

# WORK PAPERS OF SIL-AAB

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**EDITOR: JOYCE HUDSON**

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## PREFACE

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INTRODUCTION TO  
SERIES A VOLUME I

The papers in this volume are descriptions of aspects of the phonologies of five Australian Aboriginal languages. Some have been written after detailed analysis and published to make data available, e.g. Alyawarra Phonology by Nancy Turtle. Others are the result of shorter periods of field work and analysis. These are being made available in preliminary form here and may be further edited and published more widely in the future.

## TABLE OF CONTENTS

Preface	iii
Introduction to Series A Volume I	iv
<b>ALYAWARRA PHONOLOGY, by Nancy Turtle</b>	<b>1</b>
0. Introduction	1
1. Interpretation	1
1.1 Interpretation of Ambivalent Consonant Sequences	1
1.2 Interpretation of Ambivalent Vowel Sequences	15
2. The Phonological Word	19
2.1 The Phonemes	19
2.2 The Syllable and Distribution	38
2.3 The Stress Pattern	48
Abbreviations	51
Footnotes	52
Bibliography	56
<b>A TENTATIVE DESCRIPTION OF THE PHONEMES OF THE NGALKBUN LANGUAGE (INCLUDING A SMALL WORD LIST), by John Sandefur and David Nangan:golod Jentian</b>	<b>57</b>
0. Introduction	57
1. The Syllable	58
1.1 Distribution of Syllables	58
1.2 Distribution of Phonemes in Syllables	59
1.3 Syllable Contraction	62
2. Stress	62
3. The Phoneme	64
3.1 Consonants	64
3.2 Vowels	69

4. Interpretation	72
5. Practical Orthography	73
Footnotes	74
Bibliography	75
Appendix	77
NOTES ON RHYTHMIC PATTERNING IN IWAIDJA, by Barbara J. Sayers and Noreen Pym	97
0. Introduction	97
1. Technique	97
2. Speed and Timing	98
3. Pitch and Rhythmic Segmentation	100
4. Tensity of Articulation	102
5. Grammatical Features	102
Texts	105
Bibliography	130
WHAT ARE CONTRASTIVE SYLLABLES? THE WIK-MUNKAN PICTURE, by Barbara J. Sayers	131
1. Contrastive Types	134
1.1 Grounds of Contrast	134
1.2 Features of Contrast	135
2. Allowable Variants	138
3. Distribution	138
4. Discussion	138
4.1 The Unstressed Syllable and the Phonemic Status of Schwa	138
Bibliography	143

	Page
<b>A PHONOLOGICAL ANALYSIS OF FITZROY CROSSING CHILDREN'S PIDGIN, by Jill Fraser</b>	145
0. Introduction	145
1. The Development of FXCP	146
2. Basilect Consonants	150
2.1 Consonant Contrasts	150
2.2 Consonant Variation	153
3. Basilect Vowels	155
3.1 Vowel Contrasts	155
3.2 Vowel Variation	157
4. Interpretation of Vowel Glides	159
5. Distribution of Phonemes	161
5.1 Consonant Distribution within the Phonological Word	161
5.2 Vowel Distribution within the Phonological Word	164
6. Syllables of FXCP	166
7. Distribution of Syllables in Words	166
8. Stress of Intonation	168
8.1 Stress in Non-Prepause Environment	168
8.2 Intonation and Stress in Prepause Environment	169
9. Basilect-Acrolect Discussion	170
10. Recommendations	189
10.1 Recommendations Regarding FXCP	189
10.2 Recommendations Regarding APE	198
11. Texts	198
Acknowledgments	201
Footnotes	202
Abbreviations	203
Bibliography	204

## ALYAWARRA PHONOLOGY

Nancy J. Turtle

### 0. INTRODUCTION

The purpose of this paper is to present a phonological analysis of the Alyawarra ([a. 'i<sup>y</sup>a<sup>u</sup>.a.ʃλ]) language,<sup>1</sup> with specific attention being given to the phoneme, syllable and word levels.

### 1. INTERPRETATION

The ambivalent sequences in Alyawarra requiring interpretation are numerous, both amongst the consonants and vowels. The interpretative solutions for these follow, commencing with the ambivalent consonant sequences.

#### 1.1 INTERPRETATION OF AMBIVALENT CONSONANT SEQUENCES

The ambivalent consonant sequences include pre-nasalized stops, labialized consonants, nasal released stops, the sequence of stop followed by the frictionless continuant [S<sub>r</sub>], the syllabic frictionless continuant [r̥] and the sequence of the flap [ʃ] followed by a consonant [ʃC].

##### 1.1.1 PRE-NASALIZED STOPS

The pre-nasalized stop sequences in Alyawarra are of two types: homorganic nasal-stop sequences and heterorganic nasal-stop sequences.



The nasals involved in the former type are bilabial, dental, palatal and velar nasals [m] [ɲ] [n<sup>y</sup>] [ŋ], all occurring only before homorganic stops. Those nasals involved in the latter type are alveolar and retroflexed nasals [n] [ɳ], each occurring before either homorganic or heterorganic stops. Only the homorganic nasal-stop sequence occurs word initial. Word medially either homorganic or heterorganic nasal-stop sequences occur. Homorganic or heterorganic sequences of nasal-stop also occur word finally when the unstressed optional final vowel is dropped. Examples of each occurrence follows:

Word Initial

[ 'mbaɭ.ɭi.ɭ(ʌ) ]	'side'
[ 'ɲda.kʌ.n(ʌ) ]	'what'
[ 'nda.ŋ(ʌ) ]	'pigweed seed'
[ 'ɲdɾ.ʌŋ.ɟɾ(ʌ) ]	'red'
[ 'ŋgo.pi.(ʌ) ]	'antbed'

Word Medial (homorganic)

[ am.'bʌ.ʃ(ʌ) ]	'single woman'
[ a.'nʌɲ.dʌ.ʃ(ʌ) ]	'we (class III:pl:incl nom)'
[ in.'dʌ.ŋ(ʌ) ]	'rotten'
[ aɳ.'ɟʌ.k(ʌ) ]	'tooth'
[ an <sup>y</sup> .'d <sup>y</sup> ɾi.ɭ(ʌ) ]	'drink (pres)'
[ aɳ.'gi.ɭ(ʌ) ]	'talk (pres)'

Word Medial (heterorganic)

[ yɳn.'bi.ɭ(ʌ) ]	'get water (pres)'
[ an.'ge.t <sup>y</sup> (ʌ) ]	'greedy'
[ an.'g <sup>w</sup> a <sup>i</sup> n.di.u.(ʌ) ]	'sleep (fut)'

[ 'k <sup>w</sup> ɥŋ.b(λ) ]	'calf of leg'
[ aŋ.'gen <sup>y</sup> .d <sup>y</sup> (λ) ]	'men's camp'

Word Final (homorganic)

[ yu.'lum.p(λ) ]	'ghost gum tree'
[ yid <sup>N</sup> . 'mʌŋ.t̥(λ) ]	'ashes'
[ a.'mʌŋ.t̥(λ) ]	'alone'
[ a.'mʌŋ.t̥(λ) ]	'bush banana (species)'
[ a.'ku.rə <sup>i</sup> n <sup>y</sup> .t̥ <sup>y</sup> (λ) ]	'red ochre country'
[ a.'ɾʌŋ.q(λ) ]	'dog'

Word Final (heterorganic)

[ 'yɪn.p(λ) ]	'skin'
[ a.'ʔaŋ.k(λ) ]	'beard'

There are two alternative solutions for interpreting the ambivalent homorganic pre-nasalized stop sequences. Each solution has its advantage and disadvantage.

Solution A - as single complex phonemes

1. Would introduce 6 extra phonemes, and possibly 8, depending on the interpretation chosen for the labialized stops, two of these being pre-nasalized as well: /<sup>m</sup>p/ /<sup>n</sup>t̥/ /<sup>n</sup>t̥/ /<sup>n</sup>t̥̥/ /<sup>ny</sup>ty/ /<sup>ŋ</sup>k/ /<sup>n</sup>t̥<sup>w</sup>/ /<sup>ŋ</sup>k<sup>w</sup>/
2. Would introduce no new syllable or word patterns other than those that have already been established in the language.

Solution B - as two diverse phonemes

1. No new phonemes would be required.
2. Three new syllable patterns would be introduced: CCV and CCVC, occurring word initially created by word initial

homorganic nasal-stop sequences (see examples above).

It would also appear to create a CVCC pattern word finally by homorganic nasal-stop sequences occurring at the end of a word. But univalent heterorganic nasal-stop sequences as well as other univalent sequences would provide a univalent pattern word finally when the final vowel is dropped, e.g.

['yɪnp(ʌ)]	'skin'
[a.'ɾɪlk <sup>w</sup> (ʌ)]	'witchetty grub (species)'
[a.'k <sup>w</sup> ɥ p(ʌ)]	'sandhill country'

This word final CVCC pattern created by such univalent sequences need not be considered evidence for such a pattern in the language. Rather, it is posited that the word final vowel is always present phonologically. Evidence for this position includes: (1) the fact that while for many speakers of the language words in isolation are pronounced without the final vowel, many other speakers (especially of the older generation) tend to include it; (2) the fact that across word boundaries, where the second word begins with a consonant the final vowel of the first word is obligatory, whereas when the second word begins with a vowel, the final vowel of the first word is dropped.

With the final vowel always phonemically present, the phonological syllable break occurs between the nasal and the stop with the stop becoming the first segment of the last CV syllable. All such sequences then fit established syllable patterns in the language and the need for a CVCC pattern word finally is eliminated.

The problem introduced by Solution B.2 can be solved in two ways:

- a. For many (though apparently not all) words beginning with homorganic pre-nasalized stops there is a good bit of variation in their pronunciation, wherein a vowel sometimes precedes them. For example:

[ 'ngʌ.ɫ.ɫ(ʌ) ~ iŋ. 'gʌ.ɫ.ɫ(ʌ) ]	'fingernail'
[ 'ngʌ.ɾa <sup>i</sup> .ɪ <sup>y</sup> (ʌ) ~ aŋ. 'gʌ.ɾa <sup>i</sup> .ɪ <sup>y</sup> (ʌ) ]	'rib'
[ 'ŋɖʌ.ŋi.(ʌ) ~ aŋ. 'ɖʌŋi.(ʌ) ]	'sister-in-law'
[ 'mba.ɾi.ɪ.ɪ(ʌ) ~ am. 'ba.ɾi.ɪ.ɪ(ʌ) ]	'make (pres)'
[ 'ndʌ.ni.ɪ.ɪ(ʌ) ~ in. 'dʌ.ni.ɪ.ɪ(ʌ) ]	'smell (pres)'
[ 'ndɾ.ni.ɪ.ɪ(ʌ) ~ in. 'dɾ.ni.ɪ.ɪ(ʌ) ]	'spear (pres)'

It could be posited that a word initial vowel is phonologically present in words that appear to begin with a homorganic nasal stop sequence. All words containing homorganic nasal stop sequences would then fit established CC sequence patterns for any locations in which they appear in a word, and the need for CCV and CCVC patterns would be eliminated.

- b. An alternative answer to this problem was brought to light in Oates (1967), in which he discusses the problems in interpreting complex consonant sequences in Australian languages. He uses as the basis of his discussion data from Bee (1965). Oates states (p. 30), "It is not always possible to set up a grid from non-suspect C and V patterns into which all data can be fitted on that level of analysis without either forcing it or coming into conflict with other phonemic premises." Examples of undefined data referred to in the article are certain ambivalent or suspect consonant clusters such as homorganic nasal-stop sequences which in some environments fit already established syllable patterns in the language but in other environments do not. In such

data the sequences would be termed undefined as to whether they represent a CC or a C.

The solution he postulates for such interpretation problems is the application of an interpretation principle introduced by Pike (1947), that of analyzing on more than one level; namely the phoneme and syllable levels. For the sake of phoneme economy such homorganic nasal-stop sequences would be interpreted as sequences of two diverse phonemes on the phoneme level. And for the sake of CV pattern economy the same sequences would be interpreted as single complex units on the syllable level, either in all environments or only in the environments that are problematic for interpreting them as two diverse phonemes. In the latter case the interpretation would be for two diverse phonemes in environments where established univalent CV patterns allowed it. This paper follows Oates' suggestion in combining solutions A and B above for the interpretation of the homorganic prenasalized stops. Solution B has been chosen for interpretation on the phoneme level, and Solution A for interpreting on the syllable level for word initial environment only. In all other positions within a word these sequences fit univalent syllable patterns.

### 1.1.2 LABIALIZED CONSONANTS

The labialized consonants recorded in the data consist of the labial, alveolar, retroflexed and velar stops  $[p^w] \sim [b^w]$   $[t^w] \sim [d^w]$   $[\t^w] \sim [d^w]$   $[k^w] \sim [g^w]$ , the velar nasal  $[\eta^w]$ , and the retroflexed lateral  $[l^w]$ .  $[k^w]$  and  $[\eta^w]$  occur quite frequently, whereas  $[p^w]$ ,  $[t^w]$ ,  $[\t^w]$  and  $[l^w]$  occur in only a very few cases. Only  $[k^w]$  and  $[\eta^w]$  occur word initially or word finally (only when the optional word final unstressed vowel is dropped). All of the labialized consonants occur word medially.  $[t^w] \sim [d^w]$  and  $[k^w] \sim [g^w]$  occur

following a word initial homorganic nasal; [k<sup>w</sup>] ~ [g<sup>w</sup>] occurs word finally following a homorganic nasal, all resulting in sequences of 3 consonant clusters. The following examples will illustrate each type of occurrence:

[ 'ŋ <sup>w</sup> u.ɳ(λ) ]	'who'
[ 'k <sup>w</sup> u.n(λ) ]	'down'
[ a.'pa.ŋ <sup>w</sup> (λ) ]	'rain cloud'
[ a.'p <sup>w</sup> i.t.t.l(λ) ]	'blow (pres)'
[ a.'t <sup>w</sup> an.d(λ) ]	'ground fog'
[ a.'t <sup>w</sup> Λ ]	'man'
[ a.'k <sup>w</sup> Λ ]	'arm'
[ a.'ŋ <sup>w</sup> a.ʃi.(λ) ]	(skin name)
[ a.'t <sup>w</sup> Λ ]	'round'
[ 'nd <sup>w</sup> u.lλ.lλ.li.t.t.l(λ) ]	'play (pres)'
[ 'ng <sup>w</sup> a.t̚(λ) ]	'honey/sugarbag'
[ a.'l <sup>y</sup> aŋ.g <sup>w</sup> (λ) ]	'cold weather'

Three solutions are possible for the interpretation of the labialized consonants, each again having advantages and disadvantages:

Solution A - as single complex phonemes

1. Would introduce 8 new phonemes.
2. Would introduce no new syllable patterns.
3. Would not affect the prevailing stress patterns of the language.

Solution B - as two diverse phonemes

1. Would create no new phonemes.
2. Would create two new syllable patterns:<sup>2</sup>

CCV

word initially	[ <sup>w</sup> 'k <u>a</u> .d <sup>y</sup> (λ)]	'water'
word medially	[ <u>u</u> r. <sup>w</sup> 'k <u>u</u> .l <sup>y</sup> (λ)]	'woman'
word finally	[a. <sup>w</sup> 'k <u>λ</u> ]	'arm'

CCVC

word initially	[ <sup>w</sup> 'k <u>u</u> n.b(λ)]	'calf of leg'
----------------	------------------------------------	---------------

3. The prevailing stress patterns would not be upset, and as a result phonetic rhythm would be undisturbed.

Solution C - as a CVC sequence of three diverse phonemes -- e.g.

[<sup>w</sup>'k] → /kuw/

1. Would create no new phonemes.
2. Would create no new syllable patterns.
3. Would upset the prevailing stress patterns (see 2.3) thereby disturbing the phonetic rhythm as follows:
  - a. In consonant initial words where the consonant is labialized, stress would move from the 1st syllable to the 2nd syllable:

[<sup>w</sup>'kun.ba<sup>i</sup>.(λ)] → [ku.<sup>w</sup>'un.ba<sup>i</sup>.(λ)] 'cloud'

[<sup>w</sup>'ŋam.bi.n<sup>y</sup>(λ)] → [ŋu.<sup>w</sup>'am.bi.n<sup>y</sup>(λ)] 'new'

- b. In vowel initial words where the 2nd syllable begins with a labialized consonant, stress would move from the 2nd syllable to the 3rd syllable:

[a.<sup>w</sup>'pi.u.l(λ)] → [a.pu.<sup>w</sup>'wi.u.l(λ)] 'blow (pres)'

[i.<sup>w</sup>'tar.ŋ(λ)] → [i.tu.<sup>w</sup>'wa:r.ŋ(λ)] 'woomera hook'

[a.<sup>w</sup>'ŋa.ři.(λ)] → [a.ŋu.<sup>w</sup>'wa.ři.(λ)] (skin name)

[a.<sup>w</sup>'kλ] → [a.ku.<sup>w</sup>'wλ] 'arm'

As with the pre-nasalized stops, a two level interpretation could be applied for the interpretation of the labialized consonants, there-by again economizing on both levels. However, Solution B is preferred for the labialized consonants to parallel the interpretation chosen for the less common ambivalent sequence of stop plus frictionless continuant [S<sub>r</sub>], (see 1.1.4).

### 1.1.3 NASAL RELEASED STOPS

The nasal released stop varies in the language phonetically from a sequence composed of a stop followed by a homorganic voiceless nasal flowing into a voiced homorganic nasal,<sup>3</sup> to a sequence of a simple stop followed by a homorganic voiced nasal, to merely a voiced nasal. For example:

[p<sup>Mm</sup>] [p<sup>m</sup>] [m], etc.

The two latter manifestations are the most commonly heard.

The nasal released stops occur at all points of articulation: bilabial, dental, alveolar, retroflexed, palatal and velar as illustrated:

[p<sup>Mm</sup>] [t<sup>Nn</sup>] [t<sup>Nn</sup>] [t<sup>Nn</sup>] [t<sup>yNyNy</sup>] [k<sup>Nŋ</sup>]

The proposed possible solutions for the interpretations of the nasal released stops are three:

Solution A - as single complex phonemes -- e.g. [p<sup>Mm</sup>], etc.

1. Would introduce 6 new phonemes.
2. Would introduce no new syllable patterns.

Solution B - as 3 diverse phonemes -- e.g. [pMm], etc.

1. Would introduce 6 new phonemes, namely voiceless nasals at all articulatory points.
2. Would introduce two new syllable patterns and consequently new word patterns:



CVCCC

[yɪdNn. 'mʌɹ.ɹ(ʌ)] 'ashes'

[a. 'wʌtNn. kʌ. kʌ. ʔ(ʌ)] 'old'

[u. 'rɛdNn. b(ʌ)] 'hot'

VCCC

[a<sup>r</sup>.d<sup>N</sup>.ŋ. 'g<sup>w</sup>ʌ] 'clothes'

[a<sup>r</sup>.d<sup>N</sup>.ŋ. 'bʌ. lʌ. ɹ(ʌ)] 'go quickly unseen (past)'

Solution C - as two diverse phonemes, with e.g. [p<sup>M</sup>] an allophone of /p/, occurring before a nasal

1. Would introduce no new phonemes.
2. Would create two new syllable patterns and resulting new word patterns:

CVCC

[yɪd<sup>N</sup>.n. 'mʌɹ.ɹ(ʌ)] 'ashes'

[a. 'wʌt<sup>N</sup>.n. kʌ. kʌ. ʔ(ʌ)] 'old'

[u. 'rɛd<sup>N</sup>.n. b(ʌ)] 'hot'

VCC

[a<sup>r</sup>.d<sup>N</sup>.ŋ. 'g<sup>w</sup>ʌ] 'clothes'

[a<sup>r</sup>.d<sup>N</sup>.ŋ. 'bʌ. lʌ. ɹ(ʌ)] 'go quickly unseen (past)'

Again for the sake of economy both on the phoneme and syllable levels a two level interpretation is proposed as follows:

Phoneme Level -- sequence of stop plus nasal phonemes as in Solution C, e.g. [p<sup>Mm</sup>] → /pm/

Syllable Level -- as single complex units, e.g. [p<sup>Mm</sup>] → /pm/

#### 1.1.4 THE SEQUENCE [S<sub>r</sub>]

There are only eleven occurrences of the sequence [S<sub>r</sub>] (stop plus frictionless continuant). They involve only the bilabial [p], the alveolar [t], the retroflexed [ɖ], and the palatal [tʲ] stops. There are two alternatives for the interpretation of these sequences:

Solution A - as a /CV<sub>r</sub>/ sequence, using the phoneme /i/ as in the interpretation of [r<sub>i</sub>] (see 1.1.5).

1. Would introduce no new phonemes.
2. Would upset the prevailing stress patterns of the language (see 2.3) as illustrated below:

[a. 'tɾa<sup>i</sup>n.ti.u.l(ʌ)] → [a.tV.'ɾa<sup>i</sup>n.ti.u.l(ʌ)]  
'climb (pres)'

['nɖɾal.gɾ<sub>i</sub>(ʌ)] → [nɖV.'ɾal.gɾ<sub>i</sub>(ʌ)]  
'white'

[an<sup>y</sup>.'d<sup>y</sup>ɾi.u.l(ʌ)] → [an<sup>y</sup>.d<sup>y</sup>V.'ɾi.u.l(ʌ)]  
'drink (pres)'

Solution B - as two diverse phonemes

1. Would introduce no new phonemes.
2. Would create two new syllable patterns:

CCV

word medially [a.'tɾi.u.w(ʌ)] 'hit/kill (fut)'

CCVC

word initially ['nɖɾal.gɾ<sub>i</sub>(ʌ)] 'white'

word medially [a.'tɾa<sup>i</sup>ɭ.ɭ(ʌ)] 'wild'

Solution B is being chosen for the interpretation of the [S<sub>r</sub>] sequence for two reasons: a) for the sake of phoneme economy and b) because the setting up of a syllable initial CC cluster where the

second C is a liquid [l], [r] or a glide [w], [y] is a fairly conventional analysis within languages. Because of this and because of the effect that Solution A would have on the stress patterns of the language, it is felt that there is greater argument for economy on the phoneme level than on the syllable level.

### 1.1.5 THE SYLLABIC FRICTIONLESS CONTINUANT

The syllabic frictionless continuant [r̥] occurs frequently in Alyawarra. Where it occurs in the stressed syllable [r̥] carries the stress as a vowel normally would. Examples of this follow:

[a. 'p <sup>M</sup> mr̥(λ)]	'camp'
[a. 't̥r̥(λ)]	'grinding stone'
[ 'tr̥.ŋ(λ)]	'nape of neck'
[aŋ. 'd̥r̥(λ)]	'fat'
[a <sup>i</sup> n <sup>y</sup> . 'd̥y̥r̥(λ)]	'tongue'
[a <sup>i</sup> . 'kr̥(λ)]	'sky'

There are three interpretation alternatives for this phone:

#### Solution A - as a vowel

1. Would introduce a new vowel phoneme.
2. Would create additional suspect VV sequences where it occurs contiguous to other vowels--sequences which are not supported by univalent VV syllable patterns, e.g.

[a. 't̥ <sup>N</sup> nr̥.aʔ.k(λ)]	'heel'
[a. 'l̥r̥.i.(λ)]	'nephew/niece'
[a. 'wr̥.a <sup>i</sup> n <sup>y</sup> .d̥y̥l̥.r̥i.ŋ(λ)]	'whirlwind'
[ 'kaŋ.g̥r̥(λ)]	'blue tongue lizard'

### Solution B - as a consonant

1. Would introduce a new consonant phoneme, namely /r̥/.
2. Would create an ambivalent CC syllable pattern unsupported by existing univalent patterns, as illustrated below:

[ 't̥r̥.ŋ(λ) ]	'nape of neck'
[ a. 't̥ <sup>N</sup> nr̥.aʃ̣.k(λ) ]	'heel'
[ a. 'l̥r̥.i.(λ) ]	'nephew/niece'
[ a. 'wr̥.a <sup>i</sup> n <sup>Y</sup> .d <sup>Y</sup> l̥.ʃ̣i.ŋ(λ) ]	'whirlwind'

### Solution C - as a vowel plus frictionless continuant /Vr̥/⁴

[ a. 'p <sup>M</sup> mr̥(λ) ]	/a:pmiṛa/	'camp'
[ a. 't̥r̥(λ) ]	/a:t̥iṛa/	'grinding stone'
[ a. 't̥ <sup>N</sup> nr̥.aʃ̣.k(λ) ]	/a:tniṛa:ʃ̣ka/	'heel'
[ a. 'wr̥.a <sup>i</sup> n <sup>Y</sup> .d <sup>Y</sup> l̥.ʃ̣i.ŋ(λ) ]	/a:wiriṛai:nytyiri:ŋa/	'whirlwind'

etc.

1. Would introduce no new phonemes.
2. Would create no new syllable patterns.

Because the latter solution is desirable for the sake of economy on both levels it is the solution chosen for interpretation of the syllabic frictionless continuant.

#### 1.1.6 THE SEQUENCE OF A FLAP [ʃ̣] PLUS CONSONANT [ʃ̣C]

The sequence of flap [ʃ̣] followed by a consonant, [ʃ̣C], is a common occurrence in the language. Consonants involved are [p] [t̥] [t̥<sup>Y</sup>] [k] [m] [ŋ] [ŋ] [r̥] as illustrated in the following examples:

[ a. 'tuʃ̣.p(λ) ]	'late afternoon'
[ aʃ̣. 'pi.l.l(λ) ]	'carve (pres)'

[a. 'tʃʌʃ. tʃ(ʌ)]	'bird (species)'
[aʃ. 'tʲi. u. (ʌ)]	'light a fire (fut)'
[a. 'koʃ. k(ʌ)]	'baby animal'
[aʃ. 'ka. ɾa. gʷ(ʌ)]	'bloodwood tree'
[aʃ. 'k <sup>N</sup> ŋʌ]	'blood'
[a. 'k <sup>w</sup> aʃ. kʌ. li. i. l(ʌ)]	'drop (pres)'
[inʲ. 'dʲeʃ. m(ʌ)]	'bush bean'
[a. 'no. wiŋ. gʌʃ. ɬ(ʌ)]	'we (class I:pl:incl.:poss)'
['ŋu. laʃ. ŋ(ʌ)]	'tomorrow'
[pʊ. 'luʃ. ŋʷ(ʌ)]	'bird (species)'
[yɪʃ. 'ɾʊ. l(ʌ)]	'top'

Two alternatives are possible for interpreting this sequence:

Solution A - as /ʃC/

1. Would introduce no new phonemes.
2. Would create no new syllable or word patterns.

Solution B - as /ʃVC/

1. Would introduce no new phonemes.
2. Would create no new syllable patterns.
3. Would create a new stress pattern of stress falling on the third syllable in words where the second syllable would then be /ʃi/. For example:

[aʃ. 'pi. i. l(ʌ)] → /a: .ʃi. pi: .yi. la/ 'carve (pres)'

[aʃ. 'tʲi. u. (ʌ)] → /a: .ri. tʲi: yu: .wa/ 'light a fire (fut)'

[aʃ. 'ka. ɾa. gʷ(ʌ)] → /a: .ʃi. ka: .ɾa: .kwa/ 'bloodwood tree'

[aʃ. 'k<sup>N</sup>ŋʌ] → /a: .ʃi. kŋa/ 'blood'

To avoid creating this new stress pattern Solution A is being chosen for the interpretation of this sequence.

## 1.2 INTERPRETATION OF AMBIVALENT VOCOID SEQUENCES

No univalent vocoid sequences occur in Alyawarra. The vocoid sequences amenable to more than one interpretation in terms of consonants and vowels are of three types, two segment sequences, three segment sequences and four segment sequences.

### Sequences of VV with Examples:

[i]	[iΛ]	[ia]	[ea]	[oi]	[oɪ]	[oΛ]	[oa]	[a <sup>i</sup> ]
[-i.u(Λ)]								'present tense suffix'
[a.'wi(Λ)]								'boy'
[a.'wi.aŋ.gi.u(Λ)]								'breathe (pres)'
[a.'pe.a.ɭ(Λ)]								'come!'
[a.'no.iŋ.gΛʔ.ɖ(Λ)]								'we (class I:Incl.:poss)'
['mbu.i.o.ɭ.ɖ(Λ)]								'you two (class I:poss)'
[i.'mo.Λ.ʔ(Λ)]								'constellation Milky Way'
['ro.a.pi.n.pΛ.ʔ(Λ)]								'dragon fly'
['wa.la <sup>i</sup> m.bΛ.ʔ(Λ)]								'pelican'

### Sequences of VVV with Examples:

[iuΛ]	[ia <sup>i</sup> ]	[a <sup>i</sup> Λ]	[a <sup>u</sup> a]
[-i.u(Λ)]			
[a <sup>i</sup> .'+i.a <sup>i</sup> .dʔ(Λ)]			
[a.'ŋa <sup>i</sup> .Λ.g <sup>w</sup> (Λ)]			
[a.'i <sup>y</sup> a <sup>u</sup> .a.ʔ(Λ)]			
			(tribal name)

Sequences of VVV with Examples:

[uɪuʌ] [oɪuʌ]

[a.'lɪ.lu.i.u.(ʌ)]

'go for short time (fut)'

['ndo.l.u(ʌ)]

'sling and hit against something  
(fut)'

1.2.1 VV (OTHER THAN GLIDES [a<sup>i</sup>] AND [a<sup>u</sup>]), VVV, AND VVVV SEQUENCES

Solutions for interpreting all the ambivalent vowel sequences except the glides [a<sup>i</sup>] and [a<sup>u</sup>] will be considered first. Solutions for the latter will be dealt with separately. Two solutions for interpreting the former are possible:

Solution A - as VV, VVV and VVVV respectively

1. Would introduce no new phonemes.
2. Would create the new syllable pattern V word medially as is seen in the above examples.

Solution B - as CV, with the consonant counterpart of the preceding vowel filling the consonant slot, e.g.:

[a.'lɪ.lu.i.u.(ʌ)] → /a:lɪlu:wɪ:yu:wa/ 'go for short time  
(fut)'

1. Would introduce no new phonemes.
2. Would create no new syllable patterns.

For the sake of economy on both phoneme and syllable levels, Solution B is being adopted for the interpretation of these sequences.

1.2.2 THE GLIDE [a<sup>u</sup>]

The possible solutions for interpreting the glide [a<sup>u</sup>] are as follows:

Solution A - as a single complex phoneme

1. Would introduce a new phoneme.
2. Would create no new syllable patterns.

Solution B - as two diverse vowel phonemes

1. Would create no new phonemes.
2. Would create a new syllable sequence:

CVV

word medially /a: .lyau: .a: .řa/ (tribal name)

Solution C - as a VC sequence interpreting the vowel [u] as its consonant counterpart, e.g.:

[a. 'l<sup>y</sup>a<sup>u</sup>. a. ř(λ)] → /a: .lyɑ: .wa: řa/ (tribal name)

1. Would introduce no new phoneme.
2. Would create no new syllable patterns.

Again for the sake of economy on both phoneme and syllable levels Solution C is preferred and is being adopted for interpretation of this glide.

1.2.3 THE GLIDE [a<sup>i</sup>]

The glide [a<sup>i</sup>] occurs often preceding palatalization. However it occurs in other environments as well and contrasts with the vowel [a] in some environments, e.g.:

[a. 'niŋ. gʌ. ř(λ)] 'we (class I:pl:incl.:nom)'

[a<sup>i</sup>. 'niŋ. gʌ. ř(λ)] 'they (class I:pl:nom)'

[a<sup>i</sup>m. 'bʌ. ɹ(λ)] 'feather/wing'

[am. 'bʌ. ɹ(λ)] 'foot'



[a <sup>i</sup> . 'p <sup>M</sup> mΛ. ʃ(Λ)]	'dew'
[a <sup>i</sup> . 'p <sup>M</sup> mɾ(Λ)]	'camp'
[a <sup>i</sup> p <sup>M</sup> m. 'bΛ]	'kangaroo pouch'
[am. 'ba]	'child'

There are three alternatives for interpreting this glide:

Solution A - as a single complex phoneme

1. Would introduce a new phoneme.
2. Would create no new syllable patterns.

Solution B - as two diverse vowel phonemes

1. Would introduce no new phonemes.
2. Would create three new syllable patterns:

VV

word initially /ai:.la.ŋa/ 'direction, left'

VVC

word initially /ai:m.pa.ɭa/ 'feather/wing'

CVV

word medially /a:ŋ.ɭa.nai:.na/ 'other side'

Solution C - as a VC sequence interpreting the vowel [i] as its consonant counterpart, e.g.:

[a<sup>i</sup>. 'lΛ.ŋ(Λ)] → /ay.la.ŋa/ 'direction left'

1. Would introduce no new phonemes.
2. Would create two new syllable patterns:

VCC

word initially /aɣly.pi:.ya.ɭu:.wa/ 'go/enter (past)'

word medially /a: .tnayn.pa/ 'buttocks'

As with previous interpretations in this paper it is felt that, for the sake of economy on both levels, the best interpretation for the glide [a<sup>i</sup>] is according to Solution B for the phoneme level and according to Solution A in all environments for the syllable level.

## 2. THE PHONOLOGICAL WORD

The phonological unit functioning as a word in Alyawarra speech is to be recognized as a minimal utterance marked by: border phenomena (distribution of phonemes, potential pause), a defined stress pattern, and distribution of syllable types, in turn characterized by patterns of distribution of phonemes and phoneme complexes.

The remainder of this paper will describe this unit in detail.

### 2.1 THE PHONEMES

Alyawarra has 21 consonants and 6 vowels. The consonants are stops, nasals, laterals and semi-vowels. They contrast at the points of articulation shown in Chart 1.

#### 2.1.1 CONSONANTS

Chart 1

Alyawarra Consonants

	Lab.	Dent.	Alveo.	Retroflexed	Alveo.-Pal.	Velar
Stops	p	t̪	t	ɟ	ty	k
Nasals	m	n̪	n	ɳ	ny	ŋ
Laterals		l̪	l	ɭ	ly	
Semi-vowels	w		ɻ	ɽ	y	ɤ

### 2.1.1.1 CONSONANT CONTRAST

The consonants contrast as follows:

#### Stops

word initially:

/pa:ŋka:ʎa/	'blanket'
/ʈa:ki:yila/	'poke - as into a hole (pres)'
/ʈa:kwa/	'windbreak'
/ʈa:kuʈa/	'heart'
/ʈya:pa/	'witchetty grub (species)'
/ka:ka/	'rubbish'

word medially:

/a:mpupa:ŋkwa:ʎa/	'across'
/a:mpuʈa/	'knee'
/ka:puta/	'head'
/a:mpuʈa/	'desert rat'
/a:nukutya/	'congaberry'
/a:tyukaʎu:wa/	'arise (past)'

#### Nasals

word initially:

/ma:ŋa/	'digging coolamon'
/ŋa:ka/	'there'
/na:ntu:wa/	'horse'
/ŋa:ŋa/	'lizard'
/nya:ʎpuŋa/	'cat'

/ŋa:ni:yila/	'climb (pres)'
word medially:	
/a:ɟkwuma/	'eat (immed fut)'
/ŋkwuga/	'you (sg:poss)'
/kwuna/	'down'
/a:guŋa/	'ground'
/a:gunya/	'mosquito'
/ŋkwu:ŋa/	'you (sg:benefactive)'

### Laterals

word initially:	
/ɟili:yu:wɑ/	'take off - as of clothes (fut)'
/lumai:nti:yila/	'stick out - as of tongue (pres)'
/ɟinu:wɑʔa/	'get wet (possible)'
/lyinyɬya/	'shade'
word medially:	
/mpuɟa/	'wait!'
/mpula/	'you two (class 1:nom)'
/a:mpuɟa:ni:yila/	'make marks/tracks (pres)'
/a:wulyawa:ɟila/	'women's corroboree'

### l, t, and ʔ Contrast

word medially:	
/a:la:kana/	'like that/in that manner'
/a:ta:ɟti:yila/	'spear (pres)'
/a:ʔa:kuɟa/	'mouth'

### l, ʃ, and r Contrast

word initially:

/l̥inu:waʃa/	'get wet (possible)'
/ʃa:kuʃa/	'heart'
/ra:/	'he/she/it (nom)'

word medially:

/a:puʃa/	(skin name)
/a:puʃa/	'stone'
/a:ʃpura/	'magpie goose'

### p and w Contrast

word initially:

/pa:ŋka:ʃa/	'blanket'
/wa:ka/	'humpy'

word medially:

/a:puni:yila/	'rub (pres)'
/a:wuni:ya/	'auntie'

### ty, ny, and y Contrast

word initially:

/tyipalyi:ya/	'duck'
/nyifʃaʃi:yila/	'be shy (pres)'
/yɪnpa/	'skin'

### ty, ny, ly, and y Contrast

word medially:

/ai:ti:yai:tya/	'younger brother'
/a:nyai:nya/	'grandmother'

/a:ŋkiʃai:lya/

'rib'

/kwunpai:ya/

'cloud'

k and ŋ Contrast

word medially:

/a:kuʃuwa:ja/

'to begin'

/a:guŋa/

'ground'

ŋ, w, and ɾ Contrast

word medially:

/a:guʃa/

'kangaroo'

/a:wuʃa/

'heavy'

/a:ɾuʃa/

'root'

2.1.1.2 CONSONANT VARIATION

Stops tend toward voicing following nasals and laterals word medially but can be voiceless depending on the speaker:

[am.'bʌ.ʃ(ʌ) ~ am.'pʌ.ʃ(ʌ)]

/a:mpaʃa/

'single woman'

[yu.'nuŋ.ɟʌ.la.ʃ(ʌ) ~ yu.'nuŋ.ʈʌ.la.ʃ(ʌ)]

/yunuŋʈala:ʃa/

'white ant'

[ 'nan.du(ʌ) ~ 'nan.tu(ʌ)]

/na:ntu:wa/

'horse'

[ 'kwun.ba<sup>h</sup>(ʌ) ~ 'kwun.pa<sup>h</sup>(ʌ)]

/kwunpai:ya/

'cloud'

[aŋ.'gen<sup>h</sup>.d<sup>h</sup>(ʌ) ~ aŋ.'kən<sup>h</sup>.d<sup>h</sup>(ʌ)]

/a:ŋkinytya/

'men's camp'

[aŋ.'ga.ʈuŋ.g(ʌ) ~ aŋ.'ka.ʈuŋ.k(ʌ)]

/a:ŋka:ʈuŋka/

'noisy'

[a. 'lɔpɪl.ɔa.ʃ(ɔ) ~ a. 'lɔ.pɪl.ɔa.ʃ(ɔ)]	/a:lɔpɪlɔa:ʃa/	'fresh spring water'
[ɪl. 'di.u(ɔ) ~ ɪl. 'ti.u(ɔ)]	/yɪlɪti:yu:wa/	'tear (fut)'
[ə]. 'bi.u(ɔ) ~ ə]. 'pi.u(ɔ)]	/a:ɹpi:yu:wa/	'go back permanently (fut)'
[ə]. 'dɔ ~ ə]. 'tɔ]	/a:lɪtɔ/	'hair'
[a <sup>i</sup> l <sup>y</sup> . 'bi.a.ɔ(ɔ) ~ a <sup>i</sup> l <sup>y</sup> . 'pi.a.ɔ(ɔ)]	/aɪ:lɪpi:ya:ɔ:wa/	'go enter (past)'
[ɪl <sup>y</sup> . 'd <sup>y</sup> ɛʃ.i.u.l(ɔ) ~ ɪl <sup>y</sup> . 't <sup>y</sup> ɛʃ.i.u.l(ɔ)]	/i:lɪtyɪʃi:yɪlɔ/	'rest (pres)'

When the pre-nasalized stop or stop preceded by a lateral occurs in utterance final position, due to the eliding of the unstressed optional word final vowel (see 1.1.1 Interpretation of Pre-nasalized Stops) the stop is always voiceless:

[ 'yɪ.ʃamp]	/yɪʃa:mpa/	'honey ant'
[yɪd <sup>N</sup> . 'mɔŋtɔ]	/yɪtɔmɔŋtɔ/	'ashes'
[a. 'n <sup>y</sup> ɪnt]	/a:n <sup>y</sup> ɪnta/	'one'
[ə. 'mɔŋtɔ]	/a:mɔŋtɔ/	'bush banana (species)'
[a. 'ʃa <sup>i</sup> n <sup>y</sup> t <sup>y</sup> ]	/a:ʃaɪ:n <sup>y</sup> t <sup>y</sup> /	'kangaroo skin water bag'
[a. 'ɹɔŋk]	/a:ɹɔŋka/	'dog'
[ə. 'ɹɔl <sup>w</sup> k]	/a:ɹɔl <sup>w</sup> kwa/	'grub (species)'
[ 'k <sup>w</sup> əɹp]	/kwa:ɹpa/	'wallaby (species)'
[a. 'kəɹ <sup>y</sup> t <sup>y</sup> ]	/a:kɪlɪtya/	'old woman'

Intervocally the tendency is towards voicelessness, but again it depends on the speaker:

[ 't̥i:p(λ) ~ 't̥ib(λ) ]	/t̥i:pa/	'bird'
[ ḁl̥.'pi.t(λ) ~ ḁl̥.'pi.d(λ) ]	/a:lpi:ta/	'flower'
[ am.'bu.t̥(λ) ~ am.'bu.d̥(λ) ]	/a:mpu̥ta/	'knee'
[ am.'by.t̥(λ) ~ am.'by.d̥(λ) ]	/a:mpu̥ta/	'desert rat'
[ a.'ka.t̥ <sup>y</sup> l̥.r̥(λ) ~ a.'ka.d̥ <sup>y</sup> l̥.r̥(λ) ]		
	/a:ka:tyi̯a/	'bush tomato'
[ a.'ma.k(λ) ~ a.'ma.g(λ) ]	/a:ma:ka/	'elbow'

Aspiration of voiceless stops is frequent but it is felt to be more an influence from English rather than a feature of the native language as there is considerable free variation and no pattern is evident. Examples of variation follow:

[ a̯.'p <sup>h</sup> λ.ma.r̥l̥(λ) ~ a̯.'pλ.ma.r̥l̥(λ) ]		
	/a:̯pama:l̥a/	'again'
[ 'k <sup>wh</sup> a.d̥ <sup>y</sup> (λ) ~ 'k <sup>w</sup> a.d̥ <sup>y</sup> (λ) ]	/kwa:tya/	'water'
[ a.'t̥ <sup>h</sup> a ~ a.'t̥a ]	/a:t̥a:/	'I (fr:nom)'
[ a.'r̥ <sup>h</sup> t̥ <sup>h</sup> λ.p <sup>h</sup> (λ) ~ a.'r̥ <sup>h</sup> t̥ <sup>h</sup> λ.p(λ) ]	/a:r̥t̥apa/	'backbone'

The palatalized stop which has been symbolized [t̥<sup>y</sup>] freely varies between [t̥<sup>y</sup>] and [t̥<sup>j</sup>], e.g.:

[ a.'p̥l̥.t̥ <sup>y</sup> a.r̥(λ) ~ a.'p̥l̥.t̥ <sup>j</sup> a.r̥(λ) ]		
	/a:p̥l̥tya:r̥a/	(skin name)
[ a.'na <sup>i</sup> .t̥ <sup>y</sup> (λ) ~ a.'na <sup>i</sup> .t̥ <sup>j</sup> (λ) ]	/a:na:l̥tya/	'bush potato'
[ a <sup>i</sup> n̥ <sup>y</sup> .t̥ <sup>y</sup> l̥.p̥r̥(λ) ~ a <sup>i</sup> n̥ <sup>y</sup> .t̥ <sup>j</sup> l̥.p̥r̥(λ) ]		
	/ai:nytyl̥:p̥i̯a/	'flying fox'
[ ḁl̥.'pa.t̥ <sup>y</sup> (λ) ~ ḁl̥.'pa.t̥ <sup>j</sup> (λ) ]	/a:l̥pa:tya/	'bird (species)'



All stops have a voiceless nasal released allophone freely varying with the simple stop when preceding a nasal. The nasal release is homorganic with the stop (see note 3). All stops except the bilabial tend to vary freely between voicing and voicelessness in this environment, though voicelessness is the more frequent, e.g.:

[a.'p <sup>M</sup> mɾ(λ)]	/a:pmiɾa/	'camp'
[aɫ <sup>N</sup> ɲ.'dʌ ~ aɫ <sup>N</sup> ɲ.'dʌ]	/a:ɫɲiɾa/	'mud'
[a <sup>i</sup> .'t <sup>N</sup> ni.ɫ.ɫ(λ) ~ a <sup>i</sup> .'d <sup>N</sup> ni.ɫ.ɫ(λ)]	/ai:tɲi:yila/	'fall (pres)'
[yɫ <sup>N</sup> ɲ.'dɪ.ɫ.ɫ(λ) ~ yɫ <sup>N</sup> ɲ.'dɪ.ɫ.ɫ(λ)]	/yɫɲɪ:ɲi:yila/	'dance (pres)'
[u.'t <sup>y</sup> n <sup>y</sup> u.ni.ɫ.ɫ(λ) ~ u.'d <sup>y</sup> n <sup>y</sup> u.ni.ɫ.ɫ(λ)]	/yutynyuni:yila/	'look up in search (pres)'
[a.'k <sup>N</sup> ɲi(λ) ~ a.'g <sup>N</sup> ɲi(λ)]	/a:kɲi:ya/	'father'

The retroflexed consonants have allophones [ɽ̣] in some vocally conditioned environments. Usually following the open central vowel [a] an optional [ɾ] will act as an onset to retroflexion as symbolized immediately above.<sup>5</sup> This onset to retroflexion does not occur in other environments. Examples follow:

[k <sup>w</sup> a.ɽ̣(λ)]	/kwa:ɽ̣a/	'egg'
[aɣ.'pʌ ma.ɽ̣(λ)]	/a:ɣpama:ɽ̣a/	'again'
[aɽ̣ɲ.'dʌp(λ)]	/aɽ̣ɲa:pa/	'tree bark'

The flap [ɣ] has a voiceless allophone when it occurs in utterance final position due to the eliding of the unstressed optional word final vowel, e.g.:

[a.'ɽ̣a <sup>u</sup> .aɽ̣ <sup>v</sup> ]	/a:ɽ̣a:wa:ɽ̣a/	(tribal name)
--	----------------	---------------

[an<sup>Y</sup>.i'd<sup>Y</sup>aR̥] /a:n<sup>Y</sup>t<sup>Y</sup>a:řa/ 'star'

The trill [ř] is also an infrequent freely varying allophone of the flap [ṛ̌] in the environment preceding a stop, e.g.:

[a.'tuř.p(λ) ~ a.'tuṛ̌.p(λ)] /a:tuřpa/ 'late afternoon'

[a.'koř.k(λ) ~ a.'koṛ̌.k(λ)] /a:ku:řka/ 'baby animal'

[a.'ɽu.ɲuṛ̌.p(λ) ~ a.'ɽu.ɲuṛ̣̌.p(λ)]  
/a:ɽuɲuřpa/ 'turkey'

Free fluctuation of full phonemes occurs very infrequently between the flap [ṛ̌] and the frictionless continuant /ɽ/, e.g.:

/a:tuřpa/ ~ /a:tuɽpa/ 'late afternoon'

/a:mu:řkala/ ~ /a:mu:ɽkala/ 'yesterday'

### Summary of Consonant Variation

/p/ etc. [b] etc. (the tendency; some free variation with voicelessness) /nasals  
laterals \_\_\_\_\_.

[p<sup>M</sup>] etc. (freely varying with simple stop) /\_\_\_\_ nasals.  
Except for the bilabial, the stops freely vary between voicing and voicelessness.

[p] etc. elsewhere (the tendency; some free variation with voicing. Also some free variation with aspiration).

/ty/ Freely varies between [t<sup>Y</sup>] and [t<sup>J</sup>].

/ɕ/ [ɕ̣] /a:\_\_\_\_. (See Note 5.)

[ɕ] elsewhere.

/ř/ [ṛ̌] utterance final.

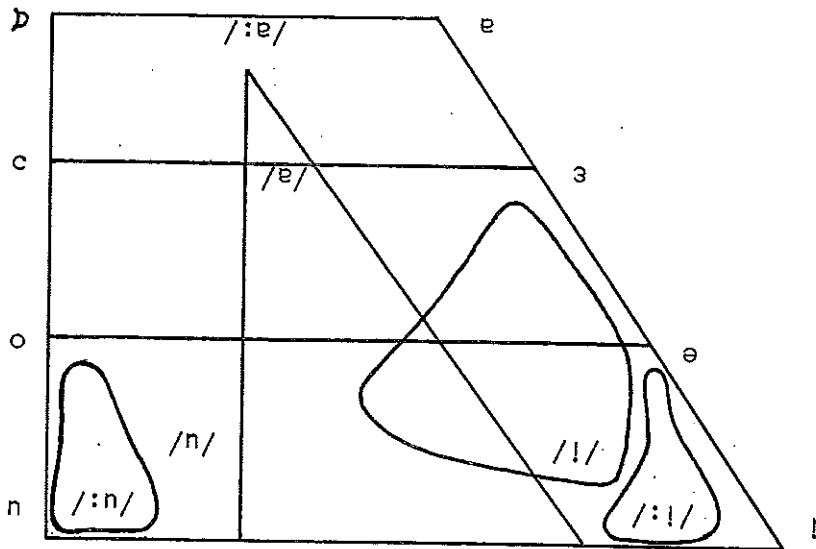
[ṛ̌] freely varying with [ř] infrequently /\_\_\_\_ stop.

[ř] elsewhere. Freely varies with /ɽ/ infrequently.

## 2.1.2 VOWELS

The six vowel phonemes are high front /i/ and /i:/, high back /u/ and /u:/ and low /a/ and /a:/ as illustrated in Chart 2.

Chart 2  
Approximate Points of  
Alyawarra Vowel Articulation



### 2.1.2.1 VOWEL CONTRAST

Contrast between the two high pairs of similar phonemes, i.e. /i/ - /i:/; /u/ - /u:/, occurs word medially both in stressed and unstressed syllables. Word initially there is possible contrast.

Contrast between the third pair of similar phonemes, i.e. /a/ and /a:/, occurs word medially in both stressed and unstressed syllables, and word finally in stressed syllables (these are the only phonemes occurring in word final position).<sup>6</sup> See section on vowel variation (2.1.2.2) for further comment on the behaviour of these two phonemes.

Contrast between /i/ and /i:/

word initially:

As stated above, there is possible contrast between these two phonemes word initially as shown in the examples below:

[ (y)ɿɿʲ . 'dʲʌ ]	'hand'
[ ɿɿʲ . 'dʲʌ ~ ɿɿʲ . 'dʲʌ ]	'kangaroo blood'
[ ɿɿʲ . 'gʷʌ ]	'armpit'
[ ɿɿʲ . 'bʌ ]	'ear'
[ ɿɿʲ . 'dʲɛ.ři.ɿ.ɿ(ʌ) ]	'wave (pres)'
[ ɿɿʲ . 'dʲɛ.ři.ɿ.ɿ(ʌ) ~ ɿɿʲ . 'dʲɛ.ři.ɿ.ɿ(ʌ) ]	'rest (pres)'
[ (y)ɿŋ . 'gu.řan.di(ʌ) ]	'everyone/everything'
[ ɿŋ . 'gʌɿ.ɿʌ.ɿ(ʌ) ]	'fingernail'
[ ' (y)ɿ.ɿʌ.k(ʌ) ]	'what'
[ (y)ɿ. 'ɿʌ.p(ʌ) ]	'axe'
[ i. 'ɿa <sup>u</sup> (ʌ) ]	'pigweed'
[ (y)ɿd <sup>N</sup> . 'mʌŋ.ɿ(ʌ) ]	'ashes'
[ ɿn. 'dʲr.ni.ɿ.ɿ(ʌ) ]	'spear (pres)'
[ ɿd <sup>N</sup> . 'dʌ.ŋ(ʌ) ]	'rotten'
[ ɿn. 'di.ɿ.ɿ(ʌ) ]	'smell (pres)'

It will be noted in the above examples that [ɿ] freely varies with [yɿ] word initially in many words in the data, though it has not occurred in all words in the data. Thus it could be posited that [y]

is phonemic preceding [ɪ] word initially. Because [y] never occurs preceding [i], such a theory, if proven through further checking, would negate contrast between these two phonemes word initially. This position is being taken for the purposes of this paper.

word medially:

/a:ʃi:ni:yila/	'put (pres)'
/a:ʃi:ni:yila/	'scratch (pres)'
/a:lu:wai:tyiʃa/	'goanna'
/a:ka:tyiʃa/	'bush plum'
/yitaʃi:yila/	'think (pres)'
/a:lai:tyl:ta/	'spinifex'
/ai:lypinyaʃi:yila/	'be sad (pres)'
/yiʃpi:ni:yila/	'push (pres)'
/gwa:mpi:nya/	'new'
/yiʃtyiɾʃila/	'secret'
/a:piɾʃi:ni:yila/	'sneak up. (pres)'
/!u:wa:ʃini:yu:wa/	'demonstrate (fut)'
/mpuliŋa:ka/	'you two (class II:obj)'
/a:kuni:ni:yila/	'plug in (pres)'
/a:panti:ni:yila/	'follow (pres)'
/ai:nytyilytyama:ʃi:ya/	'fat/big'
/a:ŋʃipari:yila/	'dance for fun (pres)'

/tɪpalyi:ya/	'duck'
/ai:nytyi:piɾa/	'flying fox'

Contrast between /u/ and /u:/

word initially:

As with /i/ and /i:/ there is possible contrast between the back phonemes word initially as shown below:

[u <sup>N</sup> t <sup>N</sup> ɲ. 'd̪i.ɫ.ɫ(ʌ)]	'search (pres)'
[u. 't <sup>N</sup> nʌ]	'round coolamon'
[(y)u. 't <sup>YNY</sup> n <sup>Y</sup> u.ni.ɫ.ɫ(ʌ)]	'look up in search (pres)'
[u. 'l <sup>Y</sup> ʌ]	'shade'

The above examples are the only words in the data in which /u:/ or /u/ occur word initially except for the following additional five words:

[(y)u. 'lɫ.ɲ(ʌ) ~ u. 'lɫ.ɲ(ʌ)]	'die (past)'
[ul. 'g <sup>W</sup> u.ɫʌ.ʃi.ɫ.ɫ(ʌ) ~ ul. 'g <sup>W</sup> u.ɫʌ.ʃi.ɫ.ɫ(ʌ)]	'vomit (pres)'
[u. 'ɾa]	'fire'
[u. 'ɾed <sup>N</sup> n.b(ʌ)]	'hot'
[uɔ <sup>N</sup> ɲ. 'd̪i.ɫ.ɫ(ʌ) ~ uɔ <sup>N</sup> ɲ. 'd̪i.ɫ.ɫ(ʌ)]	'dance (pres)'

It is to be noted that in two of the above examples the initial [u] freely varies with [yu] as with the front vowel [ɪ]. Again, if further checking reveals that [y] is phonemic preceding [u] word initially, contrast in this word position would be eliminated, as [y]

never occurs preceding [u] word initially.<sup>8</sup> As with /i/ and /i:/, for the purposes of this paper, this solution is being adopted.

word medially:

/yiřɾula/ ~ /yuřɾula/	'top/up'
/a:nuna:kařa/	'we (class II:pl:incl.:obj)'
/a:ɾuřa/	'root'
/a:řu:ta/	'chin'
/muřaři:yila/	'get better (pres)'
/a:mu:řkala/	'yesterday'
/yiřɾulanuŋa/	'full'
/ta:ltyakula/	'mulga fruit'
/ka:puta/	'head'
/ŋ.ɫnu:nai:nyima/	'this one here'

Contrast between /a/ and /a:/

word medially:

/a:ŋaŋi:yila/	'scoop (pres)'
/i:ŋa:ni:yila/	'climb (pres)'
/i:tntaŋa/	'rotten'
/nta:ŋa/	'pigweed seed'
/a:ŋɾapa/	'brown pidgeon'
/a:ŋɾa:pa/	'tree bark'

/i:lyi:ɽaʁa/	'bird (species)'
/a:ɽaɽaʁa/	'bird (species)'
/a:lypunytyi:ta:ʁa/	'tall/long'
/a:tyukaʁu:wa/	'arise (past)'
/pa:ŋka:ʁa/	'blanket'
/yilapa/	'axe'
/ntilya:pilya:pa/	'butterfly'
word finally:	
/ai:pmpa/	'kangaroo pouch'
/i:lypa/	'ear'
/a:mpa:/	'child'
/u: a/	'forehead'
/u:ɽa:/	'fire'
/a:tŋa/	'eye'
/ŋa:/	'you (sg:intr:nom)'
/a: a/	'nose'
/a:ɽa:/	'I (tr:nom)'

It should be noted here that in the above examples those words ending in [a] sometimes freely vary with [ʌ] in rapid speech, but those ending in [ʌ] are always constant and do not vary (see section 2.1.2.2 Vowel Variation).



Contrast between /i:/ and /u:/

word initially:

/i:tntaŋa/

'rotten'

/u:tna/

'round coolamon'

/i:lykwa/

'armpit'

/u:lya/

'shade'

word medially:

/a:ʃi:ni:yila/

'scratch (pres)'

/a:ʃu:ta/

'chin'

/a:paḷi:wi:yila/

'spit (pres)'

/a:ḷilu:wi:yu:wa/

'go for little while (fut)'

Contrast between /i/ and /a/

word medially:

/a:ḷipa:lama/

'walk along (imed fut)'

/a:lapa/

'firestick'

/ntilya:pilya:pa/

'butterfly'

/tyipalyi:ya/

'duck'

/yinila:lpu:wa/

'to get and return (past)'

/ḷiḷaŋkwaʃa/

'this way'

/a:ʃkanaḷi:yila/

'bark (pres)'

Contrast between /i/ and /u/

word medially:

/a:ɫini:yila/	'shine (pres)'
/ɫuni:yu:wa/	'send (fut)'
/a:ɫuřkwa/	'riled muddy water'
/a:tynyiřa/	'flowing water'
/yutyynyunu:wa/	'look up in search (past)'
/tyuna/	'sore'
/yilaka/	'what'
/yulumpa/	'ghost gum tree'

### 2.1.2.2 VOWEL VARIATION

All vowel phonemes have retroflexed allophones preceding retroflexed consonants (/i:/ has not occurred in this environment in present data):

/a:yini:yila/	[a.'yɪ.ɲi.ɪ.l(ɬ)]	'ask (pres)'
/a:maɲa/	[a.'mɬ.n(ɬ)]	'food'
/a:pma:ɫi:ya/	[a.'p <sup>M</sup> mə.ɫɫ(ɬ)]	'mother's brother'
/a:mpuřa/	[am.'bɥ.ɫ(ɬ)]	'desert rat'
/u:ɫa/	[ɥ.'ɫ(ɬ)]	'forehead'

The phoneme /i/ has the allophones [ɛ], [ə], and [ɪ]. [ɛ] occurs in the data only 12 times, usually between a palatal and a flap [ř] where it freely varies with [ɪ]:

/i:nytyiřima/	[in <sup>Y</sup> .d <sup>Y</sup> ɛ.řɪ.m(ɬ) ~ in <sup>Y</sup> .d <sup>Y</sup> ɪ.řɪ.m(ɬ)]	'bush beans'
/nyiřa:ři:yila/	[in <sup>Y</sup> ɛ.řa.ři.ɪ.l(ɬ) ~ in <sup>Y</sup> ɪ.řa.ři.ɪ.l(ɬ)]	'be shy (pres)'

[ə] and [ɪ] frequently occur in free fluctuation preceding palatalized consonants:

/a:pitya:řa/	[a.'pə.t <sup>Y</sup> a.ř(λ) ~ a.'pɪ.t <sup>Y</sup> a.ř(λ)]	(skin name)
/yiřpitya/	[ɪř.'pə.d <sup>Y</sup> (λ) ~ ɪř.'pɪ.d <sup>Y</sup> (λ)]	'three'
/ŋkitya/	['ŋgə.t <sup>Y</sup> (λ) ~ 'ŋgɪ.t <sup>Y</sup> (λ)]	'foot'
/ntilya:pilya:pa/	['ndə.l <sup>Y</sup> a.pə.l <sup>Y</sup> a.p(λ) ~ 'ndɪ.l <sup>Y</sup> a.pɪ.l <sup>Y</sup> a.p(λ)]	'butterfly'
/-u:winya/	[-o.wə.n <sup>Y</sup> (λ) ~ -o.wɪ.n <sup>Y</sup> (λ)]	'negative noun suffix'

The allophone [ɪ] occurs elsewhere.

The phoneme /i:/ has the allophones [e] and [i]. The allophone [e] occurs in the data only 10 times, always preceding [ya]. The allophone [i] is in free variation with [e] in this environment as shown by the following:

/řni:ya:ɫi:yila/	['d <sup>N</sup> ne.ya.ɫi.ɪ.ɪ(λ) ~ 'd <sup>N</sup> ni.ya.ɫi.ɪ.ɪ(λ)]	'go and stand. (pres)'
/a:řiya:ɫpu:wa/	[a.'rə.yal.bo(λ) ~ a.'rɪ.yal.bo(λ)]	'go back and see (past)'

The allophone [i] occurs elsewhere.

The phoneme /u:/ has the allophones [o] and [u]. The allophone [o] occurs preceding /w/ in a stressed syllable. Preceding /w/ in an unstressed syllable [o] and [u] freely vary. In five words in the data [o] also occurs contiguous to other consonants:

/yu:yu:/	[ <sup>̄</sup> 'yo.yo ~ <sup>̄</sup> 'yo.yo? ~ <sup>̄</sup> 'yoō.yō ~ <sup>̄</sup> 'yoō.yō?]	'yes'
/a:mu:řkala/	[a.'moř.kλ.l(λ)]	'yesterday'
/a:ku:řka/	[a.'koř.k(λ)]	'baby animal'
/ɖiɖu:nai:nyima/	[ <sup>̄</sup> 'ɖi.ɖo.na <sup>̄</sup> .n <sup>̄</sup> ɿ.m(λ)]	'this one here'
/ŋku:pi:ya/	[ <sup>̄</sup> 'ŋgo.pi(λ)]	'antbed (type)'

The allophone [u] occurs elsewhere.

The phoneme /u/ represents the phonetic [u] and has no other allophones.

Variation between /a/ and /a:/ occurs in all three positions in the word. Word initially the correct rendering is always [a] /a:/ whereas the rendering [λ] /a/ is due to more rapid speech.

Word medially and word finally, in words where variation occurs between these two full phonemes, the correct rendering again is [a] /a:/; the rendering [λ] is again due to rapid articulation. In the unstressed syllable word finally there is free variation between only /a/ and φ.

Examples of these variation types are given below:

/a:wuɖi:ya/	[a'wu.ɖi(λ) ~ λ.'wu.ɖi(λ)]	'auntie'
/a:ɲala/	[a'.ɲλ.l(λ) ~ λ.'ɲλ.l(λ)]	'crow'
/a: a a:řa/	[a.' <sup>̄</sup> l λ.ɲa.ř(λ) ~ a.' <sup>̄</sup> l λ.ɲλ.ř(λ)]	'coolamon'
/a:piya: a/	[a.'pe.ya.ɿ(λ) ~ a.'pe.yλ.ɿ(λ)]	'come!'

/a:kwa:/	[a.'k <sup>w</sup> a ~ a.'k <sup>w</sup> ʌ]	'arm'
/a:mpa:/	[am.'ba ~ am.'bʌ]	'child'

Free variation occurs on rare occasion between the more distant full phonemes, e.g.:

/ɲɪ̄a:kana/ ~ /ɲɪ̄ukana/	'what'
/kwuɬa:nti:yila/ /kwutunti:yila/	'smoke (pres)'
/a:ʎa:kuɬa/ ~ /a:ʎa:kaɬa/	'mouth'
/a:pmumuma/ /a:pmamama/	'rubbish'
/i:ŋkitya/ ~ /a:ŋkitya/	'foot'
/yit̪runu:wa/ ~ /u:t̪runu:wa/	'sun'

## 2.2 THE SYLLABLE AND DISTRIBUTION

Distribution of phonemes within the phonological word is described in terms of syllables. Each syllable is composed of an onset, a nucleus, and a coda. The nucleus refers to the peak of lung air energy required to produce the syllable in speech. The onset refers to the initial buildup of energy leading to the peak and the coda refers to the diminishing energy following the peak.

The nucleus of a syllable is manifested only by a single vowel and never a consonant. In open syllables (i.e., syllables ending in a vowel), the nucleus and coda are manifested by a single vowel. Similarly, in the syllables beginning with a vowel, the onset and nucleus are manifested by a single vowel. In V syllables, then, the onset, nucleus and coda are all manifested by a single vowel. The coda of a syllable can consist of, at most, one consonant.

The usual pattern is for only one consonant to compose the onset in any one syllable. However, there are two exceptions to this pattern: the sequences /Cw/ and /Sɾ/. /Cw/ and /Sɾ/ (or /NCw/--see Note 2--and /NSɾ/) are the only consonant clusters syllable initially.

In the following examples which serve to illustrate syllable composition O = onset, N = nucleus and C = coda:<sup>9</sup>

/a: . m a . ŋ a /                    'food other than meat'  
 O N C    O N C    O N C

/a: m . p a: /                    'child'  
 O N C    O N C

/n a: n . t u: . w a /                'horse'  
 O N C    O N C    O N C

/kw a: . t y a /                    'water'  
 O N C    O N C

/ŋkw u . ŋ a /                    'bone'  
 O N C    O N C

/a: . t w a: n . t a /                'ground fog'  
 O N C    O N C    O N C

/a: n y . t y ŋ i: . y i . l a /        'drink (pres)'  
 O N C    O N C    O N C    O N C

/ŋtʃ a: l . k i . ŋ a /                'sugarbag/honey'  
 O N C    O N C    O N C

The 6 syllable patterns of the language as illustrated in the examples above are: V, CV, VC, CVC, CCV and CCVC.

All of the consonants and vowels may function as onsets in a syllable and all vowels may function as syllable codas, but not all consonants can function as the latter. Consonants occurring in syllable coda are restricted to the nasals, laterals, flap /ɾ/, frictionless continuant /r/ and the stop plus nasal phoneme complexes:<sup>10</sup>

/m/                    /w a: m . p l . ŋ a /                    'possum'  
                           O N C    O N C    O N C

/ɒ/	/a: ɒ . ʤ i: . y i . l a / ON C O NC O NC O NC	'give (pres)'
/n/	/'y 'i n . p a / O NC O NC	'skin'
/ŋ/	/a: ŋ . k i n y . t y a / ON C O NC O NC	'men's camp'
/ny/	/ai: ny . t y i . ŋ a / ON C O NC O NC	'grass'
/ŋ/	/pa: ŋ . k a: . ʃ a / ON C O NC O NC	'blanket'
/ɫ/	/i: ŋ . k a ɫ . ʤ a . ɫ a / ON C O NC O NC O NC	'fingernail'
/l/	/y i l . p ai: y a / O NC O NC O NC	'creek'
/!/	/a: ! . k w a / ON C O NC	'eat!'
/ly/	/i: l y . k w a / ON C O NC	'armpit'
/pm/	/ai: pm . p a / ON C O NC	'kangaroo pouch'
/ɪn/	/y u ɪ n . ʤ i: . y i . l a / O NC O NC O NC O NC	'search (pres)'
/tn/	/a: . w a: t n . k a: . k a . ʃ a / ON C O NC O NC O NC O NC	'long ago'

/t̥n/     /y u t̥n . t̥ i: . y i . l a /     'rain (pres)'  
           O N C     O N C     O N C     O N C

/ʃ/        /y i ʃ . r u . l a /                    'top/up'  
           O N C     O N C     O N C

/r/        /i: . t w a: r . ŋ a /                    'woomera hook'  
           O N C     O N C     O N C

Of the above consonants, the nasals and laterals and the flap /ʃ/ predominate in syllable coda position. The stop plus nasal phoneme complexes are less frequent. The semi-vowel /r/ has very few occurrences.

The restrictions in distribution of the phonemes within the syllable affect their distribution in the word as follows:

1. In that the only consonant clusters allowed as the onset of a syllable are /Cw/ and /Sɾ/, they are the only consonant clusters which occur word initially.
2. In that the coda slot of a syllable may be filled by a consonant and the onset by another consonant, consonant clusters may occur across syllable boundaries.

/a: l . t̥ a /                    'hair'  
           O N C     O N C

/y i n . k u . l a /                'hawk'  
           O N C     O N C     O N C

3. Because the only clusters allowed as onsets to syllables are /Cw/ and /Sɾ/ and because no clusters are allowed as syllable codas, there will be no more than three consonants in a cluster, and any three consonant cluster contains one of the above sequences as its last two segments:

/a: . r u ŋ . k w a /                'deaf/mad'  
           O N C     O N C     O N C



/ŋkw u . ŋ a /

o NC o NC

'you (sg:poss)'

/y i n . tʃ i : . y i . l a /

o NC o NC o NC o NC

'grow up from ground (pres)'

4. Because all consonants may function as syllable onsets but not all consonants may function as syllable codas the following types of consonant clusters do not occur:

- a. Clusters beginning with simple or pre-nasalized stops except when the second segment of the cluster is /w/ or /r/.
- b. Clusters beginning with the fricative /g/.
- c. Clusters beginning with semi-vowels /w/ or /y/.

(See No. 3 immediately below for further consonant cluster restrictions.)

In addition to the above restrictions, there are others which are imposed from above the syllable level and are directly related to the word pattern:

1. There are word border restrictions. Though all consonants can function as syllable onsets, not all consonants can function as word onsets, i.e. they cannot occur in word initial position. The consonants and phoneme complexes which are restricted in this way are the stop plus nasal phoneme complexes,<sup>11</sup> the alveo-palatal pre-nasalized stop, the velar fricative and the alveolar flap:

/pm/ /t̪p/ /tn/ /t̪n/ /tyn/ /kŋ/ /nyty/ /g/ /ʃ/

Similarly, though all vowels can function as syllable onsets, two vowels do not occur word initially and thus cannot function as word onsets. The vowels restricted in this way are /i/ and /u/.<sup>12</sup>

Aiyawarra words phonemically all end in /a/ or /a:/ (see Note 6). Thus three of the syllable patterns cannot occur word finally,

- i.e. VC, CVC, and CCVC. In the syllable patterns which can occur word finally, i.e. CV and CCV, /a:/ or /a/ must fill the V slot.
2. There is a restriction related to vowel clusters. Because the syllable patterns V and VC can occur only word initially, vowel clusters are not found in Alyawarra.
  3. Distribution of consonant clusters is further restricted at the word level. Heterorganic stops are not found as the second segment of a consonant cluster following

nasals which are:	bilabial	/m/
	dental	/n/
	palatal	/ny/
	velar	/ŋ/
laterals which are:	dental	/l/
stop plus nasal complexes which are	bilabial	/pm/
	dental	/tn/

The following additional heterorganic clusters are not found:

/nt/   /nt̥/   /nt̥̥/   /nt̥̥̥/  
 /lt̥/   /lt̥̥/   /lt̥̥̥/   /lt̥̥̥̥/   /lyt̥/   /lyt̥̥/  
 /tnt̥/   /tnt̥̥/   /tnty/   /t̥nt̥/   /t̥nt̥̥/   /t̥nt̥̥̥/

Heterorganic consonant clusters composed of stop plus nasal complex followed by a second nasal occur only twice in the data and are restricted to /tnŋ/   /tnm/:

/a:tnŋa/                    'eye'  
 /yitnman̥ta/                'ashes'

In present data consonant clusters beginning with the semi-vowel /r/ are restricted to the following consonants as the second segment:

dental stop	/t̪/
retroflexed stop	/ɖ/
velar nasal	/ŋ/

Present data indicate that in consonant clusters containing /w/ as the second segment, the initial segment is restricted to:

stops

bilabial	/pw/
alveolar	/tw/
retroflexed	/ɖw/
velar	/kw/
pre-nas. alveolar	/ntw/
pre-nas. velar	/ŋkw/
retroflexed lateral	/ɖ̪w/
velar nasal	/ŋw/

In present data consonant clusters containing /r/ as the second segment are restricted in the initial segment to the following stops:

bilabial	/pr/
alveolar	/tr/
retroflexed	/ɖr/
alveo.-palatal	/tʃr/
pre-nas. retroflexed	/ŋɖr/

Chart 3 provides another view of the consonant clusters found in the language.

4. Finally there is a restriction concerning the distribution of vowels involving their contiguity to consonants, i.e. not all

Chart 3  
Consonant Clusters

	p	t̥	t	t̥	ty	k	m	ŋ	ŋ	r̥	w	Cw	Cr̥
p										pr̥	pw		
t										tr̥	tw		
t̥										t̥r̥	t̥w		
ty										tyr̥			
k											kw		
nt												ntw	
ŋt̥										ŋt̥r̥			
ŋk											ŋkw		
pm	pmp												
tn̥		t̥n̥t̥											
tn			tnt			tnk	tnm		tnŋ				
t̥n̥	t̥np		t̥n̥t̥			t̥nk							
m	mp												
ŋ		ŋt̥											
n			nt		nty	nk						nkw	nr̥
ŋ	ŋp			ŋt̥		ŋk							ŋt̥r̥
ny					nyty								nytyr̥
ŋ						ŋk					ŋw		
l̥		l̥t̥											
l	lp		lt		lty	lk						lkw	
l̥	l̥p			l̥t̥		l̥k					l̥w	l̥kw	l̥t̥r̥
ly	lyp		lyt		lyty	lyk							
ʃ	ʃp	ʃt̥			ʃty	ʃk	ʃm	ʃŋ	ʃŋ	ʃr̥		ʃkw/ ʃŋw	
r̥		r̥t̥		r̥t̥					r̥ŋ				

vowels can precede all consonants, nor can all vowels follow all consonants. The restrictions are noted below.

Preceding Consonants:

/i:/ does not precede dental consonants  
retroflexed consonants  
any excepting the alveolar /tn/ stop  
plus nasal complexes  
fricative /g/  
flap /ʔ/  
semi-vowel /r/

/i/ does not precede bilabial, dental, alveo-palatal stop  
plus nasal complexes /pm/ /tn/  
/tyny/  
fricative /g/  
semi-vowels /w/ and /y/

/a:/ no restrictions

/a/ does not precede stop plus nasal complexes

/u:/ precedes only alveolar stop plus nasal complex /tn/  
alveolar, retroflexed stops /t/ /ʔ/  
alveolar nasal /n/  
alveolar, retroflexed, alveo-palatal  
laterals /l/ /l̥/ /ly/  
flap /ʔ/  
semi-vowels /r/ /w/

/u/ does not precede stop plus /w/, e.g. /pw/  
bilabial, alveolar, velar stop plus  
nasal complexes /pm/ /tn/ /kŋ/  
fricative /g/  
semi-vowels /w/ /y/

/aɪ:/ precedes only alveolar, retroflexed, alveo-palatal  
stops /t/ /ʈ/ /ty/  
bilabial, alveolar, alveo-palatal  
stop plus nasal complexes /pm/  
/tn/ /tyn/

bilabial, alveolar, alveo-palatal  
nasals /m/ /n/ /ny/  
alveolar, alveo-palatal laterals  
/l/ /ly/

#### Following Consonants:

/ɪ:/ does not follow bilabial and dental stop plus nasal  
complexes /pm/ /ʈn/  
fricative /g/  
alveo-palatal nasal /ny/  
semi-vowel /w/ unless followed by /y/  
semi-vowel /y/

/i/ does not follow dental, velar stop plus nasal complexes  
/ʈn/ /kŋ/

/a:/ does not follow stop plus nasal complexes fricative /g/

/a/ does not follow dental, alveo-palatal stop plus nasal  
complexes /ʈn/ /tyn/

/u:/ does not follow consonant plus /w/  
alveo-palatal consonants /ty/ /ny/  
/ly/  
stop plus nasal complexes  
fricative /g/

/u/ does not follow dental, velar stop plus nasal complexes  
/ʈn/ /kŋ/  
alveo-palatal nasal or lateral /ny/  
/ly/  
retroflexed lateral /ɭ/

/ai:/ follows only bilabial, velar stops /p/ /k/

does not follow dental, retroflexed, alveo-palatal  
laterals /l/ /ɭ/ /ly/

### 2.3 THE STRESS PATTERN

The Alyawarra word can begin with either a vowel or a consonant. It may end only with a vowel. The number of syllables contained in the simple word ranges from one to seven. Only two words in the present data of approximately 800 words are made up of one syllable:

/ŋa:/ 'you (sg:nom)'

/ɾa:/ 'he/she (nom)'

Contrastive stress is a feature of the Alyawarra word, shown most clearly by the following pair:

/'yinpa/ [ 'yɪn.b(ʌ) ] 'skin'

/yin'pa/ [ yɪn.'bʌ ] 'don't know'

For most words, however, predominant stress patterns are apparent. In words beginning with a vowel or /y/, irrespective of the number of syllables making up the word, stress falls on the second syllable. The following are examples of this pattern:

/a:na/ [ a.'na ] 'sit!'

/a:ɬaʃa/ [ a.'ɬʌ.ʃ(ʌ) ] 'two'

/a:ŋai:akwa/ [ a.'ŋa<sup>i</sup>.ʌ.g<sup>w</sup>(ʌ) ] 'hungry'

/a:lu:wai:tyiʃa/ [ a.'lo.wa<sup>i</sup>.d<sup>y</sup>ɪ.ʃ(ʌ) ] 'goanna'

/a:la:ŋiɾai:yiʃa/ [ a.'la.ŋɾ.a<sup>i</sup>.yɪ.ʃ(ʌ) ] 'witchetty grub  
(species)'

/i:taɬaʃi:taɬaʃa/ [ i.'dʌ.ɬʌ.ʃi.dʌ.ɬʌ.ʃ(ʌ) ] 'willy wag tail'

/yilka/ [ yɪl.'gʌ ] 'animal tick'

/yilii:yilka/ [ yɪ.'lii.ɪ.ɪ(ʌ) ] 'tell (pres)'

/yilapila/	[yɪ.'lɔ.pɪ.l(ɔ)]	'axe (instrument)'
/yɪŋuli:ŋula/	[yɪ.'ŋu.li.ŋu.l(ɔ)]	'morning'
/a:řka/	[ař.'kɔ]	'entrails'
/yiřkwulya/	[ɪř.'k <sup>w</sup> u.l <sup>y</sup> (ɔ)]	'woman'
/a:řka:řakwa/	[ař.'ka.řɔ.g <sup>w</sup> (ɔ)]	'tree (species)'
/a:řki:ta:řki:ta/	[ař.'ki.d.ař.ki.t(ɔ)]	'yellow'
/yiřka/	[yɪř.'kɔ]	'ground oven'

The relatively few exceptions to the above pattern are listed below:

/yiřpaŋa/	[ 'ɪř.pɔ.ŋ(ɔ) ]	'poor thing!'
/ya:pa/	[ 'ya.p(ɔ) ]	'that'
/yiřa/	[ 'yɪ.ř(ɔ) ]	'ant'
/yilaka/	[ 'yɪ.lɔ.k(ɔ) ]	'what'
/yɪnpa/	[ 'yɪn.p(ɔ) ]	'skin'
/yɪlyka/	[ 'yɪl <sup>y</sup> .k(ɔ) ]	'isolation camp'
/ya:kuřa/	[ 'ya.ku.ř(ɔ) ]	'bag'
/yipayipa/	[ 'yɪ.bɔ.yɪ.b(ɔ) ]	'sheep'
/yɪtayitali:yila/	[ 'yɪ.tɔ.yɪ.tɔ.li.i.l(ɔ) ]	'push (pres)'

One word carries even stress on both syllables:

/yu:yu:/	[ 'yo.'yo ~ 'yō.'yō ]	'yes'
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In words beginning with any consonant other than /y/ the stress falls on the first syllable, again irrespective of the number of syllables contained in the word.

/muřa/	[ 'mu.ř(ɔ) ]	'good'
/ka:puta/	[ 'ka.pu.d(ɔ) ]	'head'



/ɲula:ɾɲa/	[ 'ɲu.laʃ.ɲ(ʌ) ]	'tomorrow'
/tyilapatyila/	[ 'tʲɪ.lɪ.ɪ.ɲ.pɪ.tʲɪ.l(ʌ) ]	'navel'

The relatively few exceptions to this rule are as follows:

/wa:lta/	[ wal.'dʌ ]	'nulla nulla'
/ka:lta/	[ kal.'dʌ ] <sup>13</sup>	'hair'
/puluʃɲa/	[ pu.'luʃ.ɲ(ʌ) ]	'bird (species)'
/tiʀakəʃa/	[ tʀ.'ʌ.gʌ.ʃ(ʌ) ]	'cockatoo'
/muluʃai:yiša/	[ mu.'lu.ʃa <sup>i</sup> .yɪ.ʃ(ʌ) ]	'witchetty grub (species)'

## ABBREVIATIONS

excl	exclusive
fut	future tense
immed	immediate
incl	Inclusive
Intr	Intransitive
nom	nominative
obj	object
pl	plural
poss	possessive
pres	present tense
S	stop
sg	singular
tr	transitive
∅	zero
I	pronoun kinship class--used when speaking to or of members of one's own skin
II	pronoun kinship class--used when speaking to or of members of the same moiety but of different skins
III	pronoun kinship class--used when speaking to or of members of both moieties

## FOOTNOTES

1. Alyawarra is one of 160 languages belonging to the Pama-Nyungan language family. Within this family it is a member of the Urtwa subgroup of the Aranda group. It has an estimated 500-600 speakers.

The Alyawarra people live in three main areas in the eastern centre of Australia: Lake Nash, on the Queensland border; Warrabri Aboriginal Reserve, 230 miles north of Alice Springs on the Stuart Highway; and MacDonalld Downs, 150 miles northeast of Alice Springs. The former two centres form the northern two tips of an approximate geographical triangle and the latter centre its southern tip. Most of the remaining Alyawarra live within this triangle on smaller cattle stations, though a number live just to the north of the triangle at Epenarra Station.

Language data used in this analysis were collected under the auspices of the Summer Institute of Linguistics during a total of 6 months over a 2 year period (1972-74) at Murray Downs cattle station and Warrabri Aboriginal Reserve. Various Alyawarra people served as teachers in providing the language data. Grateful acknowledgment is given all of them here but those to receive particular thanks are Ratla Kamaarra (Murray Downs), and Else Rex, Violet Barnes and Daphne Tyaaparril (Warrabri).

I would like to acknowledge here, also, access to language data and a preliminary analysis as well as notes on a later analysis produced by Colin Yallop on the dialect of Alyawarra spoken at Lake Nash cattle station, and express appreciation for the ready availability of this material.

Concentrated analysis for this paper was done at an SIL workshop during November-January 1974, under the consultant help of George L. Huttar whose assistance is here very gratefully acknowledged.

2. It might be argued that another syllable pattern word initially would be introduced by the word initial homorganic pre-nasalized labialized stop sequences:

CCCV                      ['ŋg<sup>w</sup>a.ɾ](Λ)                      'honey/sugarbag'

But in that homorganic pre-nasalized stops have already been interpreted as single complex units word initially on the syllable level, such a pattern has been eliminated.

3. One word in the data does not fully follow this pattern, but rather contains a stop followed by either a homorganic or a heterorganic voiceless nasal, flowing into a heterorganic voiced nasal as follows:

[a.'t<sup>N</sup>ŋΛ ~ a.'t<sup>N</sup>ŋΛ]                      'eye'

It is not certain yet which is the correct phonetic rendering.

4. The phoneme /i/ would be chosen to fill this vowel slot as the sequence [eɾ] does not occur.

5. The following few words appear to be exceptions to this pattern:

['k<sup>w</sup>ə].p(Λ)                      'wallaby (species)'

[ə]. 'g<sup>w</sup>i.ɿ.ɿ(Λ)]                      'eat (pres)'

[ə]. 'dɾ(Λ)]                      'fat'

[ə]. 'dɾɿ.ɿ(Λ)]                      'west'

[əŋ. 'də.t<sup>y</sup>(Λ)]                      'sick'

[a. 'ɣəŋ.k(Λ)]                      'beard'

[ə. 'ɿa<sup>u</sup>(Λ)]                      'lower leg'

6. One word in the data is an exception to this rule:

/yu:yu:/ [ 'yo. 'yo ~ 'yo. 'yo? ~ 'yō. 'yō ~ 'yō. 'yo? ] 'yes'

Two other words in the data do not always end in /a:/ or /a/ but sometimes rather with a glottal stop /ʔ/:

/mpa:/ [ 'mba ~ 'mba? ] 'come, let's go'

/ma:/ [ 'ma ~ 'ma? ] 'here' (in offering something)

The word /yu:yu:/ departs from the normal pattern of the language also in the alternative phonetic rendering featuring the lengthened second vowel which carries a change in pitch. See note 8 also.

7. The correct phonetic rendering of this word may be that of a retroflexed flap [ɣ̣] rather than a retroflexed [ŋ], in which case [ɣ̣] would make a 22nd consonant in the language. The correct rendering is not certain at this stage.

8. [y] does occur preceding [o], the other allophone of /u/, word initially, though in only one word.

/yu:yu:/ [ 'yo'yo ~ 'yō. 'yō ] 'yes'

9. The Phonological Word in Dieri by D. Trefry was used as a model for this and the remaining part of the paper, excluding the section on stress. The vowel chart in this paper is also modelled after Trefry's.

10. The palatal and velar stop plus nasal complexes do not appear in this position in the data but it is felt that on the basis of symmetry these stops would fill the same position as other stop plus nasal complexes; stop plus nasal complexes are relatively infrequent in the

language and thus more data would be needed to either prove or disprove this.

11. The retroflexed stop plus nasal complex /ɖŋ/ may be an exception to this rule in the following word:

/ɖŋi:yila/

'stand (pres)'

The preferred pronunciation of this word seems to lack any initial vowel quality.

12. [ɪ] and [ʊ] occur word initially phonetically, but not phonemically in that it has been posited that /y/ phonemically precedes [ɪ] and [ʊ] word initially.

13. An alternate favored pronunciation of this word is [aɪ.ɖʌ].

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