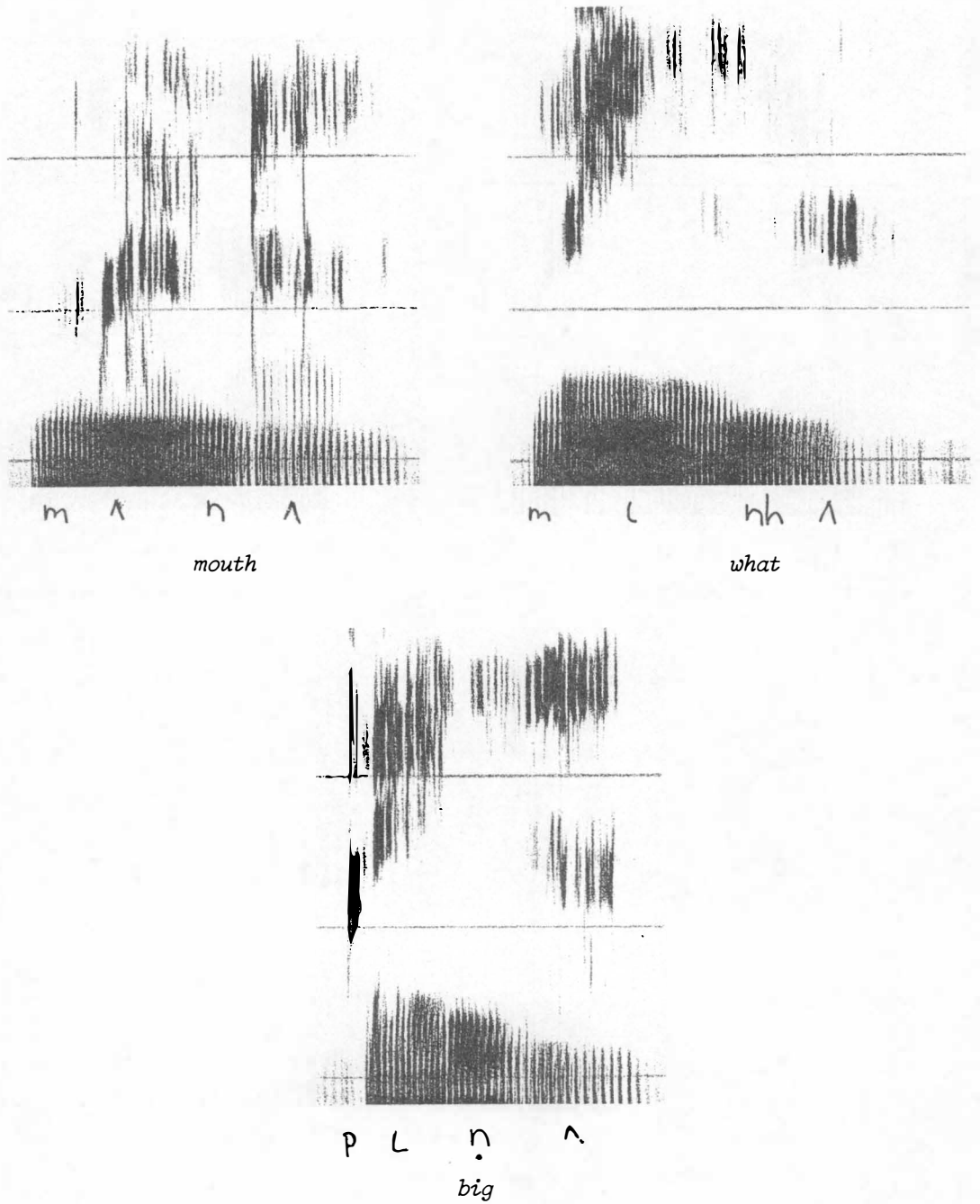


Figure 54  
Spectrograms depicting the contrast between [nh] and [ŋ].

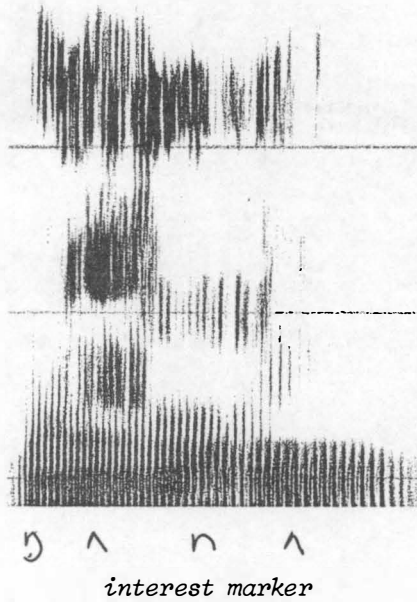
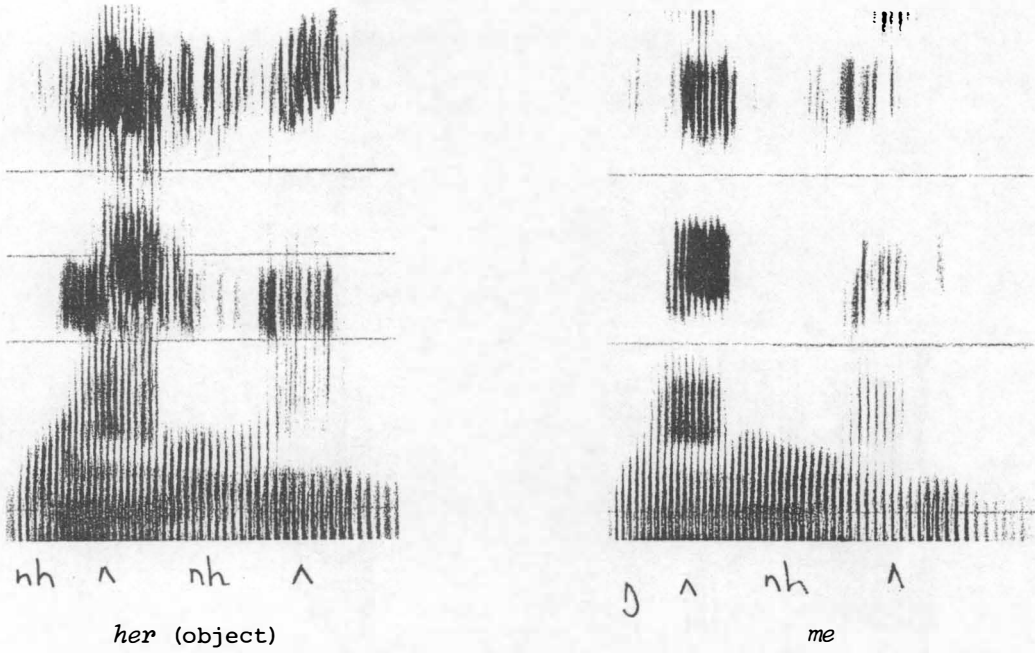


Figure 55  
Spectrograms depicting the contrast between [nh] with [ŋ] and [n].

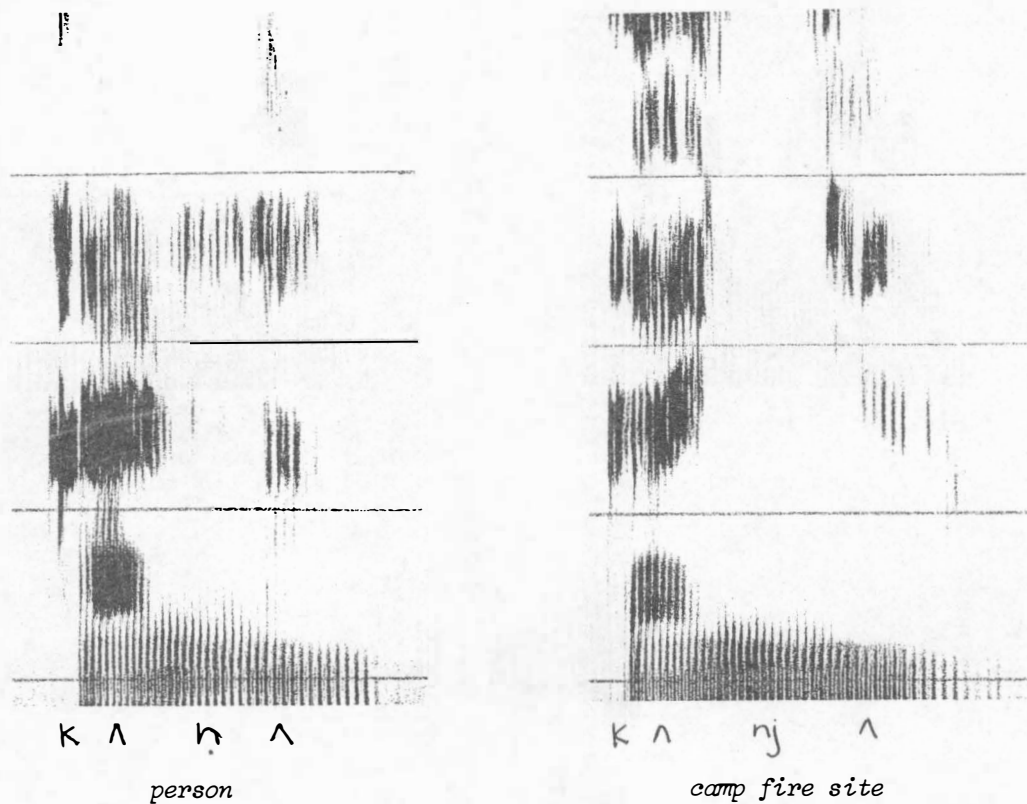


Figure 56  
Sonagrams depicting the contrast between [ŋ] and [nj].

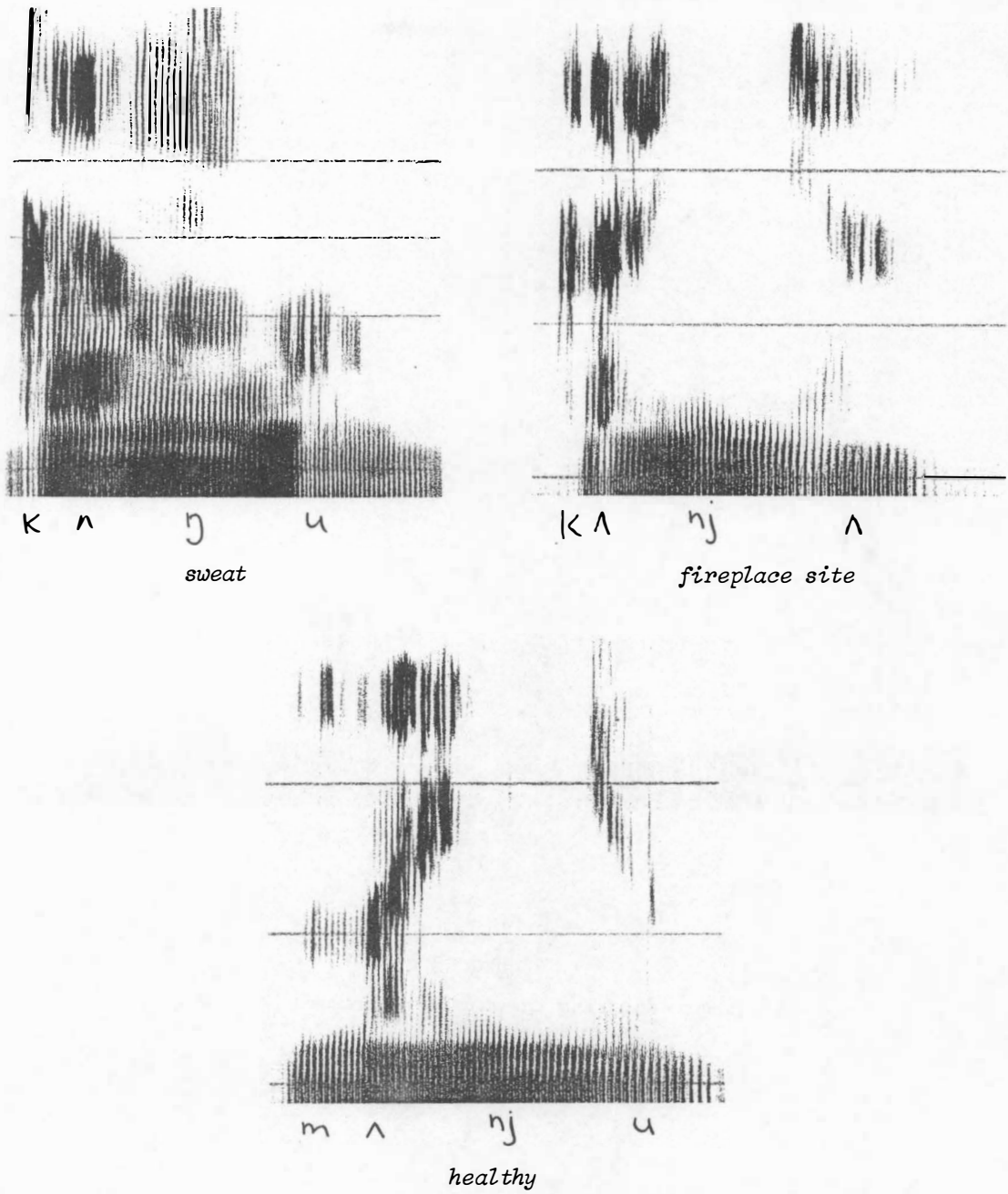


Figure 57  
Spectrograms depicting the contrast between [ɲj] and [ɲ].

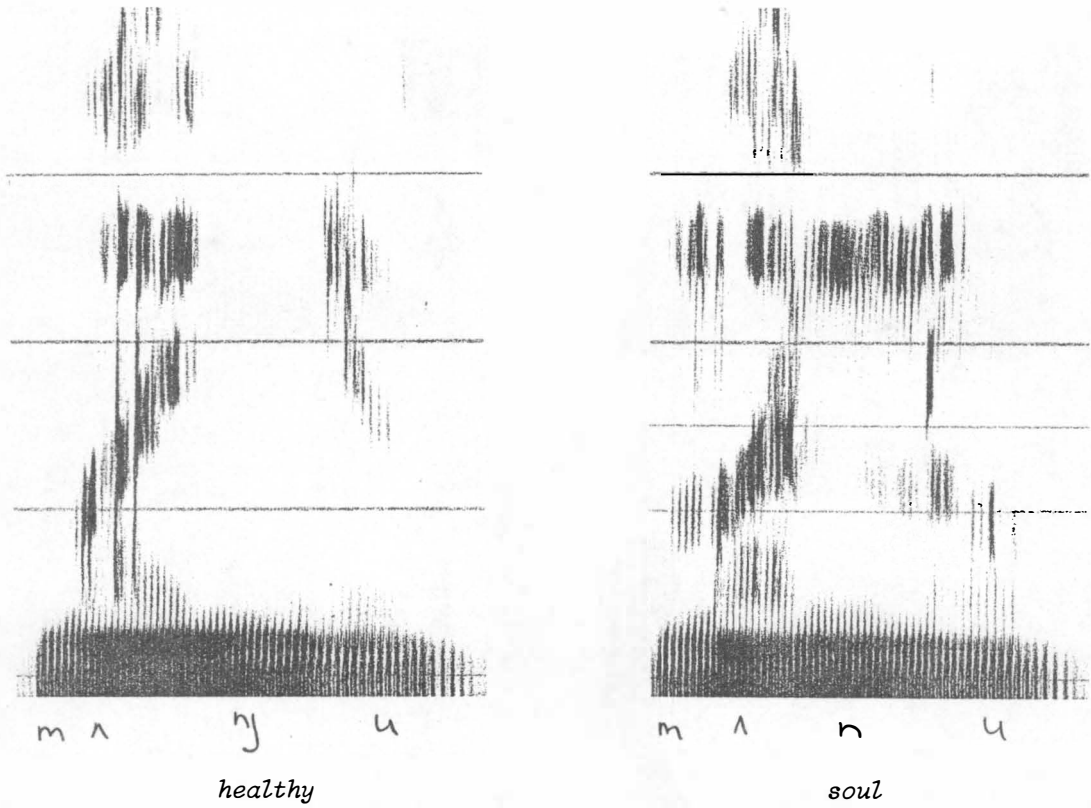


Figure 58  
Spectrograms depicting the contrast between [ŋ] and [n].



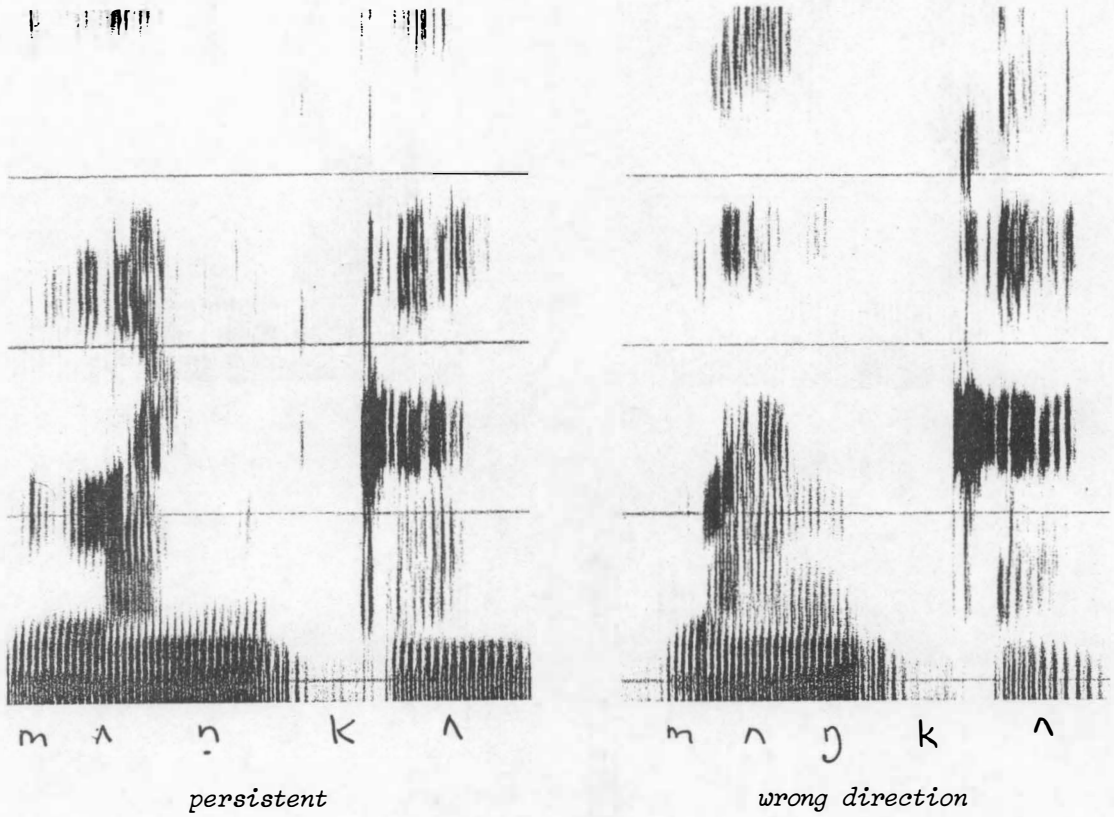


Figure 59

Sonagrams depicting the contrast between [ŋ] and [ɣ].

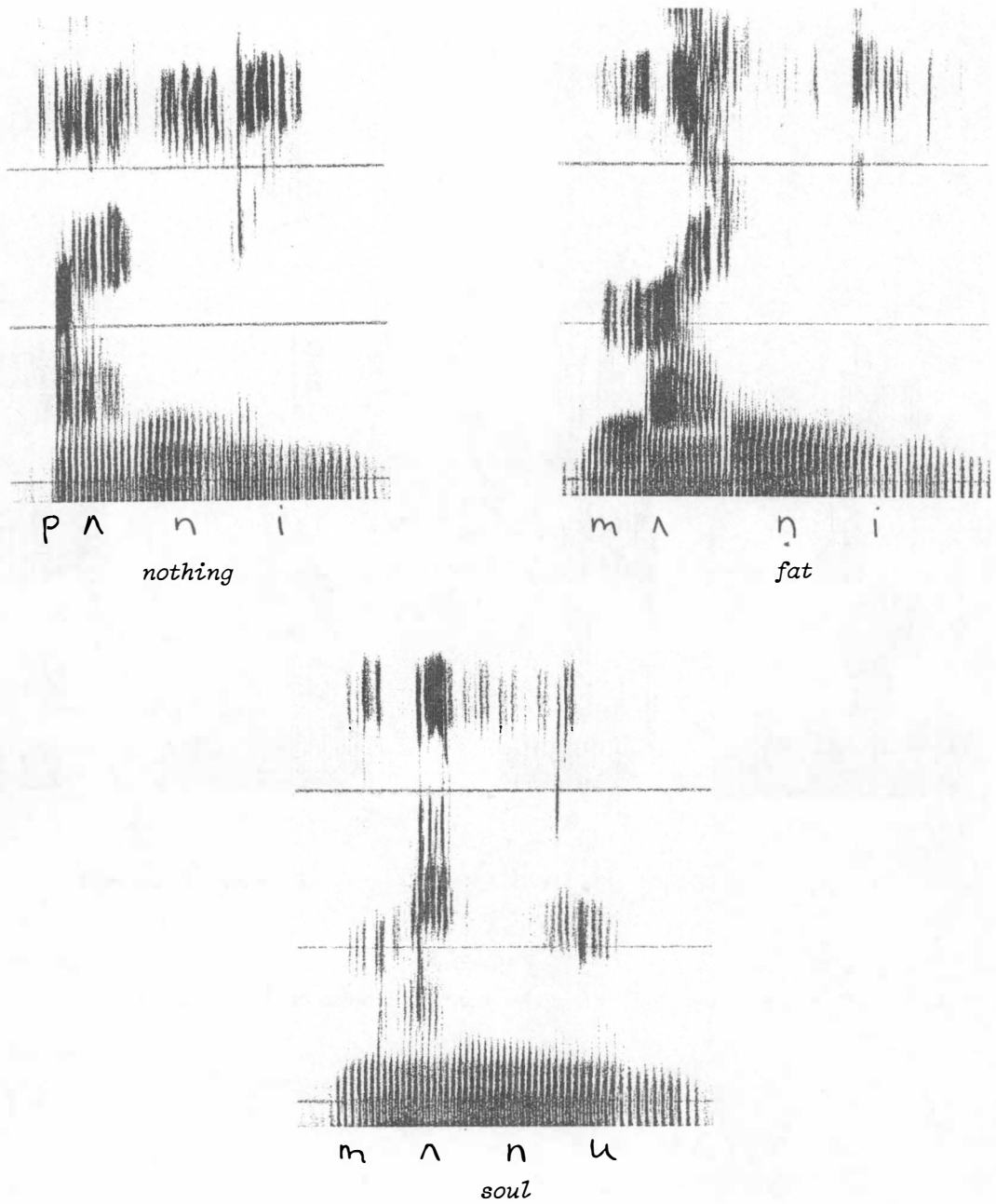


Figure 60

Sonagrams depicting the contrast between [n] and [ŋ] using a subminimal word set.

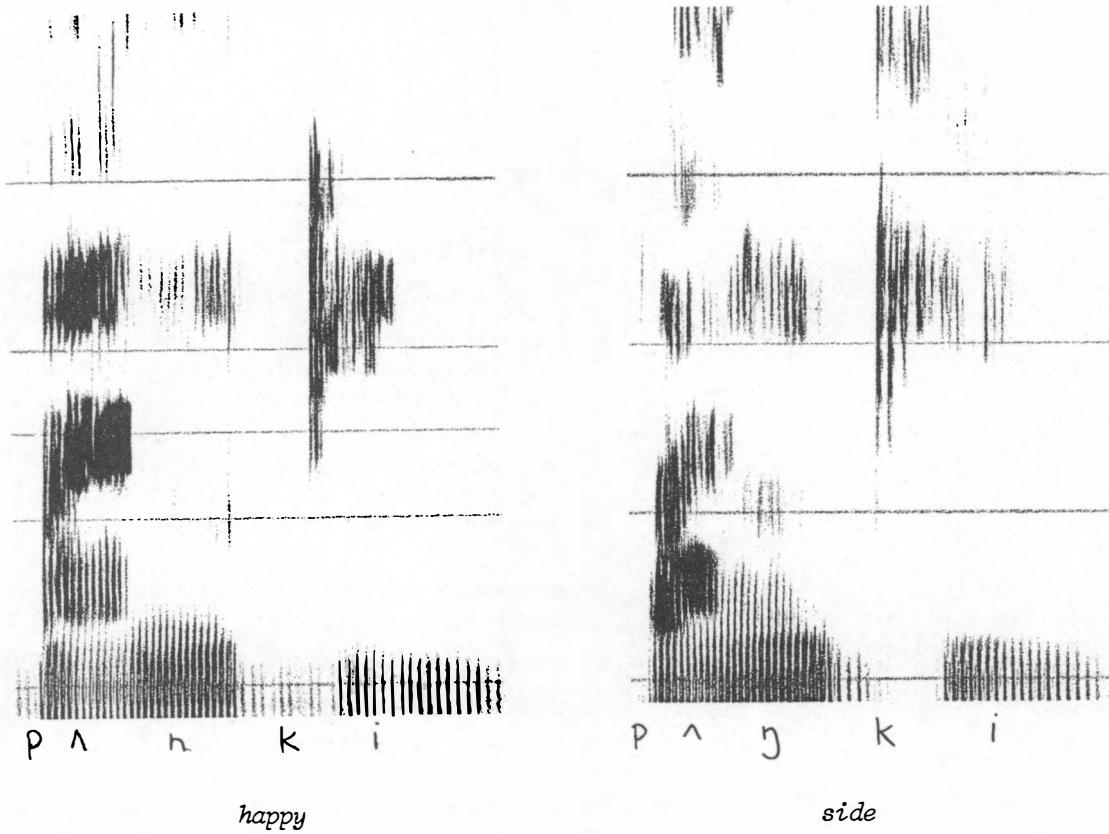


Figure 61  
Sonagrams depicting the contrast between [n] and [ŋ].

## 3.8 Semi-vowels

The three Diari semi-vowels are not sufficiently alike for them to be suspect of being submembers of the same phonemes. Therefore /w/ and /y/ can be added to the list without further discussion. [r] has already been compared with those sounds with which it is sometimes in submembership. With the addition of these phonemes, the list of Diari consonants is increased to twenty-two.

## 3.9 Inventory of consonants

Phoneme symbol	Phonetic symbol	Technical description and allophonic distribution
/p/	[p]	Voiceless unaspirated bilabial stop.
/th/	[th]	Voiceless unaspirated inter-dental stop.
/t/	[t]	Voiceless unaspirated alveolar stop, occurring word medially between vowels and in fluctuation with [d] word initially.
	[d]	Voiced unaspirated alveolar stop occurring word medially following [n], and word initially in fluctuation with [t].
/tj/	[tj]	Voiceless unaspirated alveo-palatal stop.
/t̥/	[t̥]	Voiceless unaspirated retroflexed stop.
/k/	[k]	Voiceless unaspirated velar stop.
/m/	[m]	Voiced bilabial nasal.
/nh/	[dnh]	Pre-stopped interdental nasal occurring in fluctuation with [nh] as coda of non-nasal stressed syllable. It only occurs intervocalically.
	[nh]	Voiced interdental nasal occurring in all positions.
/n/	[dn]	Pre-stopped voiced alveolar nasal occurring in fluctuation with [n] as coda of non-nasal stressed syllable. It only occurs intervocalically.
	[n]	Voiced alveolar nasal occurring in all positions.
/nj/	[nj]	Voiced alveo-palatal nasal.
/ŋ/	[ŋ]	Voiced retroflexed nasal.
/ŋ/	[ŋ]	Voiced velar nasal.

/lh/	[dlh]	Pre-stopped voiced interdental lateral occurring in fluctuation with [lh] intervocalically as coda of stressed syllable.
	[lh]	Voiced interdental lateral occurring in all positions.
/l/	[dl]	Pre-stopped voiced alveolar lateral occurring in fluctuation with [l] intervocalically as coda of stressed syllable.
	[l]	Voiced alveolar lateral occurring in all positions.
/lj/	[lj]	Voiced alveo-palatal lateral.
/l̥/	[l̥]	Voiced retroflexed lateral.
/ɟ̥/	[d]	Voiced alveolar stop occurring intervocalically in fluctuation with [ɟ̥].
	[ɟ̥]	Voiced alveolar flap occurring in all positions.
/ɟ̥/	[d̥]	Voiced retroflexed stop.
/rr/	[rr]	Voiced alveolar trill.
/w/	[w]	Voiced labio-velar semivowel.
/y/	[y]	Voiced palatal semi-vowel.
/r/	[r]	Voiced retroflexed semi-vowel.

#### 4. THE VOWEL PHONEMES

In the study of Diari consonants the use of articulatory methods proved sufficient for describing most of the phonetic segments needing phonemic analysis. In the study of the vowels it will be seen that these same methods are not adequate. However, they can be used to establish the fact that there are three simple vowel phonemes and two vowel glides. All but the complex entity [ʌʊ] show minimal contrast with each other in word final position (see Figures 62-65) where spectrograms depict words showing the contrast between [ɪ], [ʌ], [ʊ] and [ʌɪ]. [ʌʊ] has been recorded minimally contrasting with [ʌɪ] in word final position (see Figure 66) but not with its two phonetically similar non-gliding vowels [ʌ] and [ʊ]. For the contrast with these, attention needs to be turned to word medial vowels where minimal pairs between [ʌʊ] and [ʌ] (Figure 67), and between [ʌʊ] and [ʊ] (Figure 68) occur. The following comparative chart indicates by means of minimal pairs or analogous sets, the contrasts between those vowels which occur word finally.

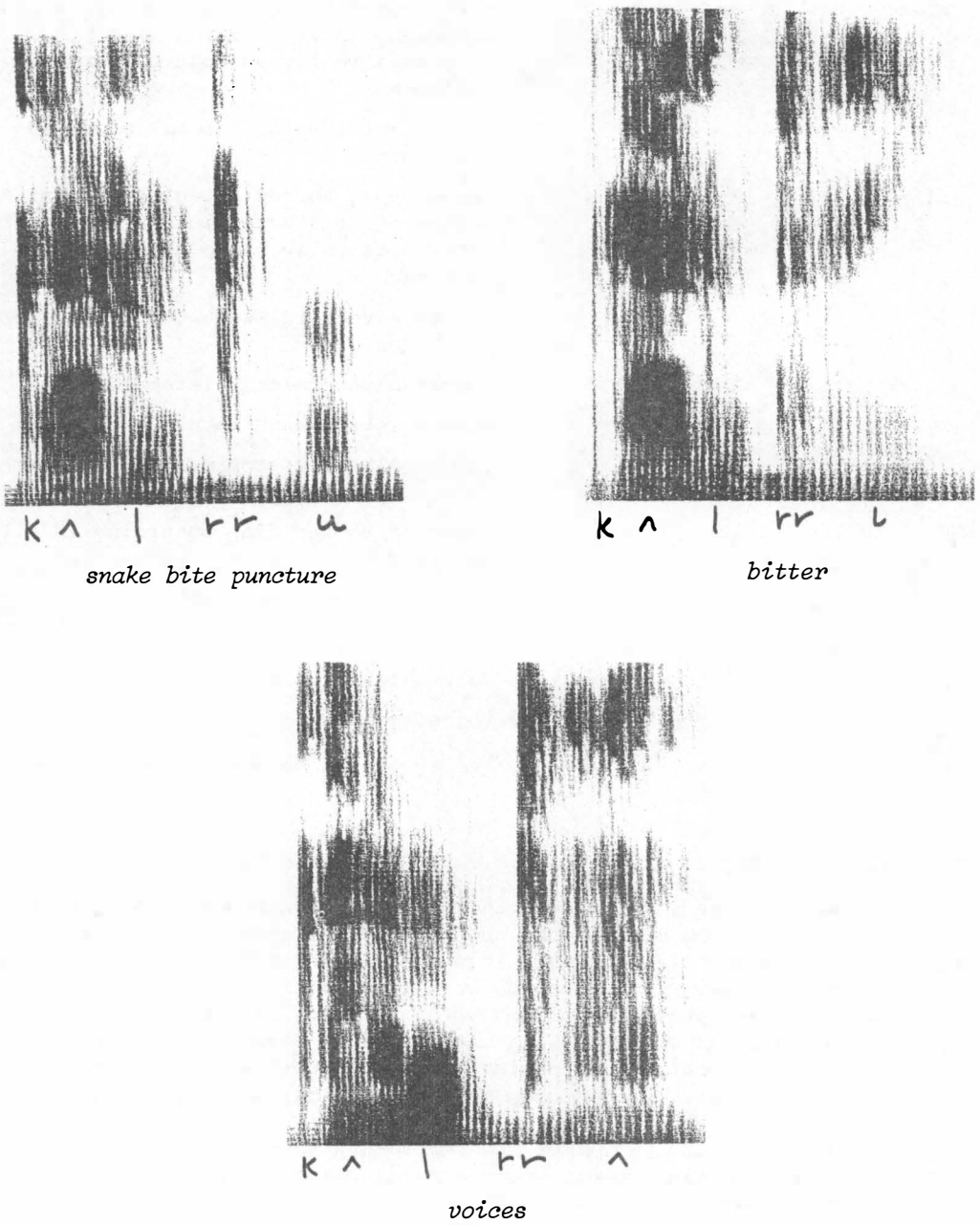


Figure 62

Sonagrams depicting the contrast between [ɪ], [ʌ], and [u].

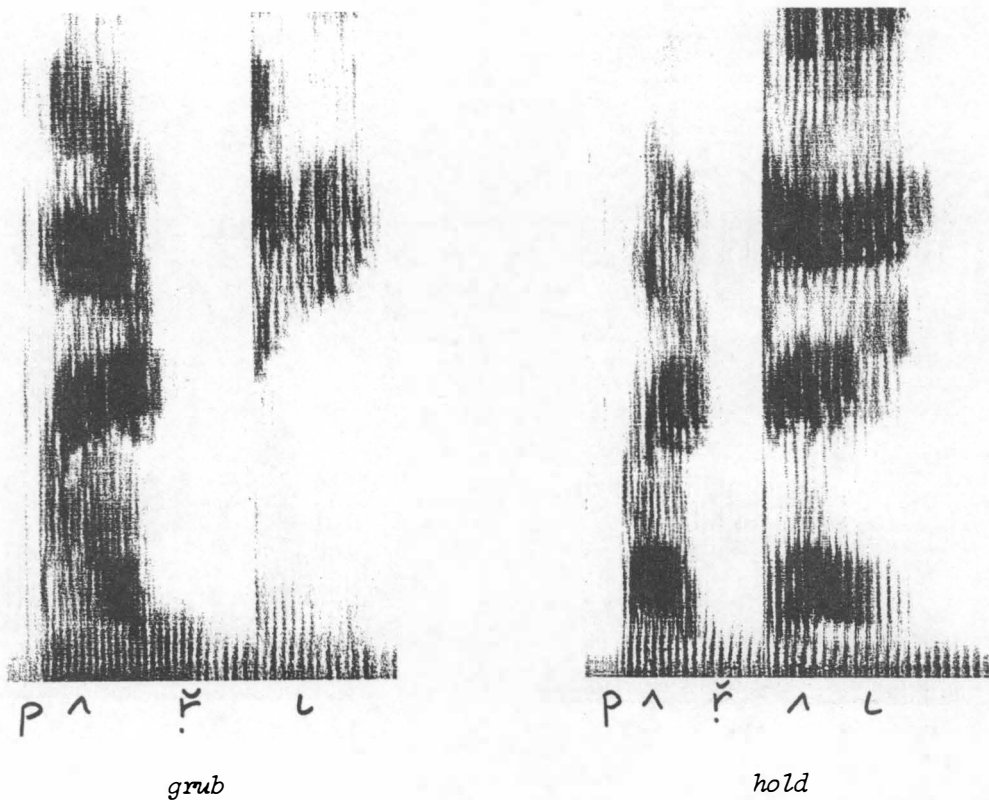


Figure 63  
Sonograms depicting the contrast between [ɪ] and [ʌɪ].

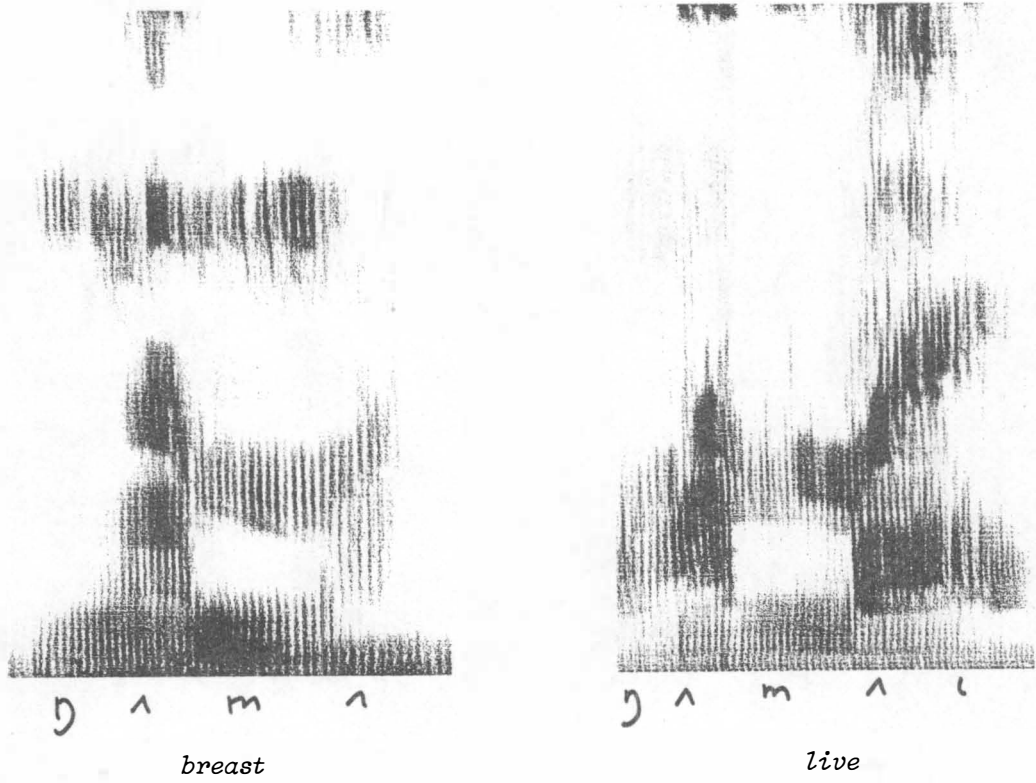


Figure 64

Sonograms depicting the contrast between [ʌ] and [ʌv].



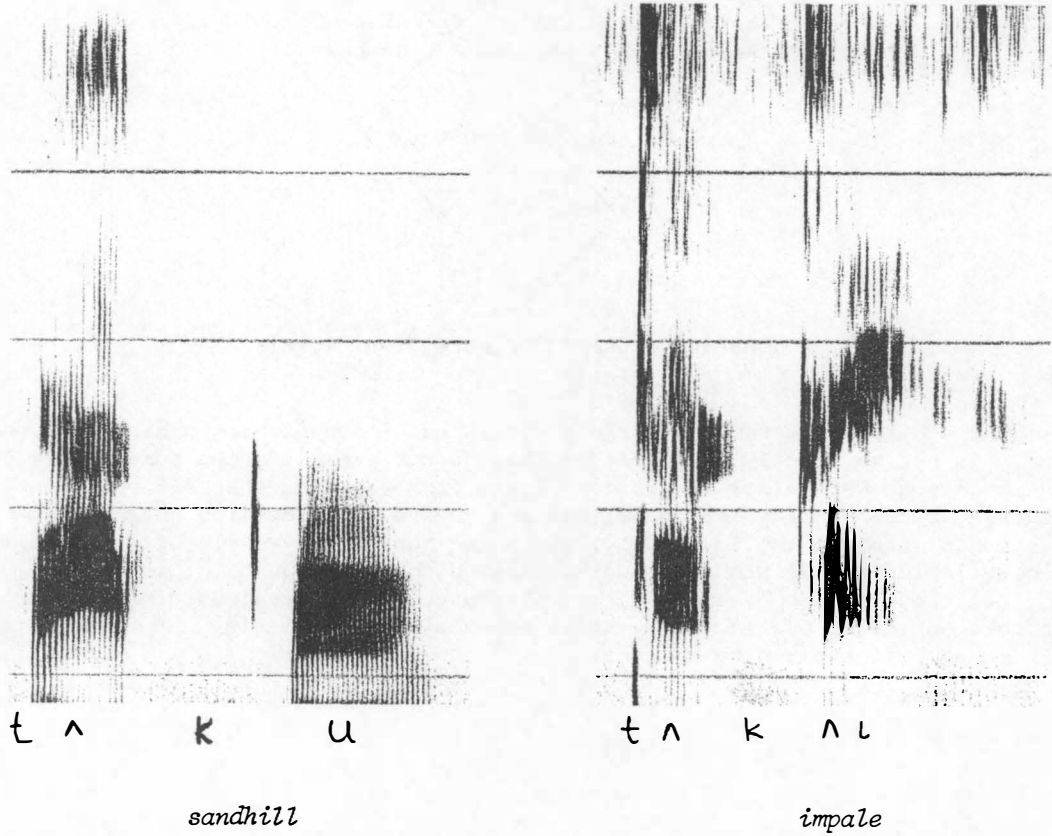
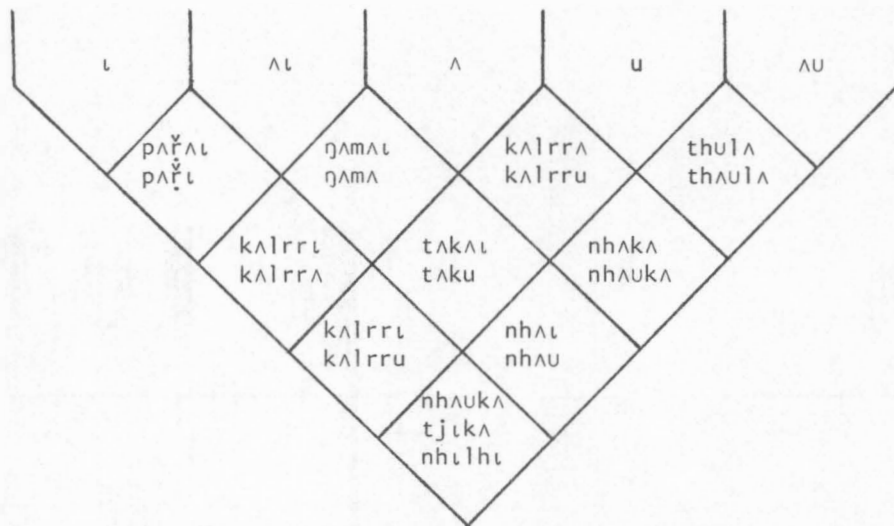


Figure 65  
Sonagrams depicting the contrast between [u] and [ʌ].

Comparative chart for word final vowels<sup>25</sup>

The contrast between the various varieties of non-gliding medial stressed vowels is not so readily depicted, as they do not exemplify the same degree of consistency as word final vowels do. Apart from the fact that all vowels occurring between nasals are nasalised and the vowels preceding retroflexed consonants obtain a rhotic quality, the three non-glided vowels of the final open syllable expand into nine auditorially different sounds, [ι], [ι̃], [ε], [æ], [ə], [λ], [ɸ], [υ], and [u], and of these, if the previously mentioned contrasting vowels are excluded, there are very few contrasts. [ɸ] contrasts with [υ] as illustrated by the set:

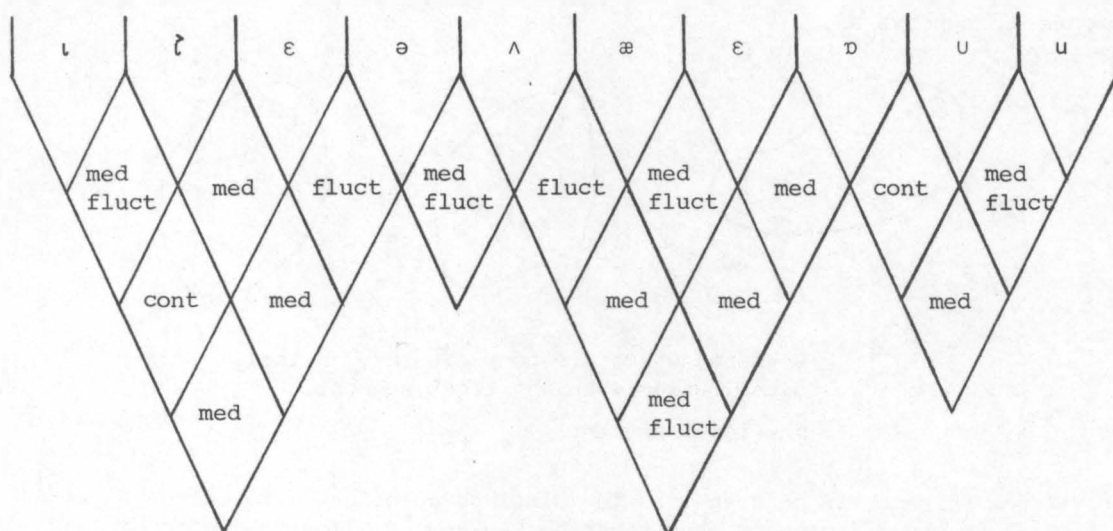
[wɸlrrλ] *hot*  
 [wυlrru] *narrow*  
 [wɸlu] *indistinguishable,*

and [ι] contrasts with [ε], as is shown by:

[γενku] *father's father*  
 [γινκλ] *string.*

As for the rest, they are either mutually exclusive in their distribution, or they fluctuate, or they do both.

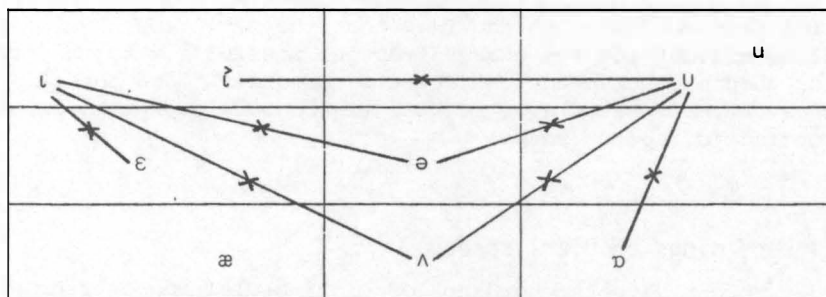
A chart for comparing the relevant medial segments, based upon auditory impressions looks like the following:



med - mutually exclusive distribution  
 fluct - fluctuation  
 cont - contrast

Comparative chart for phonetically similar medial vowels

Actually, the contrasts between [ɪ] and [ɛ], and [ɔ] and [u], together with the contrasts already established, are sufficient to enable phoneme groupings to be made. In a three vowel system<sup>26</sup> it is to be expected that allophonic variation will be considerable, as there is little need for control over environmental influences or idiosyncratic fancies. A look at the vowel quadrilateral with lines of contrast drawn upon it makes it readily apparent how the segments are likely to group into phonemes. Perhaps it is possible to claim that there is some ambiguity regarding the relationship of [ɨ], [ɛ] and [ə], as the three of them are mutually exclusive in their distribution.

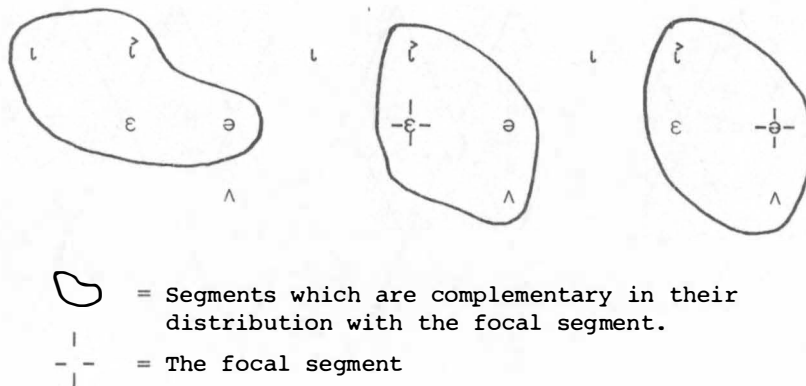


\* = contrast between segments

Figure 66

Diari vowel quadrilateral including lines of contrast where applicable.

However, [ε] and [ə] are also in complementary distribution with [ʌ], whereas [ɨ] is in contrast with that segment. Also, [ɨ] is in complementary distribution with [ɪ], a segment with which both [ε] and [ə] contrast. Diagrammatically, the situation appears as,



From this it can be seen that the simplest solution is to unite [ɨ] with [ɪ] to form the /i/ phoneme, and to unite [ε] and [ə], together with [ə] and [ɔ], to form the /a/ phoneme. This leaves [u] and [ʊ]. These unite in the /u/ phoneme.

The above conclusions resolve the apparent discrepancy between the number of phonemes occurring word medially and those occurring word finally. It now transpires that the same three non-gliding phonemes occur in the medial positions, as those that occur in word final position, though at times they undergo a fair amount of phonetic variation when they occur word medially.

#### 4.1 An acoustic analysis of vowels

From the foregoing it is apparent that Diari vowels undergo considerable variation when they occur word medially. In fact, the variation is such that articulatory methods do not do justice to the degree or to the subtlety of the vowel changes. From one instance to another the variation may be so slight that it is impossible to discriminate between the segments, and at times the vowel quality in a word does not adequately equate with any of the phonetic symbols. The problem is due to the fact that the variation is along a two dimensional continuum with the change from one possibility to the next being much smaller than the human ear can detect. In order to combat this deficiency judgements can be made based upon the use of acoustic equipment which gives visual recordings of speech sound.

#### 4.2 Visual recordings of Diari speech

In order to get visual recordings of Diari medial vowels from which accurate measurements could be taken, a list of two-syllable words was prepared.<sup>27</sup> The list contained a total of 430 entries,<sup>28</sup> and of these 355 were of different forms.<sup>29</sup> The list was familiarised by Alec Edwards, and then each

word was spoken by him deliberately and distinctly, three times. These utterances were recorded on magnetic tape using a Nagra III tape recorder, and an AKG D.24 microphone. A shorter list of approximately 190 words<sup>30</sup> was extracted from the longer list, and with the help of Edwards the four other known male speakers of Diari were recorded.<sup>31</sup> One of the recordings was rejected because of the insistence of the speaker to sing the words rather than speak them.

The recordings were taken to the Speech and Language Research Centre at Macquarie University, and using the Kay Sonagraph 6061A Spectrum analyser, spectrograms were made of each utterance. At this stage a second informant's recordings were discarded because the fundamental pitch of his vocal tract was too high for accurate measurements of his voice to be readily made.<sup>32</sup>

Of the three-word sonagrams produced the second word was chosen for measurement. Each word was spoken three times by the informants in order to establish a constant intonation pattern. This had the effect of creating a series type intonation, with each set spoken in a similar deliberate rhythmic manner. The second word was chosen for measuring for three reasons. In case the intonation pattern affected vowel quality, it was considered wise to be consistent in the choice of which of the three words should be measured. The third word was unsuitable, for frequently it became indistinct, due to utterance final intensity decay. The first word was usually suitable but occasionally there was some hesitancy during its pronunciation, particularly when the speaker was looking for assurance that he was saying the correct word. The second word was free of both these influences and was therefore chosen for measurement.

Herz measurements were taken of the frequencies of the first and second formants of the target area of the stressed vowel. The target area was determined by the characteristics of the first three formants, particularly of F2 (formant two). The determining characteristics consisted of a significant change of direction of the formant, a steady-state position of the formant, and a significant burst of energy in a formant. The first two factors were taken as the more important, but occasionally, in the absence of other criteria, the latter had to be relied upon. Figures 67-69 illustrate how these determining variables appear on sonagrams.

When the target area had been determined for each stressed vowel, the central frequency of the first and second formants was noted. In order to facilitate the measuring of the formants, a square wave energy burst with harmonics at regular 500 Hz intervals was incorporated into the sonagraph. After each three word utterance was recorded onto the magnetic cylinder of the sonagraph, the square wave energy burst was also recorded, which meant that a 500 Hz scale was calibrated onto each sonagram.

A calibrated rectangular piece of clear perspex was used in conjunction with the electronic scale. The calibrations on the perspex were made to agree with a fixed setting of the sonagraph, which filtered frequencies from 100 Hz to 3900 Hz. The sheet of perspex was cut to the identical height of a sonagram but a quarter of an inch shorter in length. It was then calibrated with a line scored along the length of the perspex to represent each 100 Hz. See Figure 70.

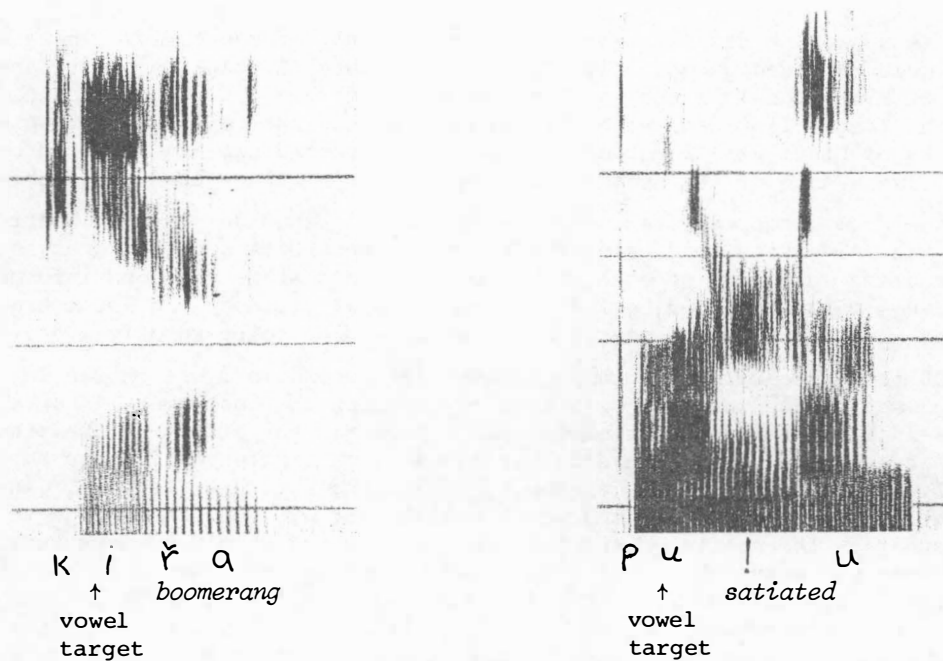


Figure 67

Sonagrams with vowel target indicated by a steady-state position of the formants followed by a change of direction.

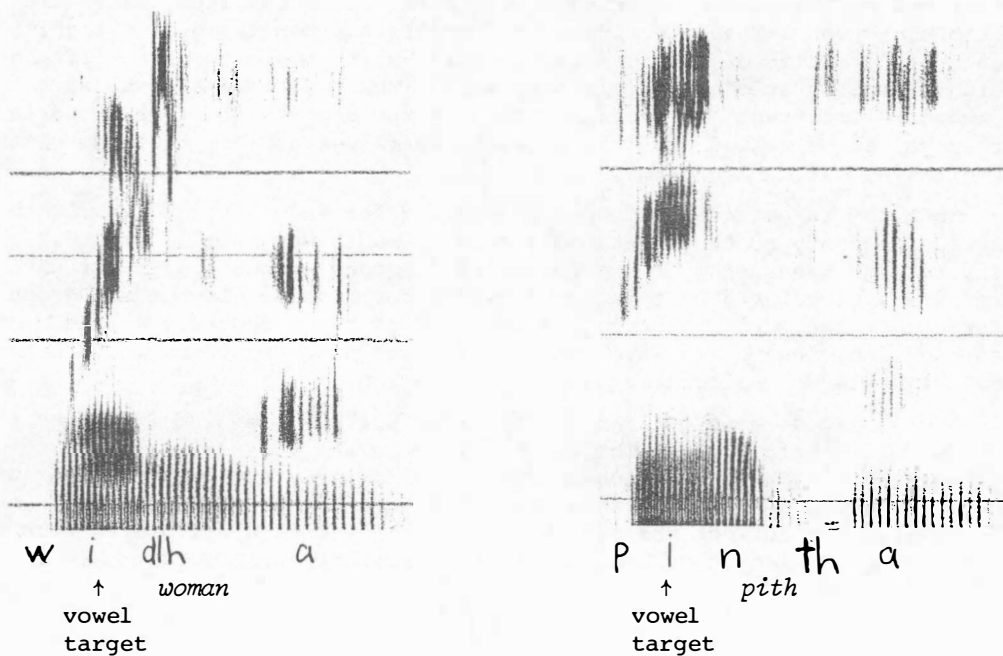


Figure 68

Sonagrams with vowel targets indicated by a change in formant direction before and after the steady-state position.

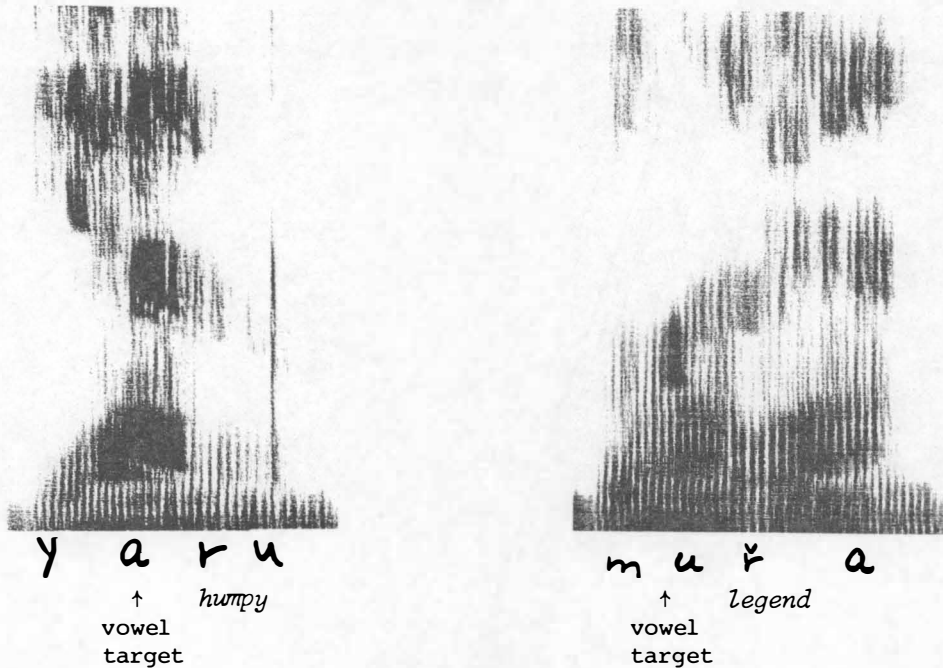


Figure 69

Sonagrams with vowel targets indicated by a burst of energy of the second formant during the steady-state position.

A stand was also made. This consisted of a squared length of pineboard, a little larger than a sonagram,<sup>33</sup> and a squared length of quarter-inch perspex screwed at right angles to one of its long edges.

The measurements were taken from a sonagram by placing it upon the stand with the calibrated perspex sheet placed over it. It was then possible to accurately read the frequency of the formants at any point along the sonagram. Figure 71 illustrates the use of this equipment.

In order to adjust any tendency of the sonagram to wander from its setting, a frequency metre was attached to the sonagraph. When the top setting shifted by 10 Hz the sonagraph was readjusted to the original setting.

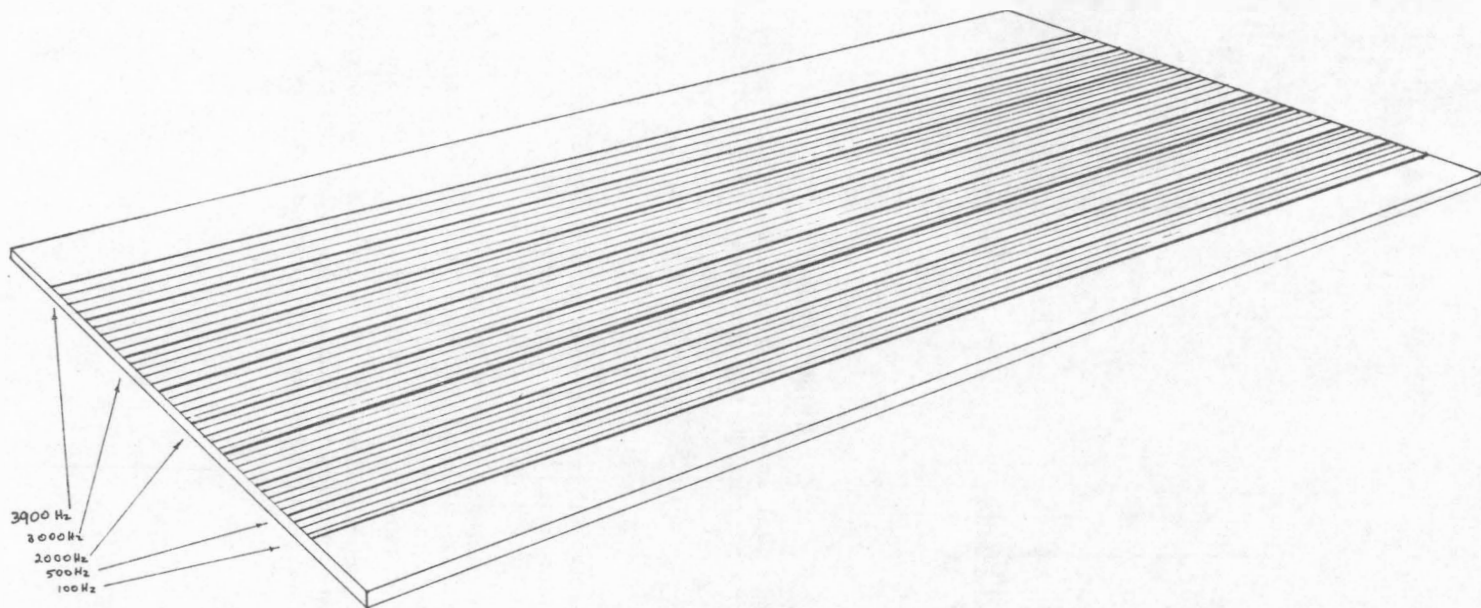


Figure 70

Illustration of perspex calibrated scale used for measuring sonagram frequencies.



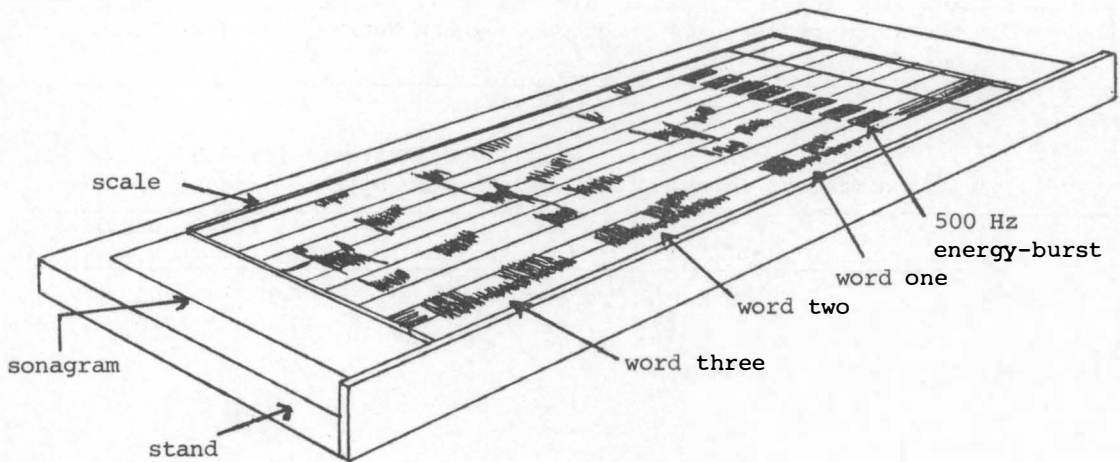


Figure 71

An illustration of sonagram and perspex scale placed on their measuring stand.

Note: The illustrated scale is calibrated for each 500 Hz whereas the actual scale is calibrated at each 100 Hz. (See Figure 70)

## 4.3 The analysis of the sonagrams

The measurements of the first two formants of each of the 429 words are presented in Table 7. The table lists each word in phonemic script, gives its nearest English equivalent, and then states the estimated central frequency of the first two formants during the target for the initial stressed vowel. Three columns of figures are presented. The first and major column represents the readings taken from the sonagrams of Alec Edwards, and the next two columns are those from the supplementary lists recorded by Ern Murray, and Jack Carrot.

Table 7<sup>34</sup>

F1 and F2 readings of initial vowel targets for 429  
(355 different forms) Diari words spoken by three speakers.

No.	Word	Meaning	F1, F2 Frequencies			
			A.E.	E.M.	J.C.	
1	papa	<i>mother's brother</i>	F1	640	600	660
			F2	1260	1340	1240
2	paṭipaṭi	<i>silly</i>		620		
				1450		
3	paka	<i>tobacco</i>		790		
				1290		
4	paku	<i>purposeless</i>		580	590	570
				1200	1270	1240
5	pani	<i>none</i>		620	850	680
				1360	1360	1360
6	pantu	<i>lake</i>		750		
				1180		
7	panki	<i>happy</i>		640		
				1490		
8	panrra	<i>cooked</i>		730		
				1370		
9	panjtja	<i>knee</i>		660		
				1470		
10	paṅi	<i>to smell</i>			650	670
					1400	1310
11	paṅtu	<i>blunt</i>		650		
				1420		
12	paṅtu	<i>blunt</i>		700		
				1300		
13	paṅa	<i>caterpillar</i>		680		860
				1130		1370
14	paṅki	<i>side</i>		590		
				1420		
15	paṅki	<i>side</i>		630		
				1430		

No.	Word	Meaning		A.E.	E.M.	J.C.
16	palhthu	<i>path, track</i>	F1	750		
			F2	1250		
17	pali	<i>to die</i>		690		
				1240		
18	palu	(no meaning)*			630	
					1310	
19	palku	<i>body</i>		800		
				1200		
20	palrru	<i>salt bush</i>		600		
				1250		
21	paljtji	<i>at the hip</i>		640	610	600
				1300	1330	1370
22	pa a	<i>sexual arousal</i>		770		
				1140		
23	pa u	<i>naked</i>		760		660
				1180		1270
24	pa pa	<i>some</i>		650		
				1200		
25	pařa	<i>hair</i>		690		
				1400		
26	pařai	<i>to hold</i>		600	620	560
				1430	1250	1410
27	paři	<i>grub</i>		570	580	660
				1420	1360	1200
28	paři	<i>grub</i>		720		
				1450		
29	parru	<i>fish type (bony bream)</i>		730	620	720
				1490	1300	1240
30	pawa	<i>seed type</i>		650	600	720
				1130	1230	1240
31	pawa	<i>seed type</i>		660		
				1150		
32	paya	<i>bird</i>		610	610	680
				1500	1240	1310
33	pari	<i>heavily loaded</i>		620		
				1270		
34	paru	<i>flashing light, glittering</i>		540	600	610
				1370	1270	1170

\* Given by Ern Murray instead of pa|u. It was not noticed at the time so there was no way for checking it for meaning.

No.	Word	Meaning		A.E.	E.M.	J.C.
35	paru	<i>flashing light, glittering</i>	F1 F2	700 1280		
36	pita	<i>ochre pit</i>		400 1910	420 1860	
37	pita	<i>ochre pit</i>		390 1880		
38	piti	<i>buttocks</i>		390 1830		
39	pitji	<i>tree bark</i>		400 1930	400 1870	460 1810
40	piṭa	<i>wood</i>				410 1570
41	pintha	<i>pith</i>		500 1700		
42	pinthi	<i>report, rumour</i>		390 1910		
43	piṇa	<i>large</i>		410 1840	410 1750	440 1780
44	pinrri	<i>grasshopper</i>		400 1590		
45	pinja	<i>warrior band</i>		390 1920	370 1680	470 1840
46	pinja	<i>warrior band</i>		420 2040		
47	pili	<i>bag</i>		400 1750	460 1680	430 1790
48	pilki	<i>different</i>		410 1600		
49	pilrra	<i>possum</i>		370 1580		
50	piljtjaru	<i>scattered</i>		410 1750		
51	piṭarru	<i>drought</i>		500 1610		390 1860
52	piṭa	<i>navel</i>		410 1810		
53	piṭa	<i>navel</i>		420 1500		
54	pirra	<i>bowl</i>		400 1500		
55	pirri	<i>chisel</i>		390 1530	420 1750	520 1540

No.	Word	Meaning		A.E.	E.M.	J.C.
56	pira	<i>moon</i>	F1	400	430	470
			F2	1630	1870	1760
57	piri	<i>cleared area, open place</i>		400	400	
				1650	1760	
58	putha	<i>shallow</i>		490	450	450
				1010	1270	1090
59	putha	<i>number of times</i>		500		
				1090		
60	putha	<i>ashes</i>		390	400	490
				1070	1180	1170
61	puthu	<i>personal effects</i>		390		
				1080		
62	putju	<i>blind</i>		470	480	470
				1010	1020	1120
63	puka	<i>bread</i>		510	440	460
				910	890	1060
64	punka	<i>flax</i>		490		
				1000		
65	punḡa	<i>lungs</i>		480		
				1110		
66	puḡa	<i>house</i>		400	420	480
				900	950	960
67	pulha	<i>them (dual)</i>		400		
				920		
68	pulha	<i>them</i>		420	420	500
				1110	960	1010
69	pulu	<i>unable</i>		470	500	
				930	1040	
70	pulu	<i>unable</i>		430		
				860		
71	pu!u	<i>white, satiated</i>		450		420
				980		980
72	pu!pa	<i>a cleared area</i>		410		
				1150		
73	pu!ku	<i>half-satisfied</i>		420		
				900		
74	puṛu	<i>dew</i>		460	450	440
				1080	930	1090
75	puṛka	<i>mind, conscience</i>		520		
				970		
76	puṛku	<i>small tree type</i>		430	460	440
				1000	1200	1080

No.	Word	Meaning		A.E.	E.M.	J.C.
77	puřa	<i>unripe, bud</i>	F1	370	370	450
			F2	970	1020	1030
78	puřa	<i>unripe, bud</i>		490 1000		
79	purru	<i>exclamation of surprise</i>		480	400	440
				1010	1020	1030
80	puru	<i>end</i>		420	450	440
				1050	1020	1040
81	thathi	<i>centre</i>		610	580	740
				1490	1370	1310
82	thaka	<i>clay</i>		590		
				1410		
83	thampaņa	<i>to creep up</i>		610		
				1470		
84	thana	<i>them</i>		670	580	830
				1500	1340	1310
85	thanrra	<i>fruit</i>		670		
				1370		
86	thanju	<i>bush type</i>		600	660	600
				1400	1340	1340
87	thanķa	<i>milk</i>		530		
				1440		
88	thalhtha	<i>crack, split</i>		600		
				1400		
89	thalpa	<i>ear</i>		650		
				1420		
90	thalpa	<i>ear</i>		670		
				1490		
91	thalku	<i>straight</i>		650		
				1260		
92	thala	<i>name</i>		620	620	670
				1320	1410	1380
93	thali	<i>tongue</i>		600	580	710
				1520	1380	1290
94	thali	<i>tongue</i>		650	590	800
				1370	1400	1340
95	thařa	<i>thigh</i>		630		
				1320		
96	thařa	<i>thigh</i>		660		
				1380		
97	thaři	<i>thirsty</i>		570	590	650
				1500	1520	1290

No.	Word	Meaning		A.E.	E.M.	J.C.
98	tharaṇa	<i>ascending</i>	F1 F2	570 1300		
99	tharu	<i>wife's father</i>		570 1380	570 1300	840 1340
100	thipi	<i>healthy, spritely</i>		430 1800	410 1790	500 1550
101	thiṭi	<i>tea</i>		500 1700		500 1860
102	thiti*	?			450 1910	
103	thinka	<i>night</i>		490 1810		
104	thiljtja	<i>sinew</i>		410 1810		
105	thiři	<i>threatening, angry for fighting</i>		480 1800	440 1880	530 1770
106	thina	<i>foot</i>		400 1750		
107	thirri	<i>fight</i>			420 1800	
108	thiwi	<i>flower</i>			410 1980	510 1790
109	thupu	<i>smoke</i>		500 1010	400 1150	460 1250
110	thuku	<i>back</i>		500 1110	440 1250	540 1080
111	thuna	<i>gypsum</i>		500 970	420 1350	510 1350
112	thuṅka	<i>rotten</i>		500 1090		
113	thula	<i>foreign, exotic, strange</i>		490 1090	390 980	460 1240
114	thula	<i>foreign, exotic, strange</i>		500 1050		
115	thula	<i>foreign, exotic, strange</i>		400 950		
116	thuṛa	<i>midday</i>		490 1090	410 1200	520 1350

\* E. Murray gave thiti for *tea* though generally regarded as being thiṭi. As the error wasn't detected till field work was completed there was no way of checking the form to see if it has some other English gloss.

No.	Word	Meaning		A.E.	E.M.	J.C.
117	thiwi	<i>flower</i>	F1 F2	420 1320		
118	thiwi	<i>flower</i>		490 1350		
119	tapa	<i>sore, wound</i>		540 1540	700 1470	690 1250
120	tapa	<i>sore, wound</i>		590 1510		
121	tapi	<i>calm, still</i>		550 1510	610 1480	700 1170
122	taku	<i>sandhill</i>		620 1440	620 1490	630 1300
123	tanthu	<i>soft</i>		610 1410		
124	taļa	<i>fish scales, skin</i>		600 1440		
125	taļa	<i>fish scales, skin</i>		530 1480		
126	titji	<i>sun</i>			420 2020	460 1670
127	tilka	<i>splinter, thorn</i>		420 1700		
128	tilka	<i>splinter, thorn</i>		420 1720		
129	tiřtji	<i>rough sand</i>		500 1690	400 1920	480 1140
130	tunjtji	<i>mulga type</i>		380 1230		
131	tunjtji	<i>mulga type</i>		390 980		
132	turru	<i>hard ground, hump</i>		420 1040	430 1260	490 1200
133	turru	<i>hard ground, hump</i>		400 1050		
134	tjaņka	<i>soft</i>		650 1590		
135	tjaļa	<i>a fragment, piece</i>		590 1480	590 1500	690 1340
136	tjika	<i>incorrect</i>		410 2060	380 1850	450 1600
137	tjilpi	<i>wart, knot, nipple</i>		390 1860		



No.	Word	Meaning		A.E.	E.M.	J.C.
138	tjilpi	<i>wart, knot, nipple</i>	F1 F2	370 1820		
139	tjutju	<i>reptiles, spiders, stinging insects</i>		400 1310	440 1360	510 1390
140	tjuru	<i>intelligence, sense</i>		490 1240	430 1190	490 1320
141	kapa	<i>waist</i>		580 1330	580 1480	700 1220
142	kapi	<i>egg</i>		620 1480		
143	kathi	<i>clothing</i>		570 1500		
144	kathu	<i>windbreak</i>		590 1390	690 1400	700 1280
145	kathu	<i>windbreak</i>		590 1360		
146	kata	<i>louse</i>		590 1530	570 1590	600 1370
147	kaṭa	<i>noise</i>		580 1410	650 1560	770 1290
148	kaṭi	<i>raw</i>		620 1480		
149	kaku	<i>elder sister</i>		580 1230	570 1350	820 1290
150	kami	<i>father's mother</i>		830 1490	650 1310	600 1230
151	kanhini	<i>mother's mother</i>		610 1510		
152	kanpu	<i>echo, thumping sound</i>		600 1440		
153	kanpu	<i>echo, thumping sound</i>		620 1410		
154	kanhtha	<i>grass type</i>		600 1510		
155	kanrri	<i>round sided, boomerang</i>		590 1520		
156	kanja	<i>fireplace</i>		610 1500	550 1540	600 1380
157	kanjtji	<i>can</i>		730 1470		
158	kaṇa	<i>person</i>		620 1420	620 1400	750 1410

No.	Word	Meaning		A.E.	E.M.	J.C.
159	kaŋi	<i>fun-lover</i>	F1 F2	640 1390		750 1340
160	kaŋi	<i>fun-lover</i>		600 1480		
161	kaŋu	<i>perspiration</i>		580 1330	730 1360	690 1300
162	kanku	<i>boy</i>		640 1430		
163	kalhu	<i>liver</i>		590 1450	640 1280	
164	kalhthi	<i>spear</i>		590 1400		
165	kalki	<i>creeping plant</i>		590 1420		
166	kalrra	<i>voices</i>		870 1430		
167	kalrri	<i>bitter, salty</i>		580 1420		
168	kalrru	<i>snake bite puncture</i>		580 1320		
169	kalju	<i>acacia tree</i>		600 1460		
170	kalju	<i>acacia tree</i>		830 1450		
171	kalju	<i>acacia tree</i>		630 1500		
172	ka a	<i>empty</i>		610 1400		
173	ka u	<i>testicle</i>				560 1310
174	ka ku	<i>rushes, reeds</i>		570 1400		
175	kařari	<i>today</i>		540 1480		
176	kani	<i>lizard</i>		590 1460	650 1480	800 1300
177	kaři	<i>wife's brother, sister's husband</i>		580 1440		
178	kaři	<i>wife's brother, sister's husband</i>		590 1400		
179	kara	<i>perhaps, flea</i>		610 1460	550 1420	680 1380

No.	Word	Meaning		A.E.	E.M.	J.C.
180	kara	<i>perhaps, flea</i>	F1	590	640	600
			F2	1510	1350	1350
181	kima	<i>tumour, swelling</i>		390	390	480
				1960	1950	1770
182	kini	<i>penis</i>		430		
				1890		
183	kinjtja kinjtja	<i>dispirited, fed up</i>		410		
				1910		
184	kilhthi	<i>stew</i>		400		
				1830		
185	kilpa	<i>cold</i>		420		
				1750		
186	kilirri*	?			430	
					2070	
187	kiḷa	<i>vagina</i>		500		
				1770		
188	kiḷa	<i>vagina</i>		440		
				1760		
189	kiřa	<i>boomerang</i>		410	400	510
				1970	1930	1930
190	kiři	<i>move aside</i>		400	430	510
				1820	2010	1860
191	kirri	<i>clever, very</i>		420	450	500
				1680	1740	1590
192	kupa	<i>child</i>		370	400	500
				790	750	970
193	kuthiṇa	<i>hiding</i>		490		
				1090		
194	kuti	<i>black swan</i>		450	410	540
				1000	1000	1100
195	kutja	<i>feathers</i>		390	410	480
				940	1260	1100
196	kutja	<i>feathers</i>		410		
				970		
197	kutji	<i>spirit</i>		380		
				1000		
198	kuku	<i>hollow, cup</i>		420	440	510
				870	970	1000

\* Given by E. Murray for *clever* but then corrected to *kirri*. He was not able to give the English equivalent for /kilirri/.

No.	Word	Meaning	A.E.	E.M.	J.C.
199	kuku	<i>hollow, cup</i>	F1 F2	420 800	
200	kuku	<i>hollow, cup</i>		420 930	
201	kuma	<i>corpse</i>		380 790	420 910 460 980
202	kuma	<i>corpse</i>		430 900	
203	kunhtha	<i>crustacean type</i>		450 1060	
204	kunhthi	<i>mosquito</i>		470 990	
205	kunki	<i>doctor</i>		460 940	
206	kunmi	<i>fog</i>		390 790	
207	kunmi	<i>fog</i>		440 930	
208	kuṇu	<i>one, another</i>		460 850	380 910 500 1070
209	kuṇu			490 1030	
210	kuṅkakuṅkaṇa	<i>to limp</i>		400 890	
211	kuḷrru	<i>back</i>		500 920	
212	kuḷa	<i>sand grass</i>		400 870	
213	kuḷi	<i>odour</i>		440 890	440 1060 490 1090
214	kuḷpi	<i>subincision</i>		390 830	
215	kuṛa	<i>sore throat</i>		430 1000	430 1130 470 1010
216	kuṛi	<i>shell</i>		360 940	410 980 480 1130
217	kuṛi	<i>shell</i>		440 1100	430 970 470 1240
218	kuna	<i>faeces</i>		430 1090	
219	kuṛa	<i>new moon</i>		420 960	

No.	Word	Meaning		A.E.	E.M.	J.C.
220	kuřu	<i>hole</i>	F1	420		
			F2	950		
221	kuřu	<i>hole</i>		410		
				950		
222	kuřu	<i>hole</i>		380		
				720		
223	kuri	<i>sap, plant shoot, stealing</i>		420	430	500
				880	1100	1320
224	kuri	<i>sap, plant shoot, stealing</i>		420	410	490
				980	1050	1000
225	kuri	<i>sap, plant shoot, stealing</i>		400		
				1020		
226	matja	<i>already</i>		600	750	610
				1490	1500	1360
227	maku	<i>lower half of trunk of body</i>		650	910	630
				1230	1400	1170
228	maku	<i>lower half of trunk of body</i>		630		
				1250		
229	manu	<i>soul, mind, idea</i>		590	710	690
				1280	1310	1330
230	manrra	<i>stomach, messenger</i>		680		
				1340		
231	manrru	<i>two</i>		590		
				1240		
232	manja	<i>glowing part of fire stick</i>		710		
				1500		
233	manju	<i>tasty, spritely, healthy</i>		600		
				1470		
234	manju	<i>tasty, spritely, healthy</i>		730		
				1490		
235	manju	<i>tasty, spritely, healthy</i>		630		
				1300		
236	maņa	<i>mouth</i>		570		
				1270		
237	maņi	<i>fat</i>		560		
				1100		
238	maņka	<i>doggedly</i>		580		
				1380		
239	maņka	<i>doggedly</i>		650		
				1550		
240	maņka	<i>doggedly</i>		680		
				1480		

No.	Word	Meaning	A.E.	E.M.	J.C.
241	maŋka	<i>wrong direction</i>	F1 670 F2 1320		
242	maŋka	<i>wrong direction</i>	610 1150		
243	malka	<i>mulga type</i>	770 1180		
244	maljka	<i>trace, marking</i>	650 1390		
245	ma a	<i>more</i>	610 1110		
246	mařka	<i>camp out</i>		680 1300	560 1300
247	mařki	<i>vexed, angry</i>	670 1490		
248	mařa	<i>stone</i>	600 1270		
249	maři	<i>heavy</i>	800 1480		
250	maři	<i>heavy</i>	700 1400		
251	mařu	<i>sweet, totem</i>	730 1320		
252	mařu	<i>sweet, totem</i>	620 1250		
253	marra	<i>new</i>	610 1280		
254	marru	<i>wide, broad</i>	630 1270	690 1240	640 1150
255	mara	<i>hand</i>	630 1270	710 1290	600 1300
256	mara	<i>hand</i>	630 1380		
257	maru	<i>black</i>	610 1280	710 1370	670 1200
258	mi tha	<i>earth</i>	410 1930	480 1920	490 1560
259	minha	<i>what</i>	400 2020	430 1660	500 1500
260	minhthi	<i>fish net</i>	430 2010		
261	minka	<i>hole, cave</i>	330 1780		

No.	Word	Meaning		A. E.	E. M.	J. C.
262	minrri	<i>plant</i>	F1 F2	380 1710		
263	mila	<i>thigh bone, fish hook</i>		330 1580	410 1300	480 1500
264	mila	<i>thigh bone, fish hook</i>		360 1500		
265	milki	<i>eye</i>		410 1610		
266	milja	<i>fasting</i>		380 1810		
267	miři	<i>peak, top</i>		440 1980	380 1910	520 1660
268	miři	<i>peak, top</i>		390 2020	390 1860	500 1540
269	miřtja	<i>noise of people</i>		440 1510	440 1730	460 1570
270	miřka	<i>ant</i>		410 1580	440 1730	520 1560
271	mutja	<i>cotton, bush</i>		440 1060	370 1020	480 1030
272	mutja	<i>cotton, bush</i>		400 920		
273	mutja	<i>cotton, bush</i>		470 1290		
274	muka	<i>sleep</i>		430 870	420 870	520 970
275	muku	<i>bone</i>		450 840		
276	munhtha	<i>self</i>		450 810		
277	munji	<i>owlet nightjar</i>		420 870	490 1050	480 990
278	munjtja	<i>sick</i>		420 910		
279	munjtja	<i>sick</i>		530 1040		
280	munjtju	<i>fly</i>		470 870		
281	muņa	<i>lap</i>		420 880	510 1120	500 1040
282	mulha	<i>face</i>		430 890	490 1000	520 1090

No.	Word	Meaning	A.E.	E.M.	J.C.
283	mu a	<i>placid</i>	390 890	390 1010	520 1040
284	muřa	<i>legend, history</i>	430 900	480 1100	510 1030
285	muřku	<i>muddy</i>	400 1120	530 1120	480 1130
286	murru	<i>crust, scum</i>	410 1010	440 1060	550 1120
287	muya	<i>withered, dried out</i>	450 960	360 930	490 1100
288	muya	<i>withered, dried out</i>	360 1020		
289	nhaka	<i>there</i>	680 1330	590 1420	590 1400
290	nhanha	<i>her (object)</i>	600 1380	590 1470	590 1380
291	nhani	<i>she (nominative)</i>	610 1430		
292	nhanrru	<i>she (ergative)</i>	610 1400		
293	nhanrru	<i>she (ergative)</i>	710 1410		
294	nhaři	<i>dead</i>	620 1500	690 1440	770 1370
295	nhaři	<i>dead</i>	660 1500		
296	nhauwa	<i>he (distant)</i>	570 1200	710 1360	690 1280
297	nhinhtha	<i>shy, shame</i>	400 1930		
298	nhinti	<i>skin, hide</i>	410 2030		
299	nhinrri	<i>whole of a tree</i>	400 2000		
300	nhilhi	<i>mouse</i>	360 1550		
301	nhili	<i>needle</i>	380 1710	490 2030	
302	nhilpa	<i>louse egg</i>	420 1690		
303	nhilji	<i>egg white</i>	410 1980		



No.	Word	Meaning		A.E.	E.M.	J.C.
304	nhiyi	<i>older brother</i>	F1	350	440	540
			F2	1940	2010	1850
305	nhuŋku	<i>extinguished, damped</i>		440 860		
306	nhulu	<i>he (ergative)</i>		390	400	470
				890	940	1150
307	nhurru	<i>quick</i>		470	440	490
				890	1030	1290
308	nhuwa	<i>spouse</i>		430	350	490
				990	1170	990
309	nhura	<i>tail</i>		410	400	500
				990	1120	1180
310	njaŋi	<i>blunt</i>		550	790	
				1540	1600	
311	njilpa	<i>louse egg</i>		410		
				1790		
312	njuřu	<i>body hair</i>		400	460	520
				1070	1390	1290
313	ŋapa	<i>water</i>		640	680	
				1330	1300	
314	ŋapu	<i>dumb</i>		660		570
				1310		1160
315	ŋathu	<i>I (ergative)</i>		600	780	610
				1340	1400	1220
316	ŋaka	<i>bird's crop</i>		680	660	580
				1370	1390	1150
317	ŋama	<i>breast</i>		820	830	580
				1330	1380	1230
318	ŋami	<i>mob, group</i>		590	620	580
				1500	1410	1350
319	ŋampa	<i>pubic tassel, grinding stone</i>		630		
				1430		
320	ŋampa	<i>pubic tassel, grinding stone</i>		600		
				1470		
321	ŋampu	<i>children's game, almost</i>		590		
				1090		
322	ŋampu	<i>children's game, almost</i>		620		
				1310		
323	ŋana	<i>interest marker</i>		680	950	580
				1500	1410	1190
324	ŋanha	<i>me</i>		620		
				1460		
325	ŋanhi	<i>I</i>		710		
				1480		

No.	Word	Meaning		A.E.	E.M.	J.C.
326	ŋanthi	<i>animal, meat</i>	F1 F2	640 1500		
327	ŋanka	<i>beard</i>		640 1370		
328	ŋanka	<i>beard</i>		720 1390		
329	ŋanrra*	<i>thighs</i>		560 1480		
330	ŋanrri	<i>mother</i>		750 1490		
331	ŋalha	<i>cheek</i>		650 1430	780 1510	580 1130
332	ŋali	<i>we (dual exclusive)</i>		620 1480	780 1430	590 1360
333	ŋalki	<i>joint</i>		620 1470		
334	ŋalrra	<i>we (dual inclusive)</i>		570 1100		
335	ŋa ki	<i>little finger, toe</i>		600 1300		
336	ŋalku	<i>desirous of food</i>		630 1280		
337	ŋa jtja	<i>spittle</i>		730 1450		
338	ŋa a	<i>but, surely</i>		730 1450		
339	ŋa pa	<i>lap</i>		680 1360		
340	ŋařu	<i>edible seed</i>		620 1490		
341	ŋařu	<i>edible seed</i>		810 1250		
342	ŋarru	<i>emu feathers</i>		620 1310	720 1330	570 1330
343	ŋara	<i>heart</i>		670 1480	730 1300	600 1380
344	ŋara	<i>heart</i>		670 1320		

\* It is uncertain whether /ŋanrra/ refers to the upper thighs or the upper thighs and the lower torso.

No.	Word	Meaning		A.E.	E.M.	J.C.
345	ɲara	<i>heart</i>	F1 F2	610 1500		
346	ɲaru	<i>echo</i>		620 1500	660 1300	590 1310
347	ɲaru	<i>echo</i>		660 1440		
348	ɲuku	<i>vomit</i>		530 900	480 1040	520 950
349	ɲumu	<i>good, nice</i>		410 760	410 900	470 1050
350	ɲuna	<i>arm</i>		380 910	430 1120	480 1140
351	ɲunku*	<i>chewing tobacco</i>		500 1000		
352	ɲulku	<i>slanderer, tattler</i>		370 830		
353	ɲulji	<i>gun</i>		440 940	430 960	480 1140
354	ɲulji	<i>gun</i>		410 970		
355	ɲulji	<i>gun</i>		520 1020		
356	ɲuŋa	<i>camp</i>		420 1070	380 810	520 1150
357	ɲurra	<i>endless, continuous</i>		420 1060	370 870	450 1030
358	ɲurrti	<i>husks</i>		340 890	410 1040	450 1070
359	ɲuya	<i>lazy, category</i>		480 1080	430 910	470 1060
360	ɲuya	<i>lazy, category</i>		380 1030		480 1100
361	wata	<i>not</i>		610 1280	580 1160	680 1270
362	wati	<i>grinding stone</i>		540 1070		

\* Austin records /pitjirri/ as tobacco and /ɲunku/ as a Wangkanguru loan word. I have ɲunku mentioned three times in my field notes without any comment. It was, however, the same person (Alec Edwards) who used the word.

No.	Word	Meaning		A.E.	E.M.	J.C.
363	waṭa	<i>tree butt</i>	F1 F2	550 860		
364	waka	<i>small, young</i>		590 1110	600 1240	620 1060
365	waka	<i>small, young</i>		570 1070		
366	wama	<i>carpet snake</i>		610 1040	630 1020	610 1080
367	wama	<i>carpet snake</i>		620 1020		
368	wanpa	<i>hill</i>		620 1090		
369	wanhtha	<i>passing by</i>		570 1300		
370	wanku	<i>snake type</i>		640 1160		
371	wanrra	<i>thick</i>		560 960		
372	waṅki	<i>sedentary</i>		610 1310		
373	wanka	<i>wilderness, unoccupied country</i>		580 1020		
374	walu	<i>undistinguishable</i>		650 1350	710 1270	640 1190
375	walrra	<i>hot</i>		580 1110		
376	walja	<i>soon</i>		550 1120	620 1490	620 1120
377	waljtja	<i>hip</i>		580 1190		
378	waḷi	<i>who, which person? (ergative)</i>		580 1100		
379	waṛu	<i>long ago</i>			600 1240	610 1120
380	waṛku	<i>cross wise</i>		550 1230		
381	waṛku	<i>cross wise</i>		580 1400		
382	waṛa	<i>corroboree head, piece</i>		490 970		
383	waṛu	<i>short</i>		580 1120		

No.	Word	Meaning	A.E.	E.M.	J.C.
384	warra	<i>half</i>	F1 F2 560 1350		
385	warru	<i>white</i>		570 1290	650 1120
386	wari wari	<i>heat exhaustion</i>	520 1270	680 1170	660 1200
387	waru	<i>inflated, extended</i>	550 1210		
388	wipa	<i>valley, land depression</i>	420 1480	470 1540	500 1500
389	wi ta	<i>a row, series</i>	440 1530	430 1810	450 1580
390	wima	<i>song, corroboree</i>	510 1600	450 1360	490 1630
391	wima	<i>song, corroboree</i>	470 1700		
392	winhtha	<i>owl species</i>	480 1820		
393	winrri	<i>only</i>	540 1530		
394	wilha	<i>woman</i>	400 1530	450 1580	440 1620
395	wilpa	<i>narrow hole, narrow opening</i>	390 1510		
396	wilpa	<i>narrow hole, narrow opening</i>	410 1470		
397	wilhthu	<i>flower type</i>	450 1250		
398	wilhthi	<i>flower type</i>	390 1460		
399	wiřpa	<i>pubic tassel</i>		470 1300	510 1500
400	wiřka	<i>crack</i>	480 1500	450 1440	460 1390
401	wiři	<i>extremities, outside ones</i>	410 1540	440 1590	460 1480
402	wirra	<i>Acacia type</i>	460 1480	500 1670	490 1500
403	wirra	<i>Acacia type</i>	430 1480		
404	wutju	<i>pole-like</i>	400 910	470 800	

No.	Word	Meaning		A.E.	E.M.	J.C.
405	wulrru	<i>narrow</i>	F1 F2	400 920		
406	yapa	<i>timid, frightened</i>		590 1510		
407	yama	<i>net</i>		580 1560	680 1570	610 1400
408	yania	<i>like this</i>		560 1650	690 1670	560 1510
409	yaniḷu	<i>just like this</i>		530 1750		
410	yanku	<i>father's father</i>		610 1540		
411	yala	<i>together, jointly</i>		540 1490		
412	yalpi	<i>edge, flower type</i>		520 1560		
413	yara	<i>this way</i>		700 1450	600 1700	670 1320
414	yarra	<i>that way</i>		520 1480	510 1710	620 1330
415*	yarru	?			620 1580	
416	yaru	<i>humpy</i>		560 1490		580 1300
417	yawa	<i>grass onion</i>		510 1410	590 1460	570 1310
418	yinka	<i>string, bush type</i>		400 2160	420 1980	430 1880
419	yinka	<i>string, bush type</i>		350 2100	380 1630	440 1930
420	yilrri	<i>crying (distant)</i>		300 1700		
421	yini	<i>you (singular nominative)</i>		390 1920		
422	yutja	<i>barter</i>		390 1440	420 1590	500 1360
423	yuku	<i>twigs</i>		410 870	440 1610	460 1350

\* Jack Carrot gave /yarru/ for *humpy* instead of /yaru/. What /yarru/ really means is uncertain.

No.	Word	Meaning		A.E.	E.M.	J.C.
424	yunka	<i>annoying</i>	F1	360		
			F2	1130		
425	yunrru	<i>you</i> (singular ergative)		370		
				1210		
426	yuŋa	<i>skin water-bag</i>		390	440	460
				1000	1360	1350
427	yulha	<i>you</i> (dual nominative)			410	
					1430	
428	yuřa	<i>lizard's hole</i>		360		
				1190		
429	yuri	<i>veins, small snake</i>		370	380	520
				1180	1370	1230

In order to see more clearly the significance of the variations in the frequencies recorded in Table 7, F1 can be plotted against F2 and following normal practice the frequency scales can be reversed, so that the vowel plots will approximate those arranged on articulatory diagrams.<sup>35</sup> This has been done in Figure 72. For convenience, the logarithmic or mel scale has not been adopted, but, following Bernard,<sup>36</sup> linear scales are used, with F2 frequencies being double the scale of F1. By plotting the vowels this way the arrangement is similar to that of the mel scale, yet the inconvenience of using a scale that is not linearly constant is avoided. Figure 72 shows the results of this plotting in the form of a scattergram of each of the vowels and a spectrum envelope which outlines the extent of the variation. The mean average plots for each vowel are also included. These are the results of the computations shown in Table 8.

As is to be expected the mean averages for the three vowel phonemes which are shown in Figure 72 are quite different, and the articulatory assertion that they should be classified as high-front, high-back and low-mid is substantiated by the acoustic plots.

Table 8: The sum and the mean for F1 and F2 of each vowel measured in Table 7

Vowel	No.	$\Sigma F1$	Mean F1	$\Sigma F2$	Mean F2
/i/	164	70,100	427.4 Hz	283,650	1729.6 Hz
/a/	360	229,340	637.1 Hz	486,200	1350.6 Hz
/u/	238	105,600	443.7 Hz	248,010	1042.1 Hz

It is of interest to note just how much the three phonemes vary in quality. In Figure 73 the mean values of the eleven Australian English vowels<sup>37</sup> are placed on a grid with the three Diari vowels.

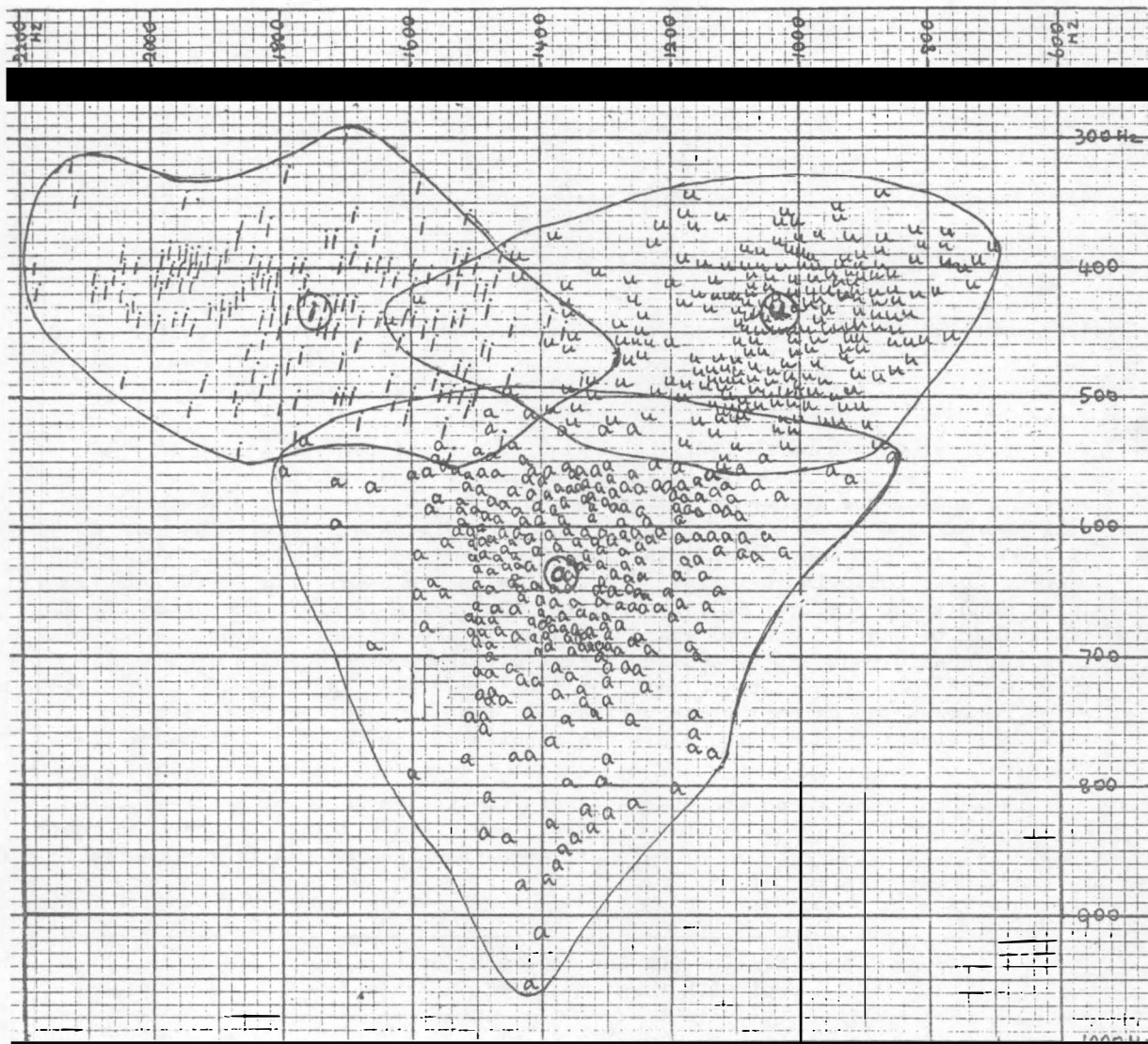


Figure 72

Scattergrams and spectrum envelopes for F1 x F2 plots of Diari vowels. The mean plot for each vowel is encircled.



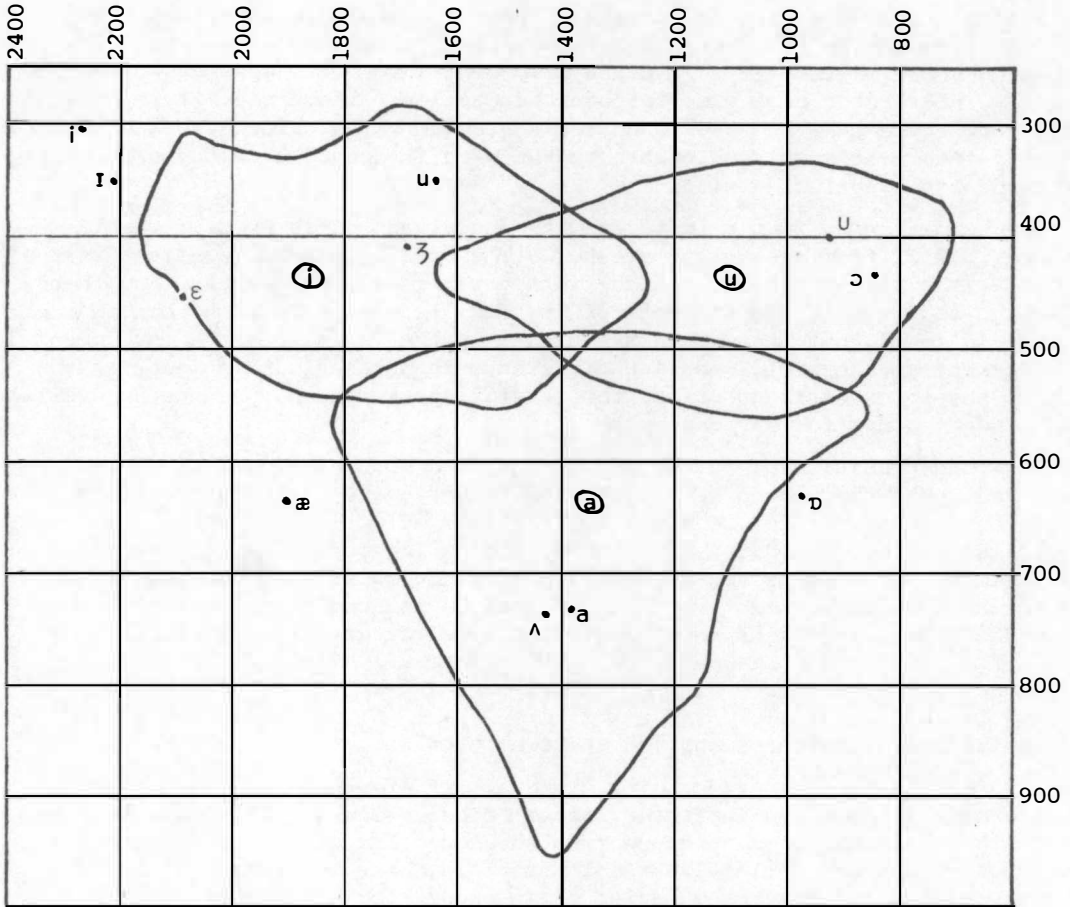


Figure 73

Means of eleven Australian English vowels on a grid with the three Diari vowels.

#### 4.4 Vowel overlap

Another surprising fact revealed by the acoustic plots is the degree to which the vowels overlap.<sup>38</sup> The target of /a/ is sometimes the same as the target for /i/, and at other times it is the same as the target for /u/. Also, the target value of /i/ is sometimes the same as the target value for /u/. This suggests that the intended meanings for the signals in those areas could be misunderstood. In fact this is not so. Tape recordings of the words containing these extreme F1 x F2 plots played back to Diari speakers, are correctly interpreted each time, without hesitation. Therefore, it is concluded that there must be some conditioning factor which orientates a hearer to correctly interpret vowels which are spoken with frequencies in the overlapping section of its spectrum envelope.

One conditioning factor is to do with individual differences. Vowel envelopes differ from speaker to speaker. The vowel plots are constant in the sense that the mean of F2 for a high-front vowel is always greater than that for a high-back vowel, and the mean of its F1 will always be less than that of the low-mid vowel, but they are not constant in the sense that the envelopes for different speakers will embrace different frequencies. This means that spectrum envelopes of frequencies, for several speakers, may produce an overlap that does not occur for any one speaker.

A second conditioning factor is to do with a sound's linguistic environment. A neighbouring sound can affect the target value of a vowel. If the environment which affects one vowel has the same effect upon another vowel, the overlap may occur because of the opposing influences of two different environments. If this is so, the overlap will not occur when the vowels are said in the same environment, and it can then be deduced that the environment will effect the hearer's expectation of the vowel targets interpretation.

#### 4.5 Individual differences applied to vowel overlap

In order to see the effect of individual differences upon vowel overlap the information contained in Table 7 needs to be reviewed. This time the computations, scattergrams, and spectrum envelopes are given for each speaker instead of giving the collective results for all three speakers. Table 9 computes the mean average frequencies of F1 and F2 for each Diari speaker, and Figures 74, 75 and 76 display these averages together with scattergrams and spectrum envelopes for each of the speakers. All this information is superimposed on the combined spectrum envelopes.

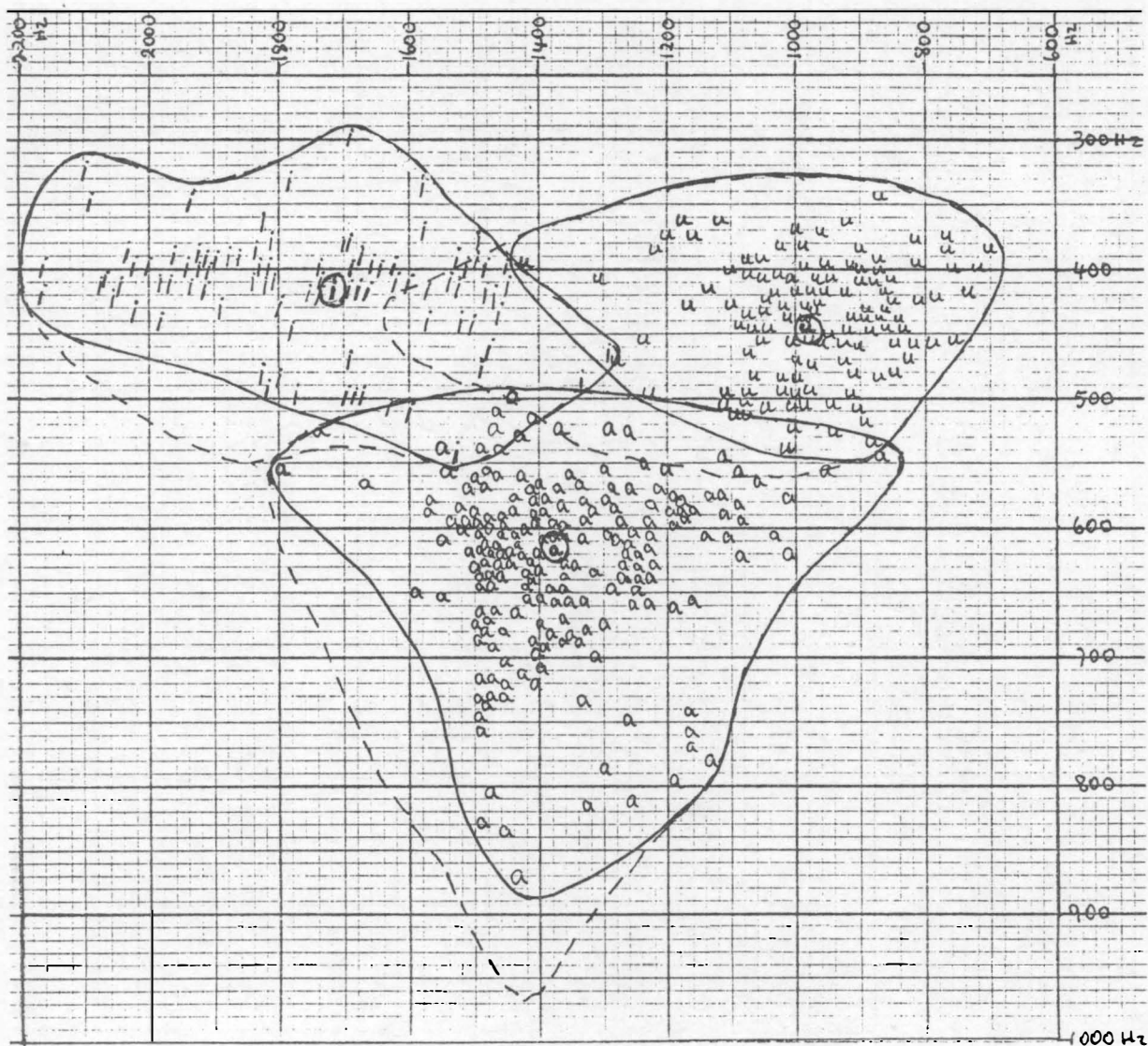


Figure 74

Spectrum envelopes for /i/, /a/, and /u/ for A. Edwards, superimposed on the combined vowels envelopes. Mean average of F1 x F2 for each of Edwards' vowel targets is encircled.

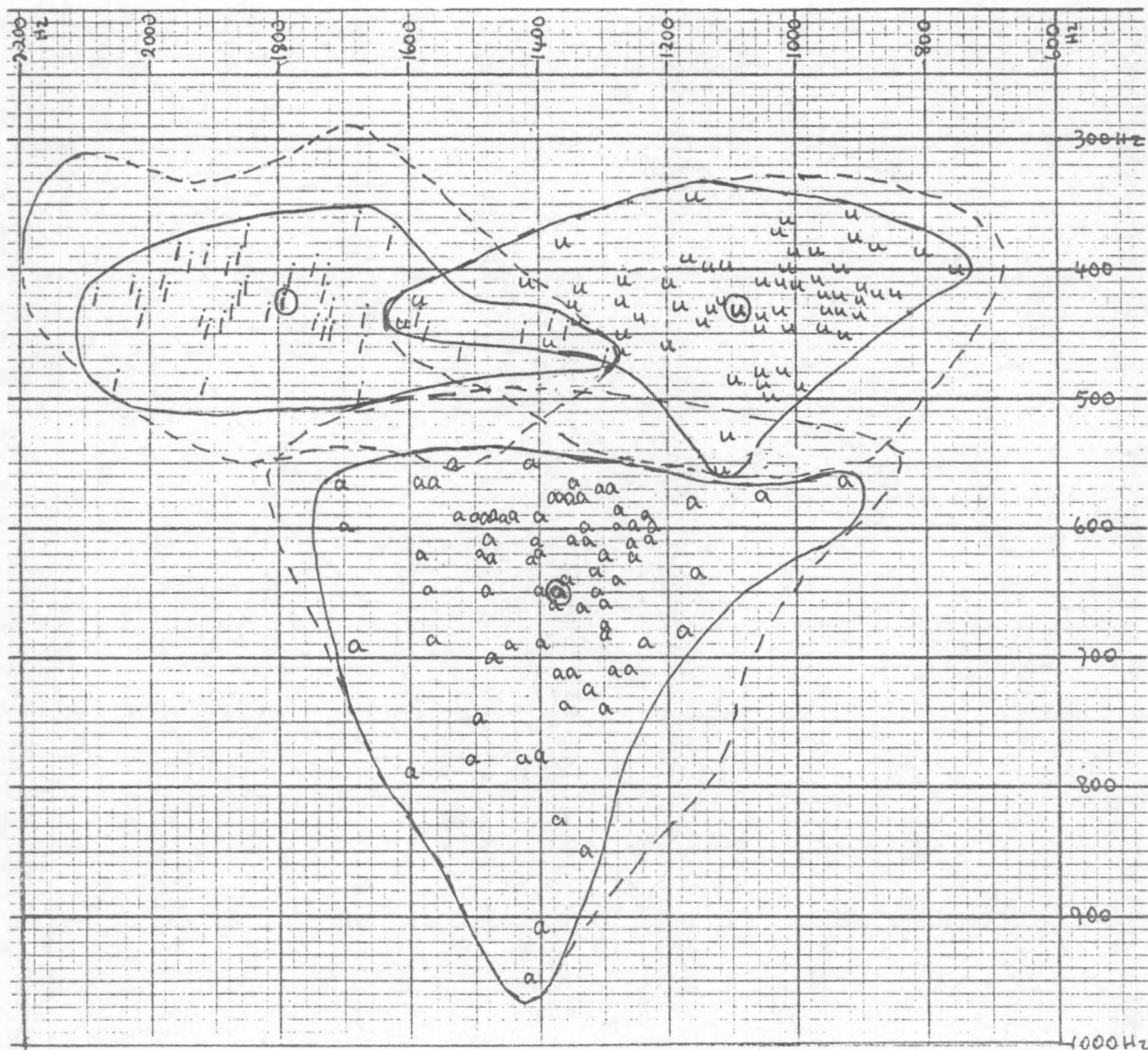


Figure 75

Spectrum envelopes of /i/, /a/, and /u/ for E. Murray, superimposed on the combined vowels envelopes. Mean average for each of Murray's vowel targets is encircled.

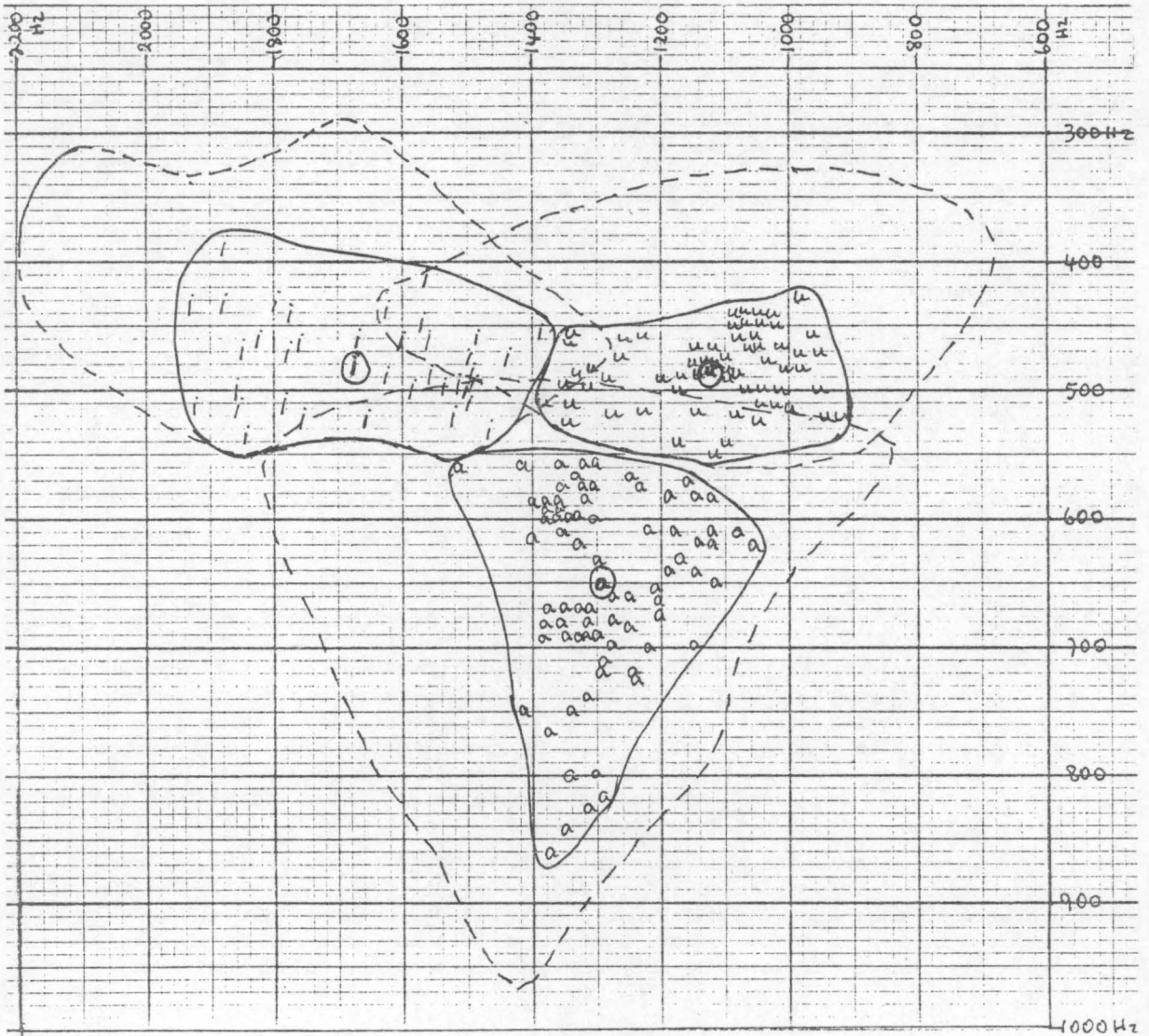


Figure 76

Spectrum envelopes of /i/, /a/, and /u/ for J. Carrot, superimposed on the combined vowels envelopes. Mean average for each of Carrot's vowel targets are encircled.

Table 9: The sum of the frequencies and the mean averages of F1 and F2 for each vowel of the three Diari speakers

Alec Edwards					
Vowel	No.	$\Sigma F1$	Mean F1	$\Sigma F2$	Mean F2
/i/	86	34,840	414.8 Hz	149,340	1736.5 Hz
/a/	211	132,070	625.9 Hz	288,130	1365.6 Hz
/u/	117	51,290	431.0 Hz	115,130	984.0 Hz
Ern Murray					
/i/	41	17,630	430.0 Hz	72,890	1777.8 Hz
/a/	74	48,400	654.1 Hz	102,610	1386.6 Hz
/u/	61	26,040	426.9 Hz	66,070	1083.0 Hz
Jack Carrot					
/i/	37	17,710	478.6 Hz	61,530	1663.0 Hz
/a/	75	48,990	653.2 Hz	96,220	1282.9 Hz
/u/	60	29,130	485.5 Hz	67,270	1121.2 Hz

The information as it is now organised substantiates the first proposition made concerning vowel overlap, i.e. if individual differences are taken into account, the overlap will be reduced. In the sample of speech taken from Jack Carrot there is no overlap at all. In that of Ern Murray there is still considerable overlap between /i/ and /u/, but there is none between /u/ and /a/, and /i/ and /a/. The larger sample that was taken from Alec Edwards has reduced overlap between each of the three vowels.

It is of interest to note that the mean averages of the vowels for each speaker remain fairly close to the collective means. In Figure 77 the means are displayed together with means for the combined results of all speakers. The speech of Carrot tends to have a higher F1 reading than the others but overall the individual means do not vary greatly from the collective means.

#### 4.6 The influence of context on vowel overlap

The above discussion confirms that individual differences of F1 x F2 plots accounts for some of the overlap that exists between vowels, but after this is accounted for, reduced overlap still remains, so some other factor must also be involved. It was suggested previously that a vowel's environment can affect its target value and so it seems sensible to see if this could account for vowel overlap. In order to test this, the data was rearranged again to find out what influence a word initial consonant has upon the target of the following vowel. Tables 10, 11 and 12 compute the mean averages of F1 x F2 for each vowel of each speaker as it occurs following different initial consonants, Figures 78-80 show these mean average plots on vowel spectrum envelopes. Table 13 computes the combined means for all of the speakers and Figure 81 shows the plots for these means.

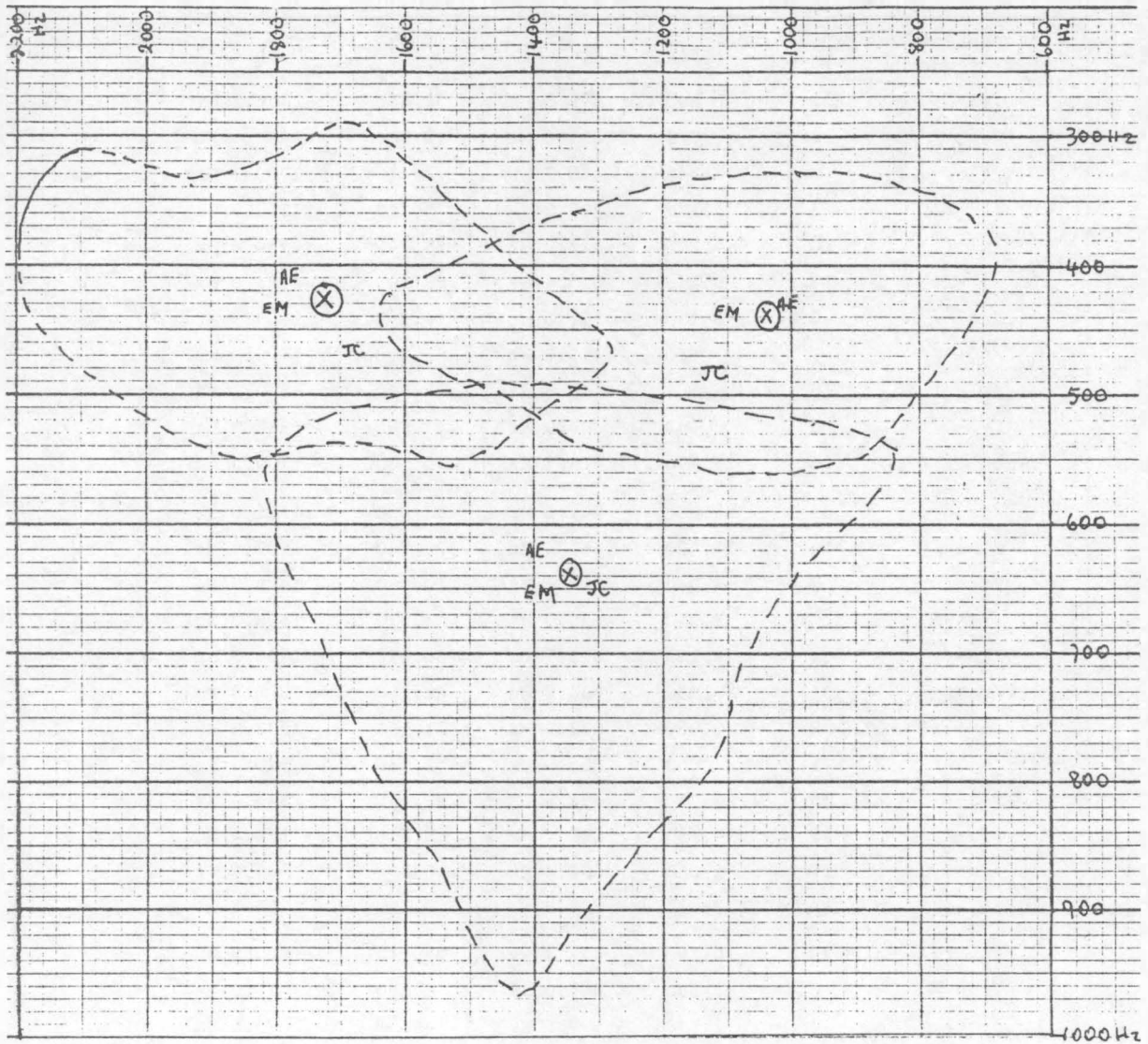


Figure 77

Mean averages of F1 x F2 for A.E., E.M., J.C., and the combined results of all three, displayed within the combined spectrum envelope. Mean of combined total written as 'x'.

Table 10: Computations of the means for F1 and F2 of Edwards' vowel targets following different consonants

Consonant/ vowel sequence	No.	$\Sigma F1$	Mean F1	$\Sigma F2$	Mean F2
/pi-/	21	8,600	409.6 Hz	36,460	1736.2 Hz
/thi-/	8	3,620	455.0 Hz	13,300	1662.5 Hz
/ti-/	3	1,340	446.7 Hz	5,110	1703.3 Hz
/tji-/	3	1,170	390.0 Hz	5,740	1913.3 Hz
/ki-/	10	4,220	422.0 Hz	18,340	1834.0 Hz
/mi-/	13	5,140	395.4 Hz	23,190	1783.8 Hz
/nhi-/	8	3,130	391.6 Hz	14,830	1853.8 Hz
/nji-/	1	410	410.0 Hz	1,790	1790.0 Hz
/wi-/	15	6,680	445.3 Hz	22,940	1529.3 Hz
/yi-/	4	1,440	360.0 Hz	7,880	1970.0 Hz
Total /i/	86	35,750	415.7 Hz	149,580	1739.3 Hz
/pa-/	33	22,030	667.6 Hz	43,620	1321.8 Hz
/tha-/	19	11,620	611.6 Hz	26,740	1407.4 Hz
/ta-/	7	4,040	577.1 Hz	10,330	1475.7 Hz
/tja-/	2	1,240	620.0 Hz	3,070	1535.0 Hz
/ka-/	39	24,130	618.7 Hz	56,010	1436.2 Hz
/ma-/	31	19,990	644.8 Hz	41,300	1332.3 Hz
/nha-/	8	5,060	632.5 Hz	11,150	1393.8 Hz
/nja-/	1	550	550.0 Hz	1,540	1540.0 Hz
/ŋa-/	35	22,850	652.9 Hz	48,770	1393.4 Hz
/wa-/	25	14,410	576.4 Hz	28,710	1148.4 Hz
/ya-/	11	6,220	564.4 Hz	16,890	1535.5 Hz
Total /a/	211	132,070	625.9 Hz	288,130	1365.6 Hz
/pu-/	23	10,290	447.4 Hz	23,110	1004.8 Hz
/thu-/	8	3,380	485.0 Hz	8,360	1045.0 Hz
/tu-/	4	1,590	397.5 Hz	4,300	1075.0 Hz
/tju-/	2	890	445.0 Hz	2,550	1275.0 Hz
/ku-/	34	14,380	422.9 Hz	31,660	931.2 Hz
/mu-/	18	7,770	431.7 Hz	17,150	952.8 Hz
/nhu-/	5	2,140	428.0 Hz	4,620	924.0 Hz
/nju-/	1	400	400.0 Hz	1,070	1070.0 Hz
/ŋu-/	13	5,600	430.8 Hz	12,460	958.5 Hz
/wu-/	2	800	400.0 Hz	1,830	915.0 Hz
/yu-/	7	2,640	377.1 Hz	8,020	1145.7 Hz
Total /u/	117	49,880	426.3 Hz	115,130	984.0 Hz



Table 11: Computations of the means for F1 and F2 of Murray's vowel targets following different consonants

Consonant/ vowel sequence	No.	$\Sigma$ F1	Mean F1	$\Sigma$ F2	Mean F2
/pi-/	8	3,310	413.8 Hz	14,220	1777.5 Hz
/thi-/	5	2,130	426.0 Hz	9,360	1872.0 Hz
/ti-/	2	860	430.0 Hz	3,940	1970.0 Hz
/tji-/	1	380	380.0 Hz	1,850	1850.0 Hz
/ki-/	5	2,100	420.0 Hz	9,700	1940.0 Hz
/mi-/	7	3,050	435.7 Hz	12,090	1727.1 Hz
/nhi-/	2	930	465.0 Hz	4,040	2020.0 Hz
/wi-/	8	3,660	457.5 Hz	12,290	1536.3 Hz
/yi-/	2	800	400.0 Hz	3,610	1805.0 Hz
Total /i/	40	17,220	430.5 Hz	71,100	1777.5 Hz
/pa-/	12	7,560	630.0 Hz	15,660	1305.0 Hz
/tha-/	8	4,770	596.25 Hz	11,060	1382.5 Hz
/ta-/	3	1,930	643.3 Hz	4,440	1480.0 Hz
/tja-/	1	590	590.0 Hz	1,500	1500.0 Hz
/ka-/	13	8,090	622.3 Hz	18,520	1424.6 Hz
/ma-/	7	5,160	737.1 Hz	9,410	1344.3 Hz
/nha-/	4	2,580	645.0 Hz	5,690	1422.5 Hz
/nja-/	1	790	790.0 Hz	1,600	1600.0 Hz
/ŋa-/	11	8,190	744.6 Hz	15,160	1378.2 Hz
/wa-/	8	4,990	623.8 Hz	9,880	1235.0 Hz
/ya-/	6	3,750	625.0 Hz	9,690	1615.0 Hz
Total /a/	74	48,400	654.1 Hz	102,610	1386.6 Hz
/pu-/	12	5,240	436.7 Hz	12,500	1041.7 Hz
/thu-/	5	2,060	412.0 Hz	5,930	1186.0 Hz
/tu-/	1	430	430.0 Hz	1,260	1260.0 Hz
/tju-/	2	870	435.0 Hz	2,550	1275.0 Hz
/ku-/	12	5010	417.5 Hz	12,090	1007.5 Hz
/mu-/	10	4480	448.0 Hz	10,280	2038.0 Hz
/nhu-/	4	1590	397.5 Hz	4,260	1065.0 Hz
/nju-/	1	460	460.0 Hz	1,390	1390.0 Hz
/ŋu-/	8	3340	417.5 Hz	7,650	956.3 Hz
/wu-/	1	470	470.0 Hz	800	800.0 Hz
/yu-/	5	2090	418.0 Hz	7,360	1472.0 Hz
Total /u/	61	26,040	426.9 Hz	66,070	1083.0 Hz

Table 12: Computations of the means for F1 and F2 of Carrot's vowel targets following different consonants

Consonant/ vowel sequence	No.	$\Sigma F2$	Mean F1	$\Sigma F2$	Mean F2
/pi-/	8	3,590	448.8 Hz	13,950	1743.8 Hz
/thi-/	4	2,040	510.0 Hz	6,970	1742.5 Hz
/ti-/	2	940	470.0 Hz	3,110	1555.0 Hz
/tji-/	1	460	460.0 Hz	1,600	1600.0 Hz
/ki-/	4	2,000	500.0 Hz	7,150	1787.5 Hz
/mi-/	7	3,470	495.7 Hz	10,890	1555.1 Hz
/nhi-/	1	540	540.0 Hz	1,850	1850.0 Hz
/wi-/	8	3,800	475.0 Hz	12,200	1525.0 Hz
/yi-/	2	870	435.0 Hz	3,810	1905.0 Hz
Total /i/	37	17,710	478.6 Hz	61,530	1663.0 Hz
/pa-/	13	8,650	665.4 Hz	16,730	1286.9 Hz
/tha-/	8	5,840	730.0 Hz	10,600	1325.0 Hz
/ta-/	3	2,020	673.3 Hz	3,720	1240.0 Hz
/tja-/	1	690	690.0 Hz	1,340	1340.0 Hz
/ka-/	14	9,620	687.1 Hz	18,450	1317.9 Hz
/ma-/	7	4,400	628.6 Hz	8,810	1258.6 Hz
/nha-/	4	2,640	660.0 Hz	5,430	1357.5 Hz
/ŋa-/	11	6,430	584.6 Hz	13,810	1255.5 Hz
/wa-/	8	5,090	636.3 Hz	9,160	1145.0 Hz
/ya-/	6	3,610	601.7 Hz	8,170	1361.7 Hz
Total /a/	75	48,990	653.2 Hz	96,220	1282.9 Hz
/pu-/	12	5,480	456.7 Hz	12,660	1055.0 Hz
/thu-/	5	2,490	498.0 Hz	6,270	1254.0 Hz
/tu-/	1	490	490.0 Hz	1,200	1200.0 Hz
/tju-/	2	1,000	500.0 Hz	2,710	1355.0 Hz
/ku-/	12	5,890	490.8 Hz	13,010	1084.2 Hz
/mu-/	10	5,050	505.0 Hz	10,540	1054.0 Hz
/nhu-/	4	1,950	487.5 Hz	4,610	1152.5 Hz
/nju-/	1	520	520.0 Hz	1,290	1290.0 Hz
/ŋu-/	9	4,320	480.0 Hz	9,690	1076.7 Hz
/yu-/	4	1,940	485.0 Hz	5,290	1322.5 Hz
Total /u/	60	29,130	485.5 Hz	67,270	1121.2 Hz



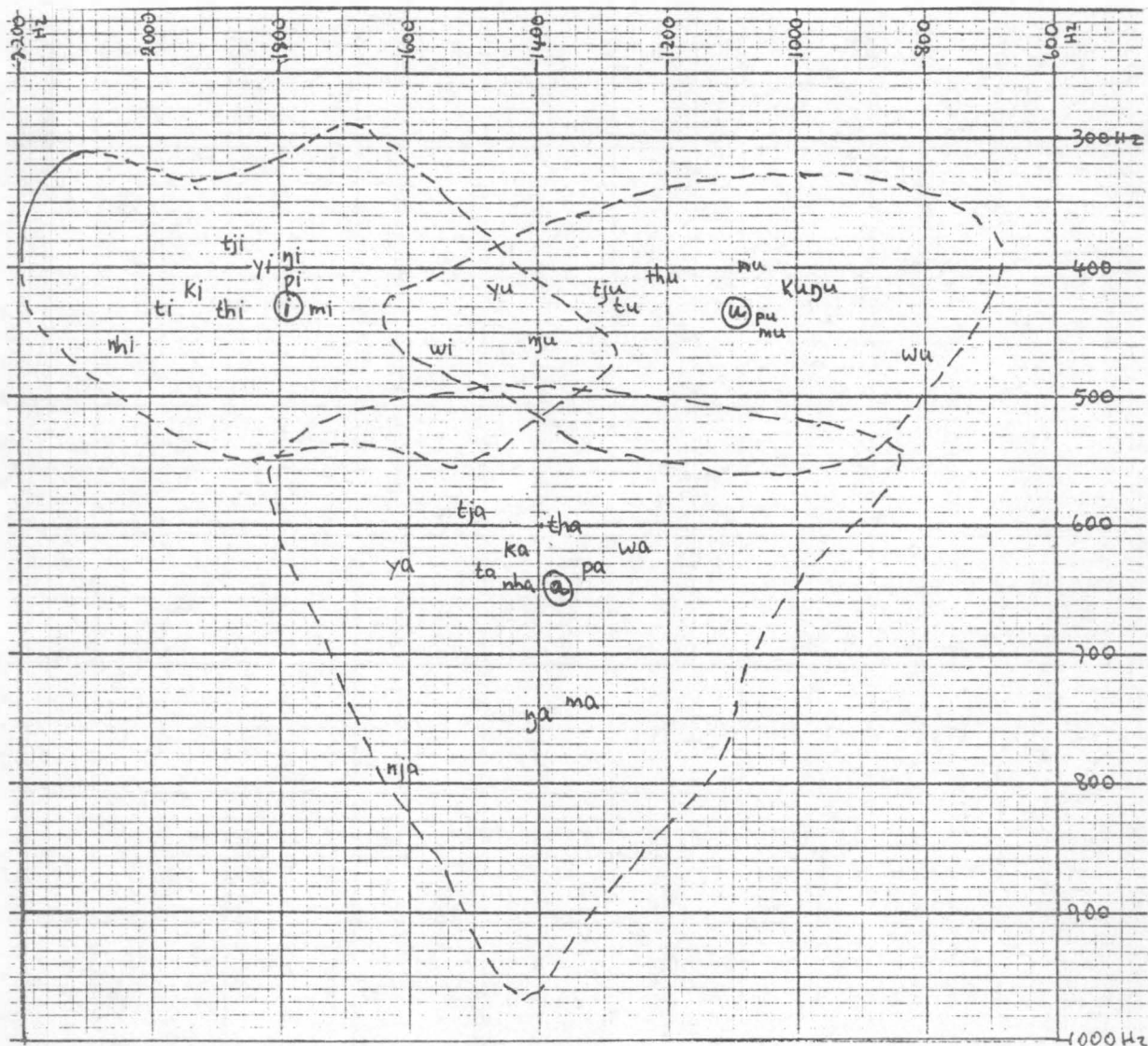


Figure 79

F1 x F2 mean plots for vowels of E. Murray in context with different initial consonants. Means are indicated within the combined speaker's spectrum envelopes, and the overall mean is indicated with a circle.

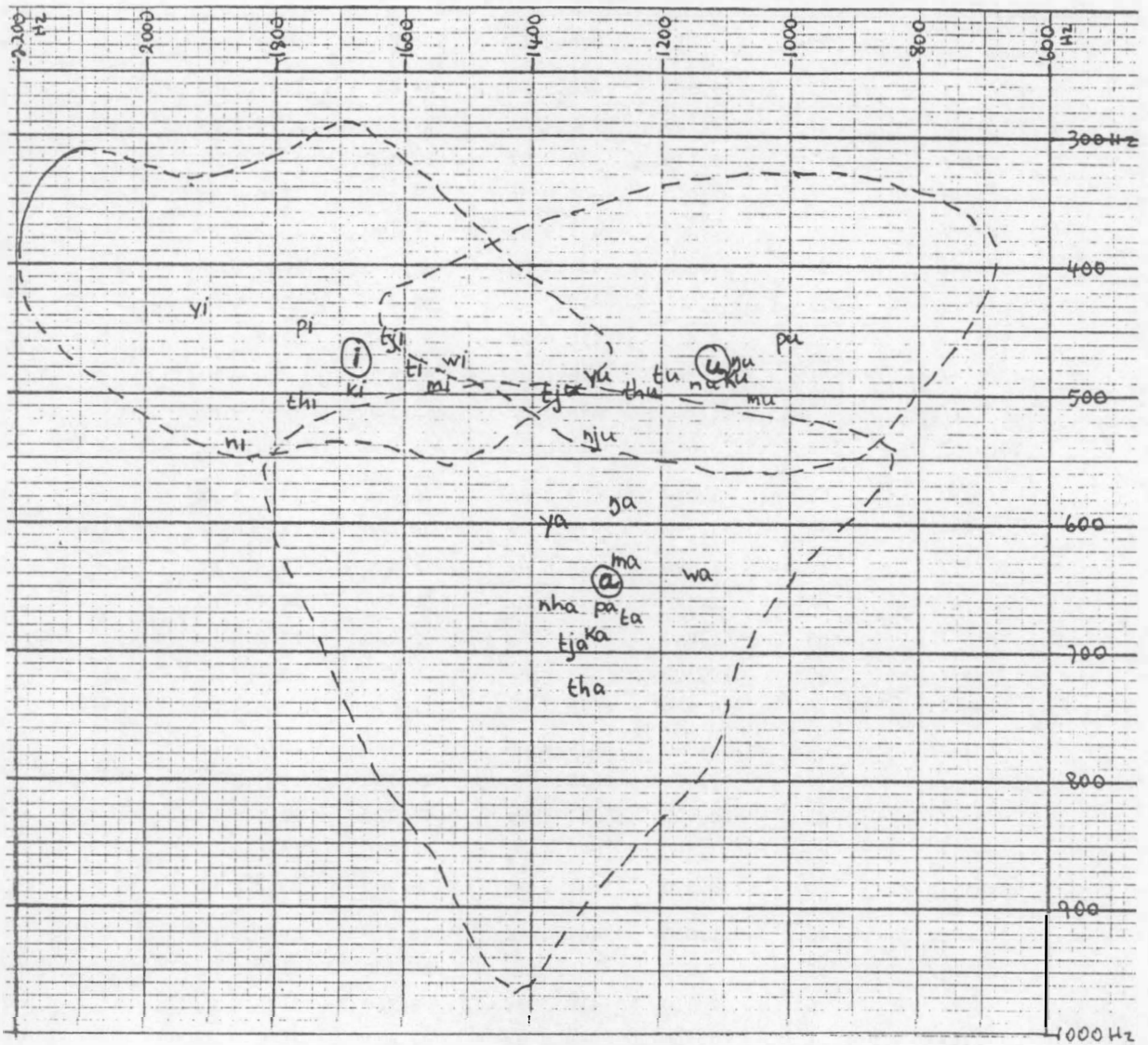


Figure 80

F1 x F2 mean plots for vowels of J. Carrot in context with different initial consonants. Means are indicated within the combined speaker's spectrum envelopes and the overall mean is indicated with a circle.

Table 13: Computations of the means of F1 and F2 for the contextual vowels of the totals for the three speakers

Consonant/ vowel sequence	No.	$\Sigma F1$	Mean F1	$\Sigma F2$	Mean F2
/pi-/	37	15,500	418.9 Hz	64,630	1746.8 Hz
/thi-/	17	7,790	458.2 Hz	29,630	1742.9 Hz
/ti-/	7	3,140	448.6 Hz	12,160	1737.1 Hz
/tji-/	5	2,010	402.0 Hz	9,190	1838.0 Hz
/ki-/	19	8,320	437.9 Hz	35,190	1852.1 Hz
/mi-/	27	11,660	432.2 Hz	46,170	1705.9 Hz
/nhi-/	11	4,600	418.2 Hz	20,720	1883.6 Hz
/nji-/	1	410	410.0 Hz	1790	1790.0 Hz
/wi-/	31	14,140	456.1 Hz	47,430	1530.0 Hz
/yi-/	8	3,110	388.7 Hz	15,120	1890.0 Hz
Total /i/	163	70,680	433.6 Hz	282,030	1730.2 Hz
/pa-/	58	38,240	659.3 Hz	76,010	1310.5 Hz
/tha-/	35	22,230	635.1 Hz	48,400	1382.6 Hz
/ta-/	13	7,990	614.6 Hz	18,490	1422.3 Hz
/tja-/	4	2,520	630.0 Hz	5,910	1477.5 Hz
/ka-/	66	41,840	633.9 Hz	92,980	1408.8 Hz
/ma-/	45	29,390	653.1 Hz	59,260	1316.9 Hz
/nha-/	16	10,250	640.6 Hz	21,770	1360.6 Hz
/nja-/	2	1,340	670.0 Hz	3,140	1570.0 Hz
/ŋa-/	57	37,470	657.4 Hz	77,750	1363.9 Hz
/wa-/	41	24,490	597.3 Hz	47,750	1164.6 Hz
/ya-/	23	13,580	590.4 Hz	34,750	1510.9 Hz
Total /a/	360	229,340	637.1 Hz	486,200	1350.6 Hz
/pu-/	47	21,010	447.0 Hz	48,270	1027.0 Hz
/thu-/	18	7,930	440.6 Hz	20,560	1142.2 Hz
/tu-/	6	2,510	418.3 Hz	6,760	1126.7 Hz
/tju-/	6	2,760	460.0 Hz	7,810	1301.7 Hz
/ku-/	58	25,280	435.9 Hz	56,760	978.6 Hz
/mu-/	38	17,350	456.6 Hz	37,970	999.2 Hz
/nhu-/	13	5,680	436.9 Hz	13,490	1037.7 Hz
/nju-/	3	1,380	460.0 Hz	3,750	1250.0 Hz
/ u-/	30	13,260	442.0 Hz	20,800	993.3 Hz
/wu-/	3	1,270	423.3 Hz	2,630	876.7 Hz
/yu-/	16	6,670	416.9 Hz	20,670	1291.9 Hz
Total /u/	238	105,100	441.6 Hz	248,470	1044.0 Hz

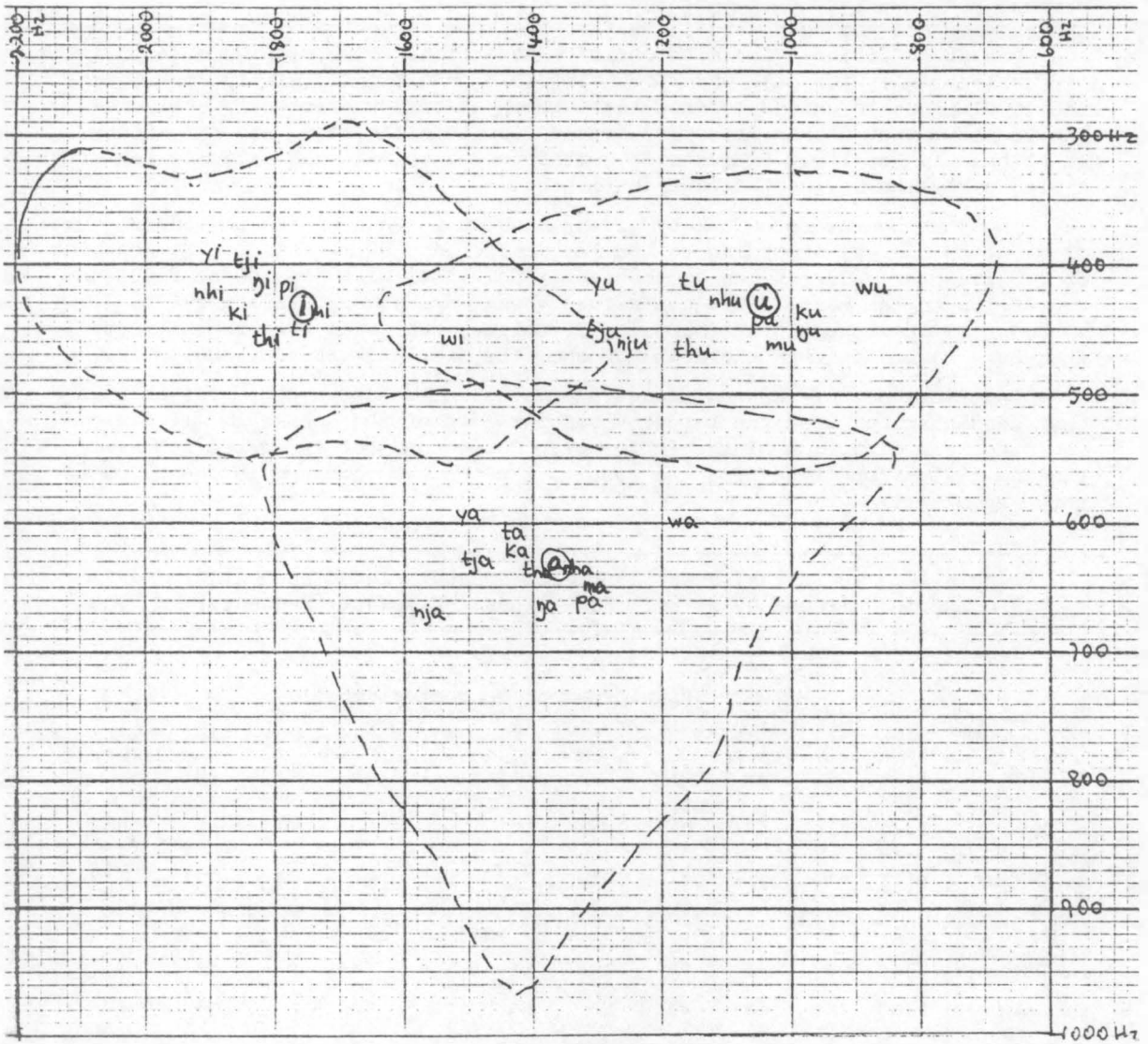


Figure 81

Vowel plots of F1 x F2 for the combined contextual means. The means calculated regardless to context are included, and indicated with a circle.

The rearrangement of the data in order to include preceding environment in the assessment of the target vowel produced some interesting results. It becomes obvious that the target is influenced by a preceding consonant. Though some of the samples are not very large, the fact that the target value is assessed under two sets of conditions<sup>39</sup> permits positive assertions to be made when the results are substantially the same under the different conditions. Simply looking at the vowel plots is enough to show that alveo-palatals consistently influence the vowel so that it has higher F2 frequencies than the mean, and /w/ affects it so that it has lower frequencies, but in order to make the evidence measurable, a simple ranking device has been instituted.

The ranking has been done by giving a value to each of the contextual vowels from one to twelve, according to the frequency count of F1 and F2. The ranking of F1 gives the value of one to the contextual vowel with the lowest frequency count, two to the next lowest contextual vowel, and so on, till they are all ranked. F2 is ranked in the opposite direction, the vowel with the highest frequency count is given the value of one, the next highest two, and so on.

The first set of ranking scales indicates the relative degree of influence each consonant has upon the target vowel for each of the speakers. It also indicates the direction of the influence. The second set indicates the same ranking system, but this time the results include the combined influence of the three speakers.

Table 14: Contextual vowels for each speaker ranked according to the mean frequency of F1. Rank 1 has the lowest frequency.

/i/												
Rank order of contextual vowels												
	1	2	3	4	5	6	7	8	9	10	11	12
A. Edwards	tji	nhi	mi	pi		/i/*	ki	wi	ti	thi		
E. Murray	tji	yi		pi	ki	thi	ti /i/		mi	wi	nhi	
J. Carrot	yi	pi	tji	ti	wi	/i/	mi	ki	thi	nhi		
/a/												
A. Edwards	nja	ya	wa	ta	tha	ka	tja	/a/	nha	ma	ŋa	pa
E. Murray	tja	tha	ka	wa	ya	pa	ta	nha	/a/	ma	ŋa	nja
J. Carrot	ŋa	ya	ma	wa	/a/	nha	pa	ta	ka	tja	tha	
/u/												
A. Edwards	yu	tu	nju wu		ku	nhu	ŋu	/u/	mu	tju	pu	thu
E. Murray	nhu	thu	ŋu ku		yu	/u/	tu	tju	pu	mu	nju	wu
J. Carrot	pu	ŋu	yu	/u/	nhu	tu	ku	thu	tju	mu	nju	

\* Vowel in phonemic brackets represents the mean average for the vowel without regard to context.



Table 15: Contextual vowels for each speaker ranked according to the mean frequency of F2. Rank 1 has the highest frequency.

/i/												
Rank order of contextual vowels												
	1	2	3	4	5	6	7	8	9	10	11	12
A. Edwards	yi	tji	nhi	ki	mi thi			/i/	pi	ti	wi	
E. Murray	nhi	ti	ki	thi	tji	yi		pi	/i/	mi	wi	
J. Carrot	yi	nhi	thi pi		ki	/i/	tji	ti	mi	wi		
/a/												
A. Edwards	nja ya		tja	ta	ka	tha	nha ɲa		/a/	ma	pa	wa
E. Murray	nja ya		tja	ta	ka nha		ɲa	/a/	tha	ma	pa	wa
J. Carrot	ya	nha	tja	tha	ka	pa	/a/	ɲa ma		ta	wa	
/u/												
A. Edwards	tju	yu	nju tu		thu	pu	/u/	ɲu	mu	ku	nhu	wu
E. Murray	yu	nju	tju	tu	thu	/u/	nhu	pu mu		ku	ɲu	wu
J. Carrot	tju	yu	nju	thu	tu	nhu	/u/	ku	ɲu	mu	pu	

Ranking the contextual vowels to minimise any idiosyncratic factors of the speakers, is done by adding the rank scores of each speaker for the same contextual vowel, and dividing by the number of speakers.

Table 16

Scales, based on computations of individual vowel rankings, measuring degree of influence of preceding consonant on F1 of target vowel, and the direction of that influence.

/i/											
				/i/t		w					
ytj		p		ɲ		m k		nh		th	
:	:	:	:	:	:	:	:	:	:	:	:
1	2	3	4	5	6	7	8	9	10	11	12



Conclusions based on the results of the ranking orders and the ranking scales agree with the visual impressions given when observing Figures 72-81, i.e. some consonants affect the target value of a following vowel. Particularly noticeable is the fact that alveo-palatals and /w/ strongly influence the target value of F2 of the vowel. Alveo-palatals raise the Herz value and /w/ lowers it. Alveo-palatals have less influence on /i/, presumably because this phoneme already has a high Herz value for F2, but the ranking of the vowels influenced by these consonants are considerably higher than the ranking of the means for the vowels when their context is ignored.

The ranking scale for /a/ reveals that /y/ and /w/ also have a strong influence upon its first formant. The rest of the consonants have little effect upon the formant but the two semivowels consistently lower its Herz value.

The influence alveo-palatals and /w/ have upon the vowel target can be seen if the vowels containing them are extracted from the data. Figure 82 shows scattergrams and envelopes of the vowels for the three speakers when they follow alveo-palatals, and Figure 83 shows them when they follow /w/. Figures 84 and 85 show the same information in the form of combined envelopes within the total spectrum envelope. Figures 86-88 consist of scattergrams for the vowels when those which occur following /w/ or an alveo-palatal are excluded, and Figure 89 shows this information in the form of individual envelopes superimposed on each other. Figure 90 shows the relationship of the combined reduced vowel envelopes to that of the complete spectrum envelope. It is to be noted that with this exclusion there is no overlap of the envelopes of the three vowels, nor is there any overlap for the vowels following /w/, or the vowels following alveo-palatals.

The conclusion that can be made from this evidence is that initial consonants, particularly /w/ and alveo-palatals, influence the target value of a following vowel and this has a conditioning effect upon the speakers and hearers of Diari so that considerable variation in the formant structures is tolerated provided that the movement is between the consonant locus and the mean for the vowel. Should the variation extend beyond the mean to any appreciable degree there would be danger of the contextual vowel phoneme being confused with another vowel phoneme in the same context. For instance, if F2 of /i/ following /y/ moves beyond the mean of /i/ by 150 Hz in the opposite direction of the locus of /y/ (c2200 Hz) the vowel will be intruding into the range of possibilities of /u/ in the context /yu.../.

#### 4.7 The influence of the following context upon the vowel target

The fact that a preceding initial consonant influences the target value of a following vowel leads one to expect that a following consonant would have a similar effect. A detailed examination of this proposition is difficult with the limited data available. Instead of eleven consonants being associated with the vowels as is the case for word initial consonants any of the twenty-two Diari consonants may follow an initial syllable's vowel<sup>40</sup>. This reduces by half the number of times a vowel can be expected to occur with any one consonant. Nevertheless, there is enough information to check for any tendencies. In Figure 81 it can be seen that the mean average plots for vowels preceded by /p/ remain close to the means for the vowels when they are calculated without regard to context, yet, as Figure 91 reveals, plots for all instances of /i/ following /p/ for A. Edwards, show a great deal of variation.

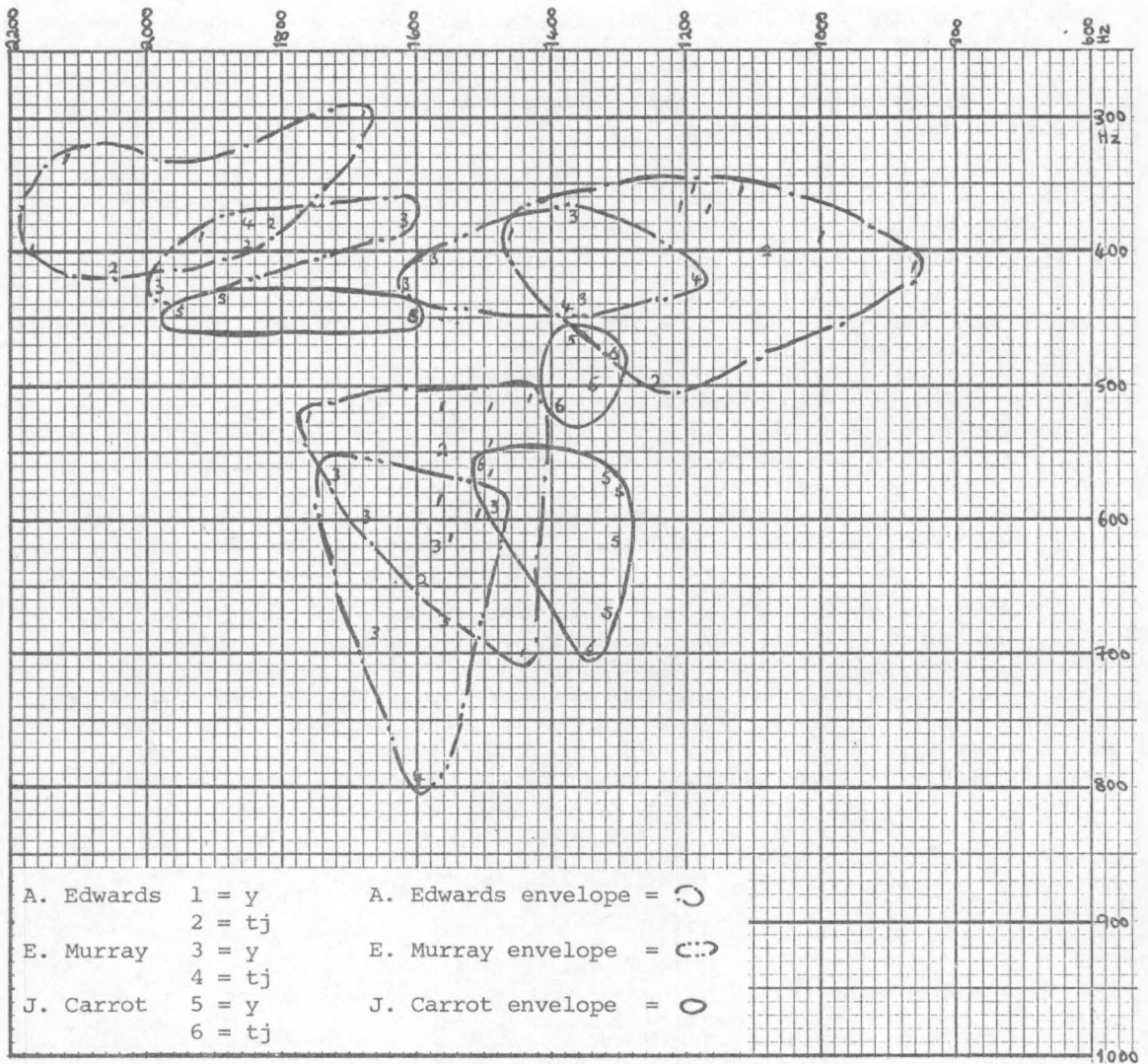


Figure 82

Scattergrams and spectrum envelopes for /i/, /a/, and /u/, in context with preceding alveo-palatals.

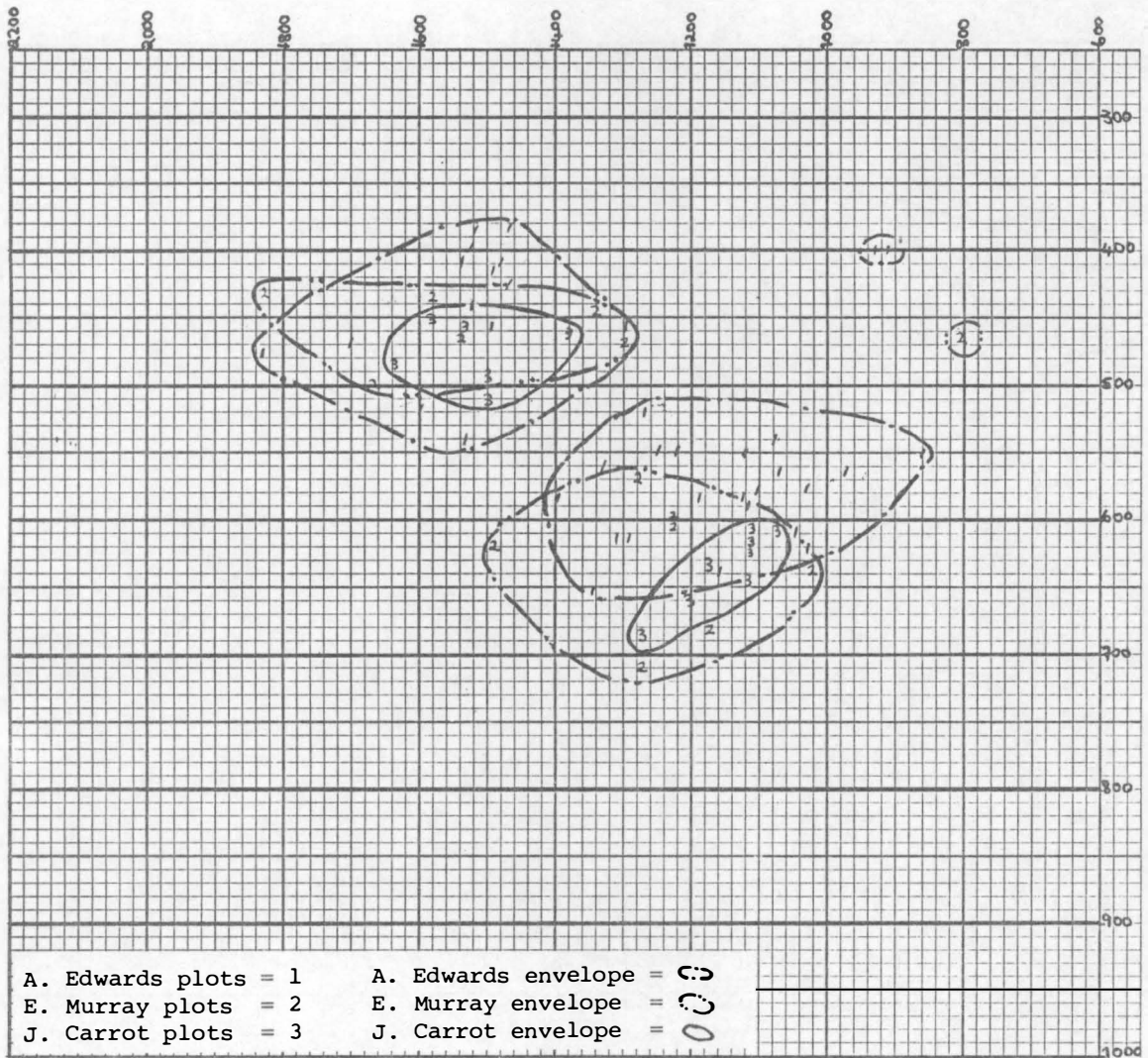


Figure 83

Scattergrams and spectrum envelopes for /i/, /a/, and /u/, in context with preceding /w/.

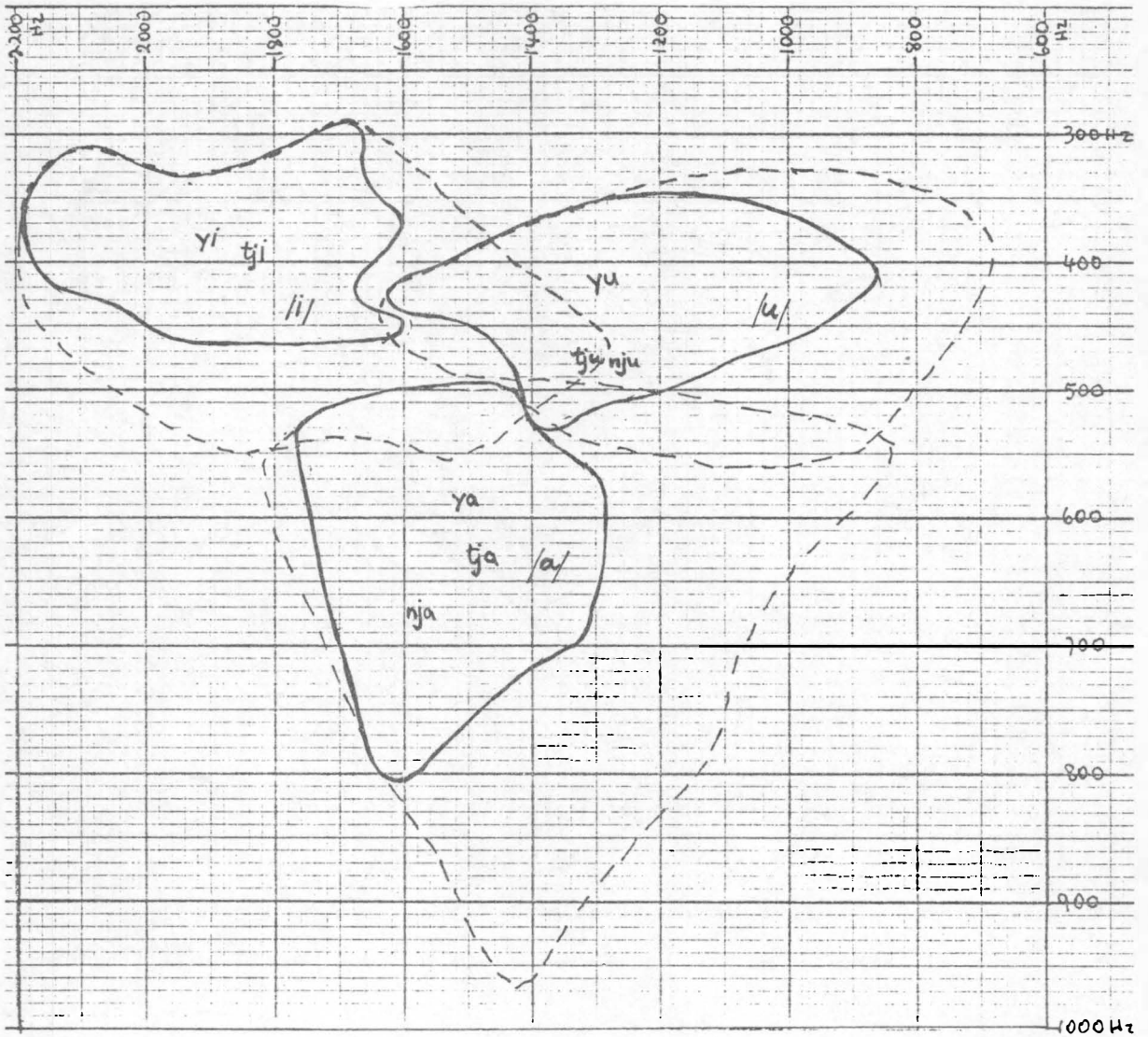


Figure 84

Spectrum envelopes, of the three speakers combined, for /i/, /a/, and /u/ in context with preceding alveo-palatals, superimposed on the non-contextual spectrum envelope. Mean average plots for contextual vowels are indicated, together with the non-context mean.

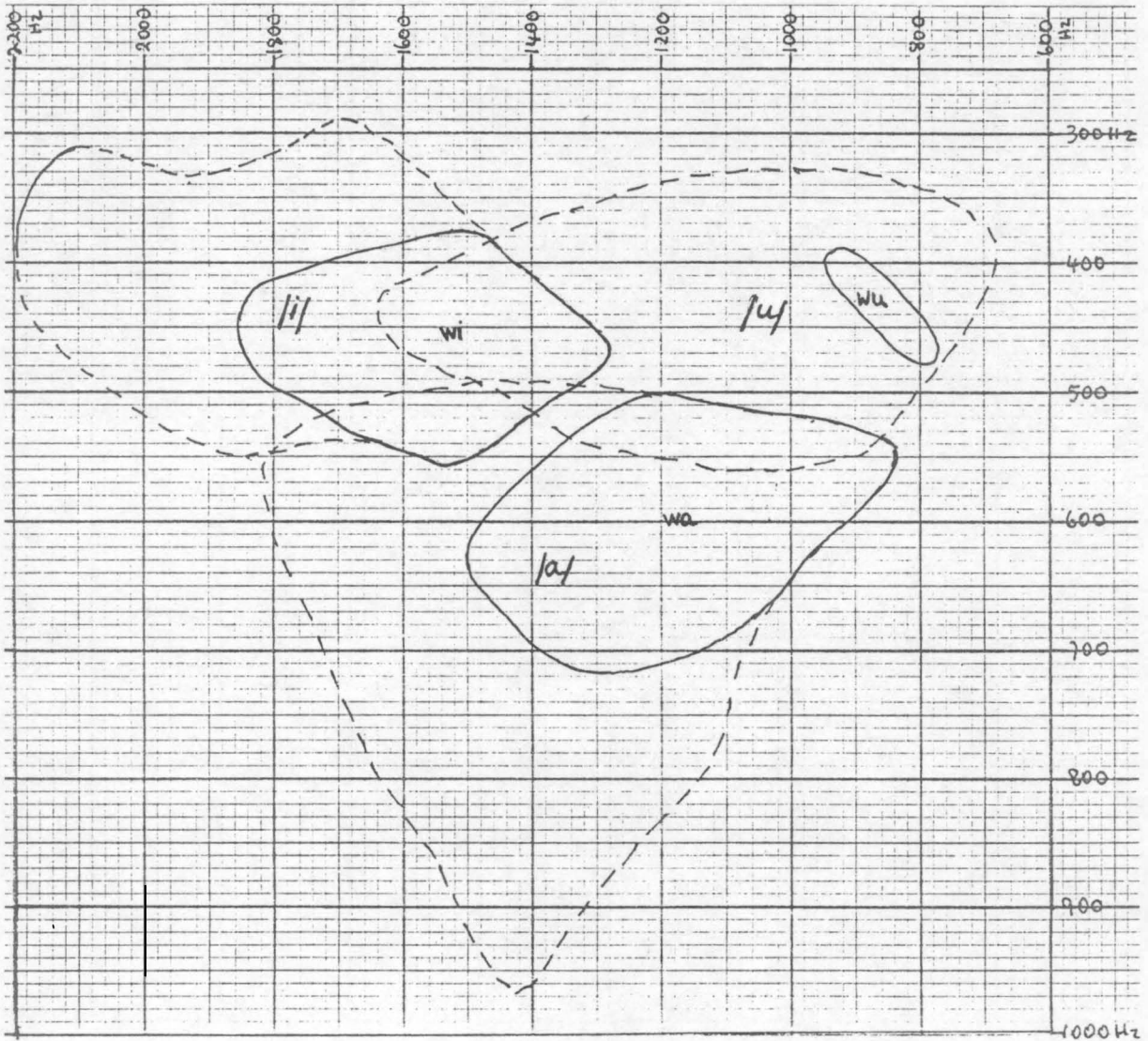


Figure 85

Spectrum envelopes, of the three speakers combined, for /i/, /a/, and /u/ in context with preceding /w/, superimposed on the non-contextual spectrum envelope. Mean average plots for contextual vowels are indicated, together with the non-context mean.

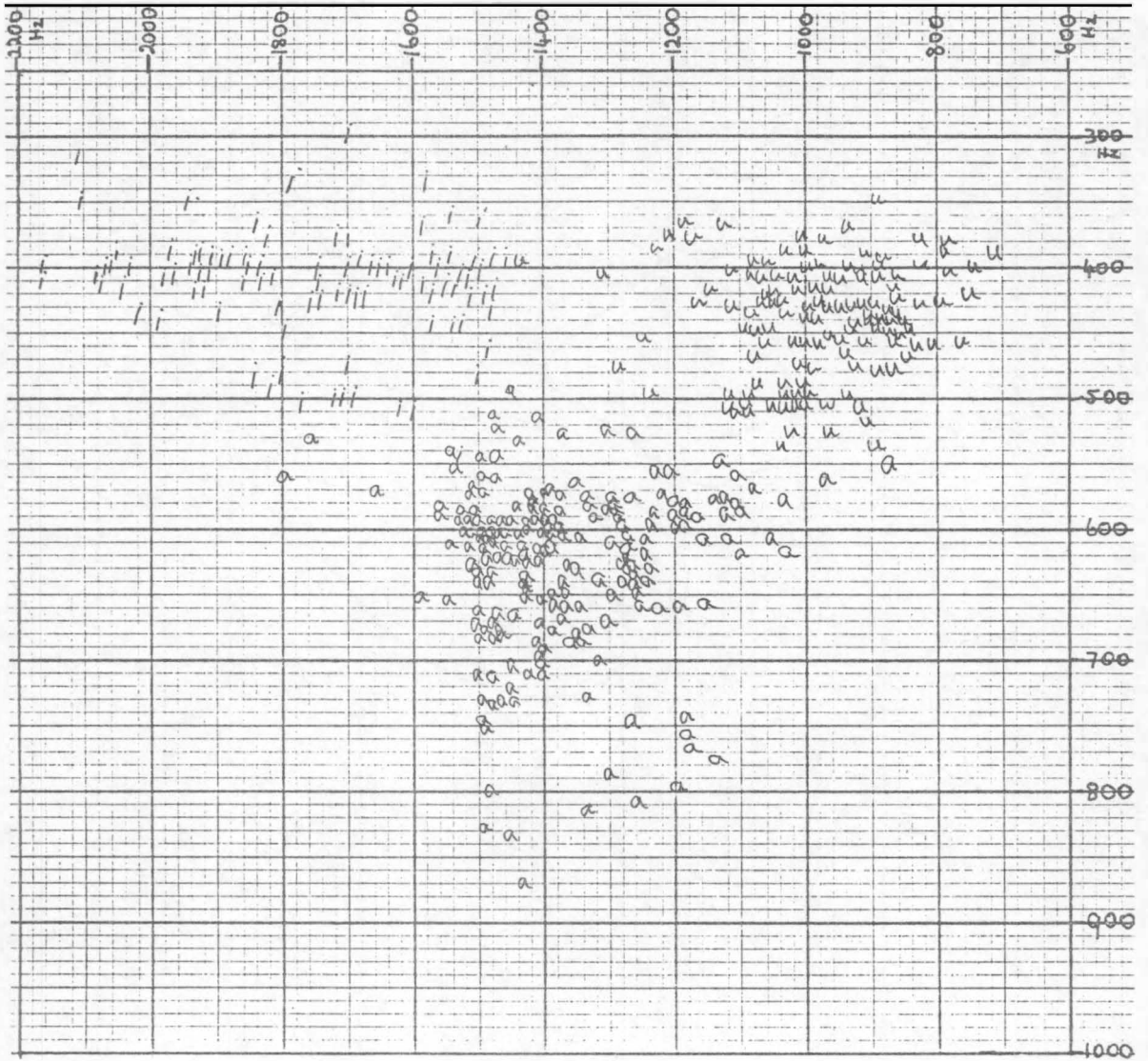


Figure 86

Reduced scattergram of vowel targets for A. Edwards. Reduction due to removal of vowels following alveopalatals or /w/.



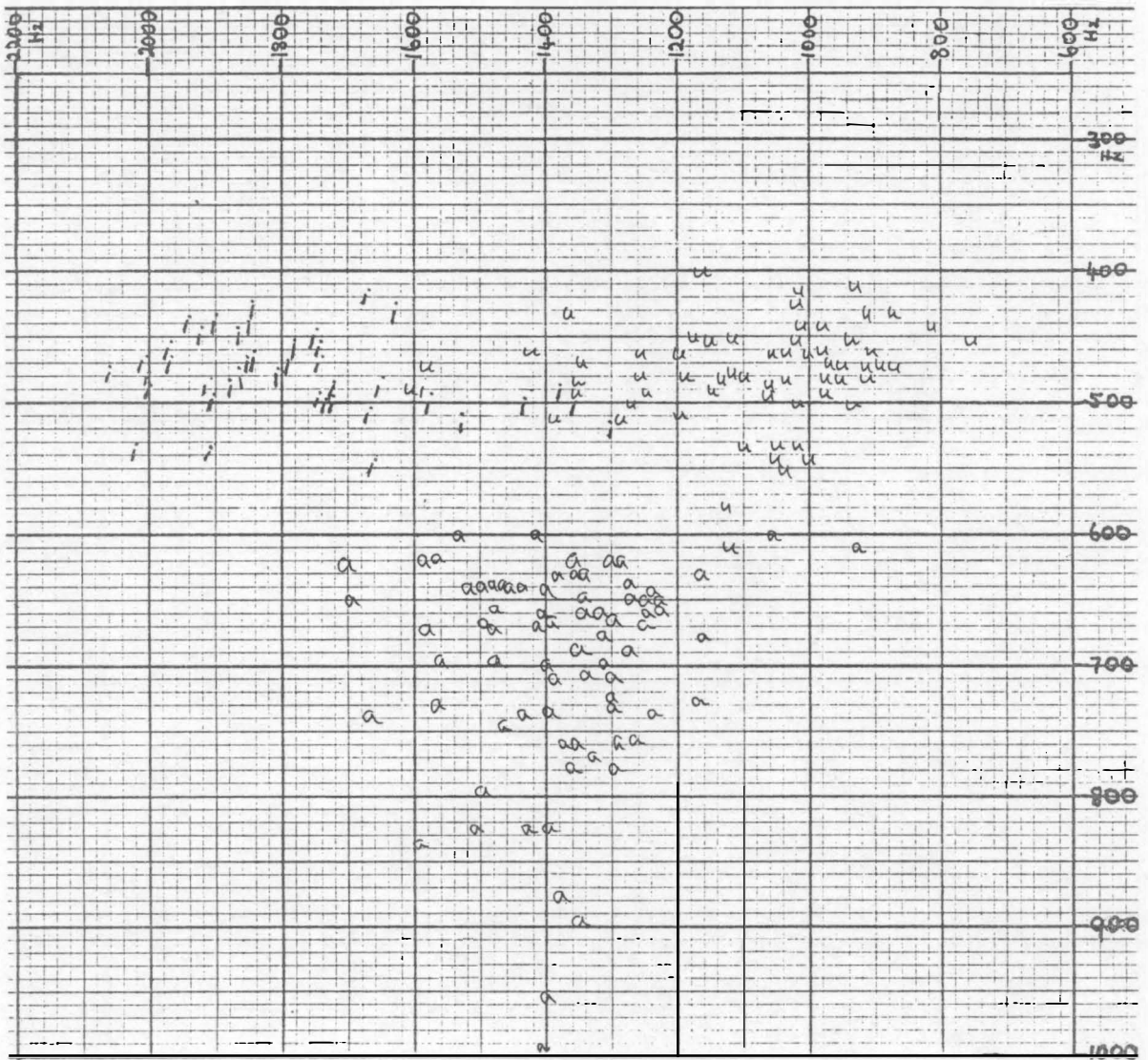


Figure 87

Reduced scattergram of vowel targets for E. Murray. Reduction due to removal of vowels following alveo-palatals or /w/.

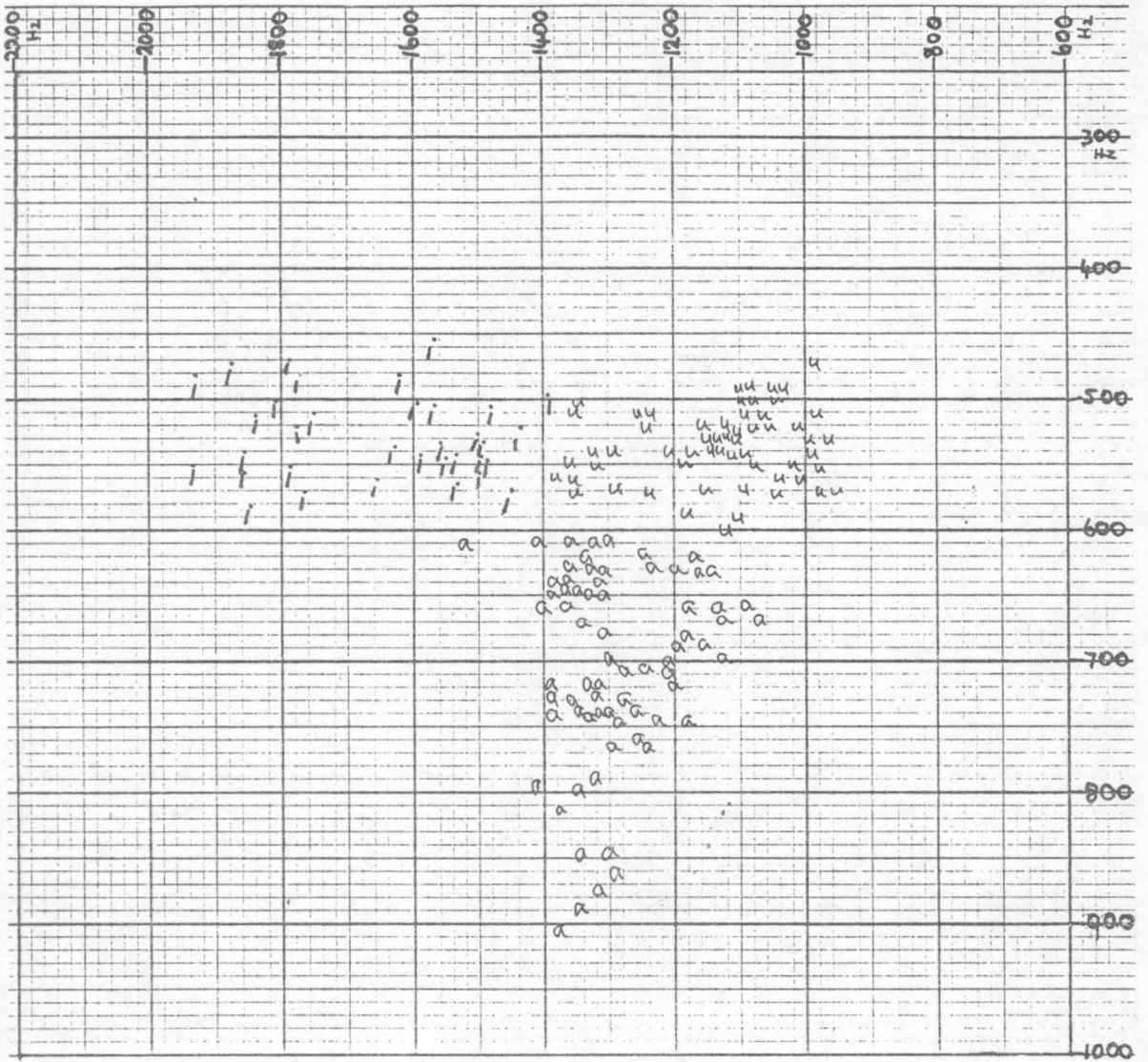


Figure 88

Reduced scattergram of vowel targets for J. Carrot.  
 Reduction due to removal of vowels following alveo-  
 palatals or /w/.

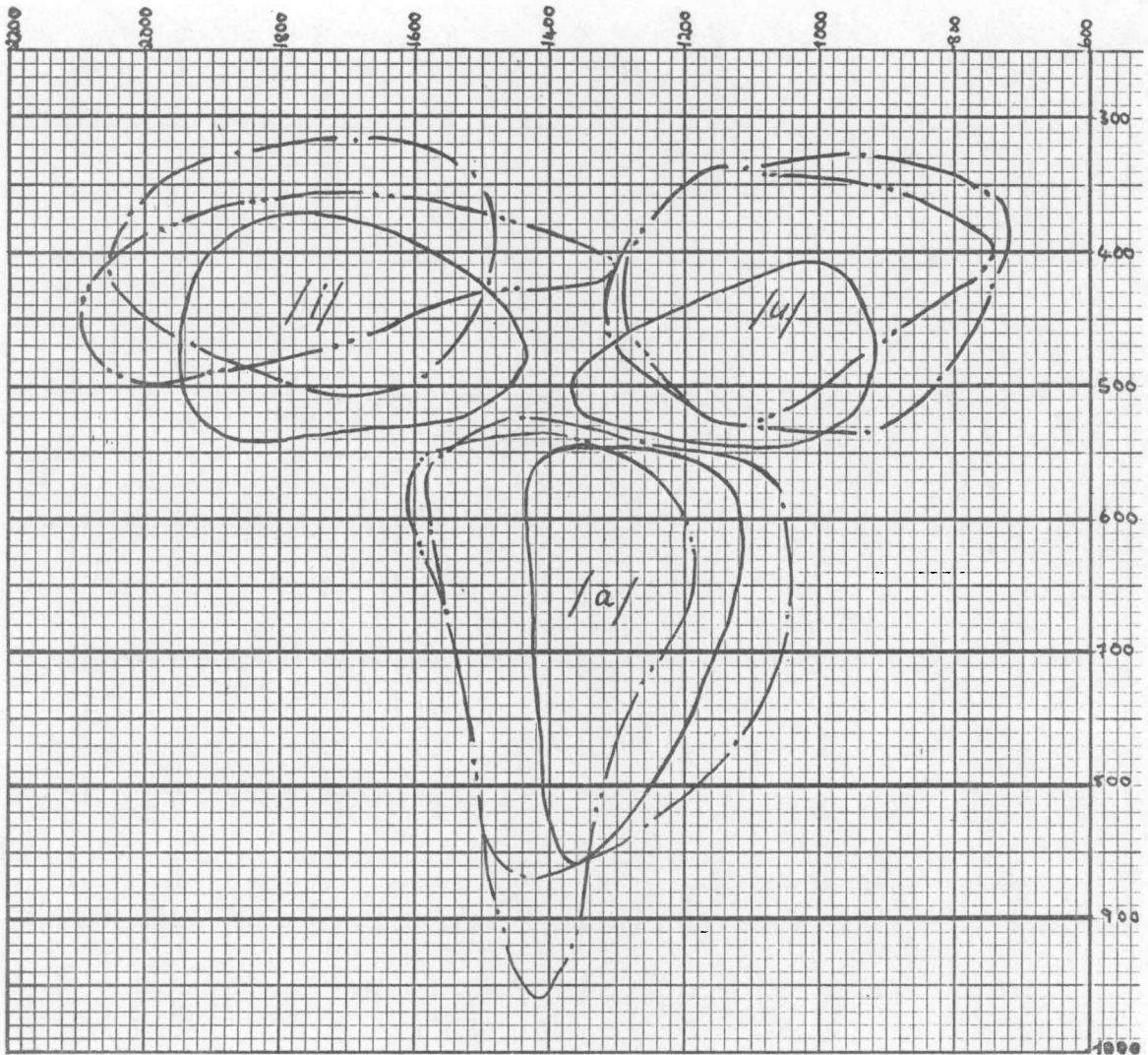


Figure 89

Spectrum envelopes for /i/, /a/, and /u/ after the removal of the vowels which are preceded by alveo-palatals or /w/.

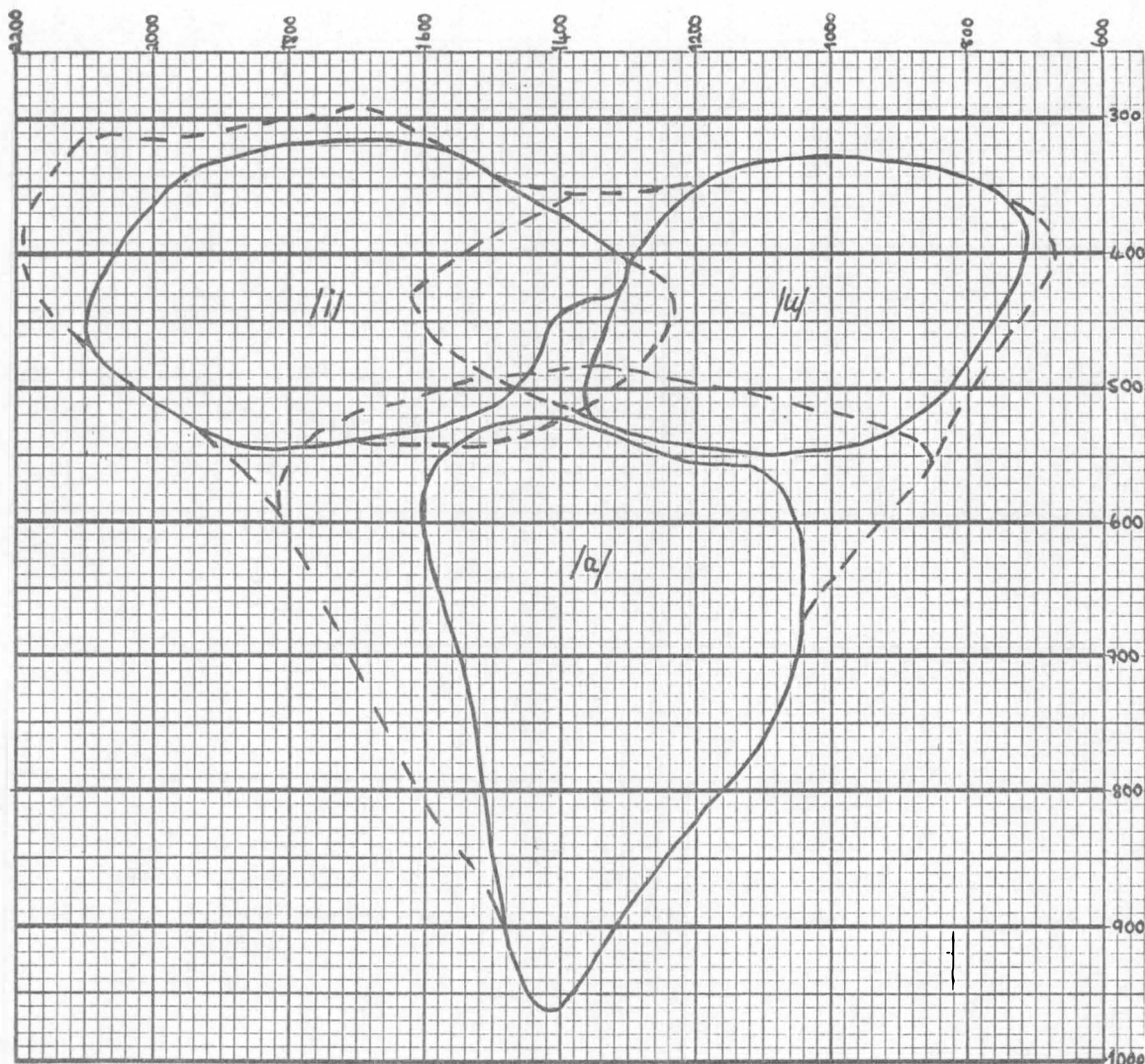


Figure 90

Reduced spectrum envelopes, of the three speakers combined, for /i/, /a/, and /u/, superimposed on unreduced ones.

The two instances of /pirr../, /pirra/ *coolamin* and /pirri/ *chisel* both occur with an F2 reading 200 Hz lower than the mean for Edwards' /i/ phoneme, whereas /pi../ preceding the alveo-palatals /nj/ and /tj/ is 200-300 Hz higher than the mean. Figures 92 and 93 indicating the plots of these combinations for Murray and Carrot, show that they also occur far from the mean. (Means for these contextual vowels are calculated in Table 19.) Earlier it was seen that initial alveo-palatals raise the frequency of F2, now it is seen that a following alveo-palatal has the same effect.

It is interesting to note that the one occurrence of /lj/ following /pi../ does not appear to influence the vowel target in the way the other alveo-palatals do. The reason for this is perhaps due to the fact that it is a lateral. In Figure 91 it can be seen that /...l/ has a tendency to lower the frequency of F2, though not as decisively as /..rr/. The plots shown in Figure 94 support this observation for it can be seen that the F2 of all speakers for /..il/ is generally lower than the mean. Thus, it seems that laterality has a moderate tendency to lower the F2 reading of the vowel target, and this tends to neutralise the effect that alveo-palatalisation has upon it. /lj/ therefore tends to be less radical than either /tj/ or /l/.

From this small amount of evidence it seems possible to expect that following consonants affect the vowel target as effectively as preceding ones do, and this results in considerable variation for the vowel target even when the initial consonant is kept constant.

Table 19

Calculations for determining mean plots  
of /..irr/, /..il/, and /pi<sub>nj</sub><sup>tj</sup>../.

/..il/	
N	- 23
ΣF1	- 9,310
Mean F1	- 404.8 Hz
ΣF2	- 38,710
Mean F2	- 1683.0 Hz

/..irr/	
N	- 12
ΣF1	- 5,400
Mean F1	- 450.0 Hz
ΣF2	- 19,260
Mean F2	- 1605.0 Hz

/pi <sub>nj</sub> <sup>tj</sup> ../	
N	- 7
ΣF1	- 2,910
Mean F1	- 415.7 Hz
ΣF2	- 13,090
Mean F2	- 1870.0 Hz

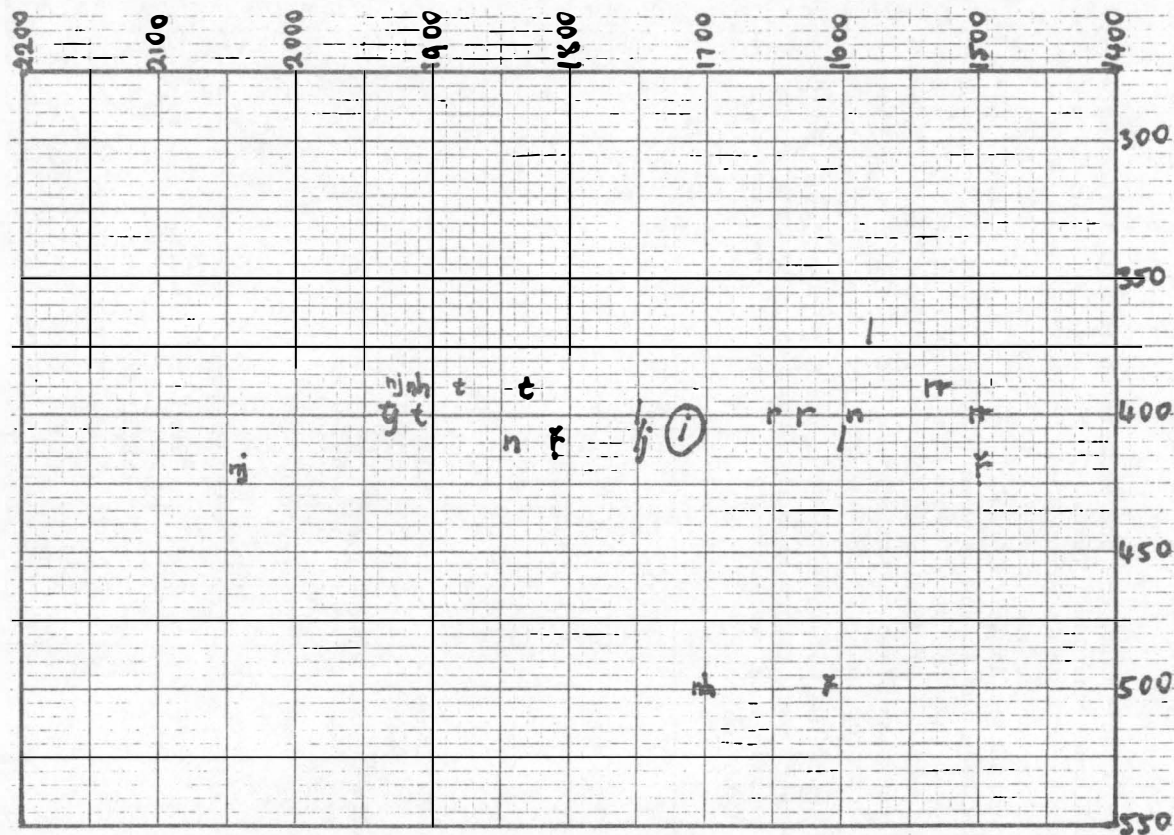


Figure 91

F1 x F2 plots of /pi../ when spoken by A. Edwards

Each vowel plot is indicated by the consonant which follows it in that particular word.

The mean for the plots in the scattergram is indicated with a circle.

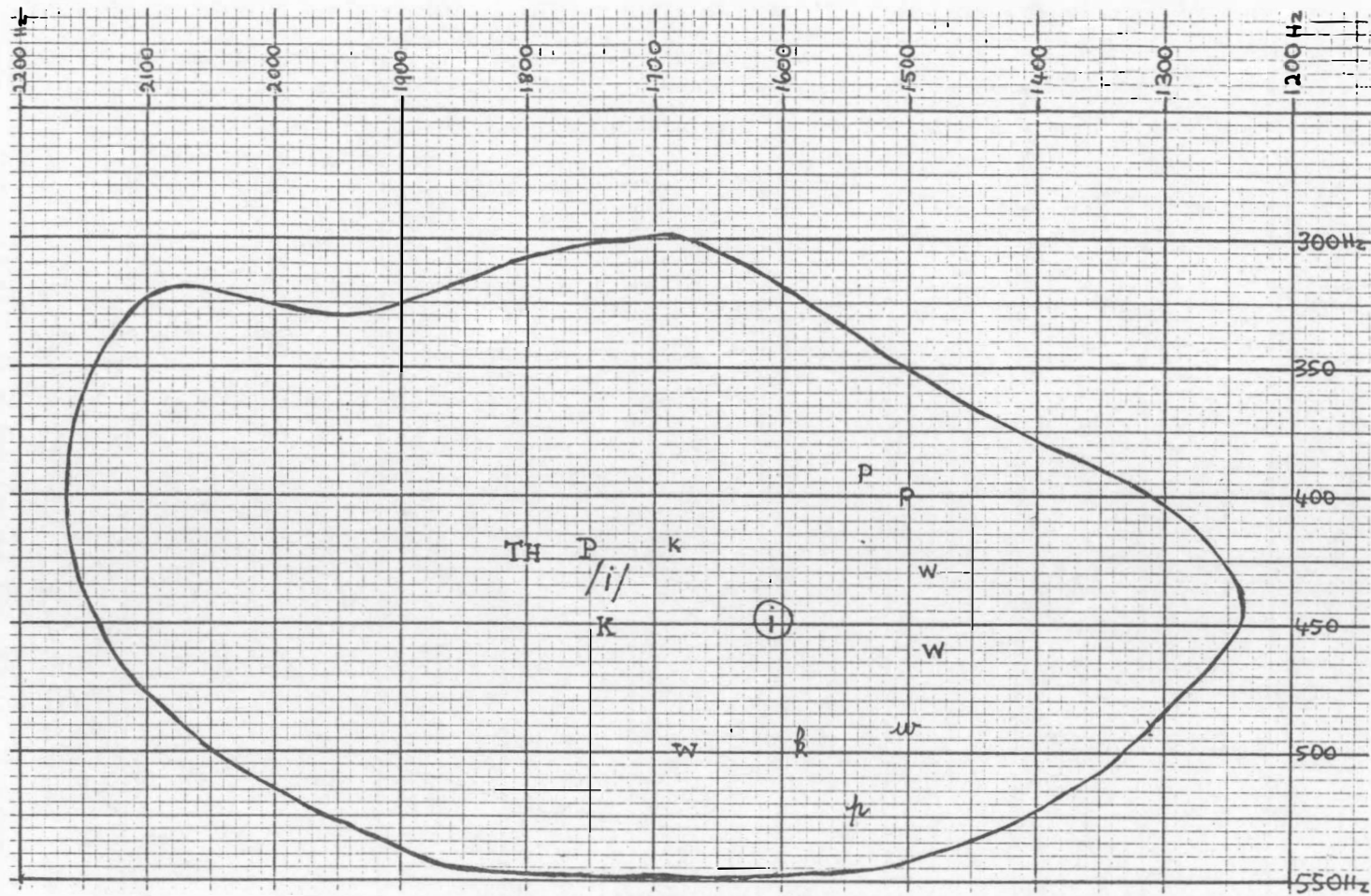


Figure 92

F1 x F2 plots of /..irr/ enclosed in the /i/ spectrum envelope.  
 Vowel plot indicated by its preceding consonant.  
 Average mean of vowel indicated by /i/, mean for /..irr/ indicated by  $\textcircled{i}$ .  
 A. Edwards plots *w*, *p*. E. Murray plots *w*, *p*. J. Carrot plots *w*, *p*







## 5. CONCLUSION

Diari, a language of eastern Lake Eyre, has shown itself to be typically Australian in its phonological system. Its five vowels contain the three basic Australian vocalics plus two diphthongs. All of the consonants with the possible exception of the variants [d̥] and [d̪] are widespread in their occurrence over the Australian continent, and the parallel system of stops and nasals which is a feature of Diari, is also a feature of Australian languages in general. The fact that all six stops and nasals occur in the same language is less general but typical of the region.

One feature of Diari is uncharacteristic of Australian languages. A number of languages have the three rhotics [r], [ʀ], and [rr] combining in different ways to produce two phonemes. In Diari the segments are each phonemes in their own right.

Another feature of Diari which is not widespread concerns the CV pattern of words. It is similar to many Australian languages in that there are strict limits to the CVC patterns which may occur and within those limits there are further constraints on which sequences of consonants may occur in a CC cluster. Its difference relates to the word final syllable. In Diari all words must end in vowels whereas in the majority of Australian languages there are limitations on which consonants occur word finally but some of them will occur.

The considerable range in the degree of allophonic variation found in Diari vowels is to be expected in a three-vowel phonological system. Some of the variation is free in the sense that it is not controlled by the linguistic system but is more to do with the physiological facts of speech, but other variation is due to the system and is the result of the effect each segment has upon its neighbour. The further an adjacent consonant's loci is from the norm for a vowel's target the more likely will the phonetic realisation of that vowel be divergent from its norm, the divergence being in the direction of the consonant's loci.

## NOTES

1. There are at least eight other spellings for the name of the dialect, e.g. Deerie, Dieyerie, Diyari, Diyeri, Dieyrie, Dijari, Dyeri and Dieri. See W.J. and L.F. Oates, 1970, and P.K. Austin, 1978. Diari is the name adopted in this work (also the name used by J.G. Reuther in his grammar of 1899), based on perceptual phoneme principles given in Trefry 1974. Austin (1981) spells the name 'Diyari' using a different set of principles.
2. Breen 1971, and Austin 1981.
3. George Murray, the eldest, and Ern, were Diari speakers, the youngest, a half-brother, Ben, had Arabana as his first language and was not used as a subject in my acoustic study. In the absence of his brothers he subsequently became a major informant for Austin and proved to be a fluent speaker of Diari.
4. This only included those who lived between Cooper's Creek and Port Augusta. G. Breen from Monash University has reported two other speakers in the Birdsville area. Subsequent to my study, P. Austin (1978) names four other male speakers in the Port Augusta - Maree region. Two of these speakers I met, another, Mr Alfie Harris, was pointed out to me, but not as a Diari speaker. The fourth, Mr Jimmy Russel I had no knowledge of, though, as it turns out he is a son of one of my informants. Of the two men I met, Ben Murray I have mentioned (note 3), and Mr Mick Mclean whom I met in Port Augusta would not admit to knowing sufficient Diari to act as a language consultant in that language. He was, I believe, fully conversant in Warḱaḱuru.  
  
There was also a number of female speakers of Diari but unfortunately, the 400 Hz bandwidth speech spectrograph used for the analysis was not able to display the formant patterns of the relatively high Herz frequencies of women's voices.
5. The term 'breath pulse' is used instead of 'chest pulse' in order to avoid the physiological implications generated by the use of that term.
6. A.C. Gimson 1962, p.52.
7. The terms vocoid and contoid are taken from Pike (1967:372). They are used to prevent confusion between physiologically and phonologically based uses of the terms vowel and consonant. The latter two terms are only used for phonologically interpreted sounds.

8. See Pike, 1947:60ff.
9. 'O' stands for 'onset', 'N' stands for 'nucleus' and 'C' stands for 'coda'.
10. It is of interest to note that all previous writers on Diari have written the sequence [lř] and [nr] as [ldr] and [ndr]. In my field notes I have also recorded the sequence as a three consonant cluster. Phonetically, a flap [ř], or the initial occlusion of a trill [ř] will differ from a [d] only by the differences in the duration of that occlusion. Other factors, such as the degree, or the place of intensity of air turbulence at the release of the occlusion may give interpretive cues for identifying the occlusion as one of several phonemic possibilities.

A spectrographic spot check on the duration of the first occlusion for [ř] following [l] and [n] in Diari is interesting. Fourteen words repeated three times were taken from the Edwards word list. Seven words contained the medial sequence [lř] and seven words [nř]. The following table indicates, in centi-seconds, the duration of the first occlusion of [ř] in these medial clusters.

Word	Duration in centi-secs of each repetition of words containing [lř]		
	1	2	3
/kalřa/	3.1	3.1	1.8
/walřa/	2.8	1.3	2.0
/wulřu/	2.6	1.8	1.3
/kalři/	3.0	4.0	4.2
/palřu/	2.0	3.0	3.1
/kalřu/	5.0	3.0	3.4
/yilři/	1.2	3.0	3.0
	Range of duration = 1.2 - 5.0		
	Mean = 2.7		

Word	Duration in centi-secs of each repetition of words containing [nr]		
	1	2	3
/wanřa/	1.6	2.2	2.0
/winři/	1.8	1.6	1.8
/yunřu/	1.6	2.4	2.0
/ninři/	2.5	3.0	4.0
/minři/	2.0	1.5	3.1
/kanři/	5.0	5.1	5.0
/panřa/	2.0	2.1	1.9
	Range of duration = 1.5 - 5.1		
	Mean = 2.6		

If these figures are compared with those in Tables 5 and 6 it will be seen that the duration of the first occlusion in the sequences [lř] and [nř] correlate with [ř] not with the stop phoneme. Also, as the intensity tracing (i.e. the top one) in Figure 6 reveals, there is no significant difference between the duration of the first occlusion of the trill and the subsequent ones.

From the evidence above, it can be seen that systematically it is vacuous to argue for the adoption of the more complex sequences [ldr] and [ndr]. The inclusion of these expanded clusters has led Austin (1981) to postulate a phoneme /d/ though it has no unequivocal phonetic reality.

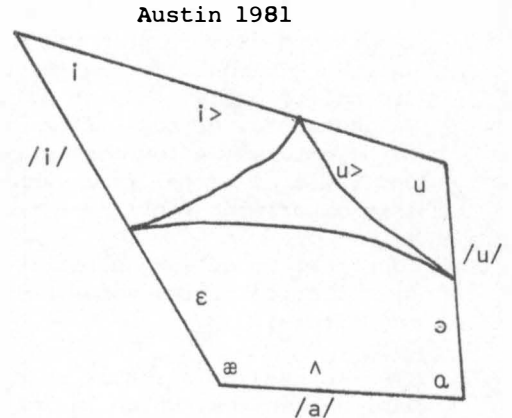
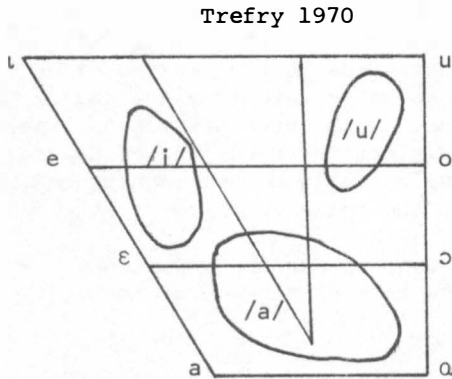
The question could be asked why it is that 'd' is usually heard in the sequence if there is no systematic reason for its inclusion. It seems to me that the answer is concerned with interpretation cues of the /d/ phoneme in English and other similar languages containing an intervocalic sequence /nd/ or /ld/. According to Fry (1979) English stop consonants range between 7 and 14 centi-seconds. There does not seem to have been any systematic study of the consonants occurring intervocalically in association with /l/ or /n/, (M. Haggard 1972 and D. O'Shaughnessy 1974 have done studies of clusters word initially and word finally) so I did a spot check by producing 10 spectrograms of English words containing intervocalic /ld/ and /nd/ and then measured the duration of the occlusion. The occlusion ranged from 0 - 4 centi-seconds in duration (the zero reading was for 'kinder', where the nasal resonance formant extended to the point of release of the /d/). In other words, in English we do not rely on the stop occlusion for identifying a /d/ following /n/ or /l/ but make the required interpretation from the burst of energy at the release of the cluster. It is therefore not surprising that English speakers (or speakers of languages with similar clusters) will hear the Diari sequence of [n̥] and [l̥] as [nd̥] and [ld̥].

11. This, in fact, is what Austin (1981:22) does, claiming that systematic generalisations overrule other considerations. In this present study, based on the concept of the phoneme being a unit of perception rather than a morpho-phonemic unit (Trefry 1974, part A) every effort is made to correlate phonemic description with phonetic reality.
12. The interpretation for these words contrasts with other words where there is a syllabic trough within the sequence. For example, /paya/ *bird* has a phonetic sequence [ʌɪʌ] but ɪ occurs across a syllabic trough and is therefore interpreted as [ɣ]. (See also Figure 7 where high vocoids have been interpreted as [ɣ] and [w].)
13. One instance of ηʌɪʌʌ has 1st ʌ and ɪ on two minor peaks. In this particular utterance the word stress has been placed on the 2nd ʌ instead of on the 1st ʌ - ɪ complex and seems to have effected the displacement of intensity between the two phones.
14. The upward move of 600 Hz from the first vocoid to the contoid is explained in the analysis of the vowels in section 4. The /i/ phoneme varies from [ɛ] to [i], and in this instance the high front vowel is of a lower variety.
15. [ɹ] does occur preceding /i/ word initially in the word [ɹɪɪʌ] *louse egg* but as it occurs in fluctuation with [ɹɪɪʌ] I hesitate to use it. Austin (personal communication) has recorded [ɹɪɪ] *wrinkled*, which would support the analysis of this paper.
16. See Hercus 1972 for the first discussion of this in the Lake Eyre region. Though I have previously noted the phenomenon (Trefry 1974:246 and 277ff) I treated the nasals differently from the laterals and so failed to observe the generalisation.

17. Listening through tape recordings of eight texts, at two places I heard a 'd'-like sound preceding a non-primary stressed intervocalic lateral. On no occasion when eliciting words have I recorded a pre-stopped nasal in that position.
18. Austin 1981:18.
19. The use of the phonetic symbols of K.L. Pike is discussed in Trefry 1974, chapter 2. They are the symbols used in Pike, 1947.
20. English glosses for the words in the above chart are found in Table 7: 123ff. It needs to be remembered, however, that the representations in this chart are phonetic, whereas those found in Table 7 are phonemic.
21. Austin (1981), has written initial alveolar stops as though they were retroflexed and has then united them with medial retroflexed stops as the phoneme /d/. It seems that the confusion has been caused by the manner of production of Diari alveolars. They, in common with some other Australian languages (see Sharpe 1970:125-126, Yallop 1977:22 and Trefry 1974:122) produce alveolars with a depressed tongue blade. This had the effect of reducing fricative noise at the release of the consonant and thus increasing the difference between alveolars and dentals (which have a comparatively large amount of fricative noise during the consonantal release), but at the same time, it means that the tongue's configuration is similar to that of retroflexed stops. The confusion is more likely to happen in word initial position where the rhotic quality of a preceding vowel is not available as an additional cue for retroflexion.
- It is interesting to note that Austin's analysis results in a most unusual phonemic distribution. In it the alveolar stop only occurs word medially whilst the retroflexed stop occurs both initially and medially. The analysis in this monograph follows a typical Australian pattern, i.e. if retroflexed and alveolar stops both occur in the language and if one of them does not occur in word initial position, it is the retroflexed stop which is absent in that position.
22. Austin (personal communication) reports as having recorded *lake* as [pʌntu]. This, of course contradicts my statement on the complementary distribution of [t] and [d]. I have seven instances of tape recordings for lake. In each instance the alveolar is voiced. However, if [t] does occur in fluctuation with [d] between [n] and a vowel, the phonemic conclusion will be the same, i.e. they are allophones of the same phoneme.
23. I described the phonetic difference between [nh] and [n] in 1974 (Trefry 1974) but it was Austin (1978) who was able to establish the contrast between these segments.
24. Austin (1981) records alternation between initial dental and palatal stop phonemes (though not between nasals). I have no recordings of any stop alternations.
25. Glosses for most of the words in the chart are indicated in Table 7. Those words not found in the Table have the following meanings. [ɲʌmʌɪ] *live*, [tʌkʌɪ] *impale*, [nhʌɪ] *see*, [nhʌu] *he*, [thʌuɪʌ] *duck type*, [nhʌukʌ] *he* (selected).

26. Technically, Diari has five vowels, but the fact that [ʌʊ] and [ʌɪ] are glides sets them apart from the other three in that a single vowel target is not the goal in their production.
27. A few three and four syllable words were included by error, but were left in when it was observed that there was no apparent difference in their vowel targets.
28. The list was formed by extracting 476 words from Reuther's manuscripts and then adding to them words which were discovered through consultations with A. Edwards. During these consultations words were discarded if he did not recognise them as being Diari. Some words were from Arabana or Wangkangurru, or forms from other languages. Some words Edwards considered to be errors. A few more words were added after the recording of Edwards, but the list is far from exhaustive. Material collected subsequent to this experiment contains a number of other two syllable words.
29. Identical forms were sometimes due to homonyms or meaning variations. A few identical forms were included as checks on the accuracy of the recordings.
30. The list varied slightly from speaker to speaker, due mainly to communication problems, which was one of the reasons for originally shortening the list. There were two other inter-related reasons. Informants tended to lose concentration if the list became too long, and it would have proved difficult to get Lesley Russel or Jack Carrot to record more than once as both were stockmen in from their cattle station.
31. It was thought that one Diari speaker was living at Innaminka and another one was in the Birdsville area somewhere, but nobody was really sure. (See also note 4, p.317.)
32. It was for this reason that females were not able to be used for the experiment. This was unfortunate as there were a number of women Diari speakers available between Port Augusta and Marree.
33. A sonagram measures 12.75" x 5.7".
34. This word list is an edited version of that found in Trefry 1974. P. Austin has checked the original list and where he has disputed the form or meaning of a word the following four steps have been taken before a final choice has been made.
  1. My original field notes have been rechecked to make sure an error hasn't found its way into the script.
  2. A hand-written dictionary from English to Diari, which was compiled by Mr Jack Irrgang, the son of a lay worker at the Ettadunna Lutheran Mission station was consulted. As Jack put it, he was brought up as one of the Diaris and the only schooling he had was in the Diari school.
  3. Six texts and two conversations which were taped, transcribed and translated under the supervision of Alec Edwards have been computerised into a lexicon and were then used as a further check both for form and for meaning.
  4. The original word lists were rechecked both auditorially and visually (through use of spectrograms).

35. Delattre, Liberman, Cooper and Gerstman 1953:200.  
 36. J.R.L. Bernard 1970:116.  
 37. J.R. Bernard 1970(b) :116.  
 38. cp. previous diagrams based on articulatory methods. In these there is no suggestion of phoneme overlap.



39. For one set the speaker remains constant, and the words containing the target vowel are varied, and in the other, the word remains constant and the speakers vary.
40. There are, however, phonotactic constraints which limit the variety of consonants which occur in clusters. Sequences of more than two do not occur and only certain consonants occur in the sequences. The first consonant is limited to nasals, laterals,  $\check{r}$  and rr, and the second consonant is limited to stops, peripheral nasals, and rr. Within this general framework the following combinations occur.

The most limited class of consonants to occur in clusters is that of the intermittants.

$\check{r}$  occurs preceding p, tj, and k, e.g.  $\check{r}p$ ,  $\check{r}tj$ ,  $\check{r}k$ . rr occurs preceding t, and following the continuants n and l, e.g. rrt, nrr, lrr.

The other possible combinations can be categorised in the following way,

1. Stops are preceded by their homorganic continuants, e.g. mp, nhth, nt, njtj, n $\check{t}$ , nk, lhth, lt, ljtj, ! $\check{t}$ .
2. Apical continuants precede extremity stops, e.g. lp, lk, np, nk, !p, !k, n $\check{p}$ , n $\check{k}$ .
3. Alveolar nasal precedes peripheral nasals, e.g. nm, n $\check{n}$ .
4. Palatal lateral precedes retroflexed stop, e.g. lj $\check{k}$ .



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