

3. HISTORICAL PHONOLOGY

Because this thesis is primarily concerned with morphological reconstruction, detailed phonological reconstructions fall outside the scope of investigation. Nonetheless, it is important to make a few remarks regarding the sound changes which may be traced, since many of these changes affect morphemes as well as whole words. Some phonological changes will simply be noted and very briefly described; others, such as the voicing contrasts (section 3.2.4), are important for the reconstruction of forms in this thesis and will be discussed at greater length.

3.1 LITERATURE REVIEW

The first and only reconstruction of the phonology of Proto-Karnic was undertaken by Professor Peter Austin and published in 1990; this is Austin (1990a). Austin reconstructs over 300 lexical items for the Lake Eyre Basin and draws a family tree based on lexical retentions and common sound changes.³⁰ In addition, there are several sound changes which do not fit the family tree, and are assumed to have diffused. Austin also evaluates the evidence for the inclusion of Arabana-Wangkangurru as Karnic, and concludes that this language is not part of the Karnic subgroup. Austin also includes a few of grammatical forms, including pronouns and the pronominal accusative marker *-nba*.

Useful as this paper is, there are a number of faults. First there is a matter of internal grouping of languages. Yandruwandha and Yawarrawarka are clearly more similar to each other than either are to Mithaka (since they are regarded by a number of people as dialects of the same language³¹), yet Austin does not group them together (recall figure 1.2 on page 10). There are some mistakes in the text, such as the reconstruction of **ngalta* for **ngalda*³² (although this is corrected elsewhere). Austin (1990a:178-9) reconstructs a voicing distinction in lateral stop clusters for Proto-Karnic, but the only evidence provided for this is from his Central Karnic languages; **ngalda* is also relevant here. Finally, and more importantly, Austin makes no attempt to distinguish borrowing from shared genetic inheritance; while acknowledging its importance (176), it seems that almost all changes are assumed to be the result of genetic inheritance. This makes the results in the paper of doubtful value when trying to construct a genetic subgroup.

While Austin (1990a) is the only systematic comparison and reconstruction of the languages of the Lake Eyre region, there are a number of other articles which discuss various historical phenomena. There are, for example, Austin's studies of voicing

³⁰ This family tree was reproduced in chapter 1 (figure 1.2, p 10)

³¹ Luise Hercus (pc), Gavan Breen (pc) and Bob Dixon (pc).

³² **ngalta* could have been the form in pre-proto-Karnic (assuming it existed there), but Austin reconstructs a voicing distinction in Proto-Karnic.

contrasts and trilled stops in the Lake Eyre basin, which provide some historical reconstructions (Austin (1988b,c)); Austin (1989) is a comparative study of the syntax of verb compounding in Karnic and other languages. Dr Hercus has also completed a number of other comparative studies of languages of the area, including Hercus (1987), a study of linguistic diffusion in the Birdsville area. The case studies are in verbal morphology and adverbial marking, and are thus beyond the scope of this thesis; nonetheless it shows that there are a number of features within Karnic which have diffused.

There are also several papers dealing with synchronic phenomena which briefly compare the language with the other languages of the area, such as Hercus (1972) and Hercus (1979).

Perhaps most striking about the phonological changes in the Lake Eyre basin, however, is the fact that there are actually only a few changes; even a brief glance at the wordlist in Breen (1971a) reveals that most of the differences in the languages seem to have come about through lexical, and to a lesser extent, morphological, replacement. A full lexical comparison, with consideration given to borrowing, where it can be determined, is thus vital to claims of subgrouping within Karnic. Unfortunately, such a study could not be undertaken here.

3.2 PHONOLOGY AND PHONOTACTICS

3.2.1 Rhotics

Karnic languages are somewhat unusual in Australia in that there are in these languages three phonemically distinct intervocalic rhotic phonemes - a trill, *r*; a tap, *r̥* and a retroflex continuant, *R*. All languages appear to distinguish these phonemes, although initially and in clusters there are certain restrictions on distributions which depend on the languages concerned. Most often the tap and the voiced stop are in complementary distribution; the tap occurring intervocalically and the stop in nasal and lateral clusters.

The correspondence sets are not entirely regular, although there are some general tendencies. The exceptions could be due to borrowing, or to changes conditioned by complicated environments. There are also different correspondence sets in affixes and stems (due for the most part to the stress conditions). The tendencies are:

- in affixes, /l/ in most Karnic languages corresponds to /r/ in Arabana-Wangkangurru and Wangka-jutjuru.³³ There is a certain amount of irregularity in the correspondences;
- R generally corresponds to R in all languages; we can quote in support of this **maRa*, “hand”, realised as *maRa* in all languages, **naRa* ‘who’, which is also *naRa*

³³ In Arabana-Wangkangurru we can argue that any change from l to r in stems was blocked by the pre-stopping of laterals after stressed vowels.

in all languages, although compare Ngamini *ngara* ‘hear’, Pitta-Pitta *ngara*, Yawarrawarka and Yandruwandha *ngaRa*.

- there is a certain degree of irregularity in the correspondences between taps and trills, but for the most part taps correspond to taps and trills to trills in the languages.³⁴

Note also, however, that there is a certain degree of variation even within languages. Blake and Breen (1971a:41) note that there were certain words in Pitta-Pitta which varied; some words did not but in others glides altered with taps and taps altered with trills. Coupled with this are the changes noted in rapid speech: trills tend to become taps and taps tend to become glides.

Given the overall regularity of the correspondences it is plausible to assume that three distinct rhotics existed in the proto-language.

3.2.2 Lamino-Dental and Lamino-Palatal consonants

Austin (1990a) reconstructs a distinction between the lamino-dental and the lamino-palatal for Proto-Karnic, and there are a number of near-minimal pairs in his reconstructions. There appear to have been a number of sporadic changes in various forms in different languages. The following table gives a few reflexes of common words containing *ty*, *tb* and *t* (and also one containing reflexes of *l*, *lb* and *ly*). As may be seen, the correspondence sets are not entirely regular.³⁵

‘tongue’	Nga <i>tali</i> , Mith <i>tarli</i> , Punth <i>tarlanya</i>	Wn, PP, Yawa <i>tharli</i> , Wjútj <i>thali</i>
‘stomach’	Nga, Mith, Yawa, Yandr <i>tunru</i>	Wn <i>thundru</i> , Wjútj <i>tyurntu</i> , PP <i>thurntu</i>
‘foot’	Nga, Mith, Yawa, Yandr <i>tina</i>	Wn <i>thidna</i> , Wjútj, PP, Punth <i>thina</i> ,
‘nose’	Nga, Mith, Yawa, Yandr <i>mula</i>	Wn <i>midlha</i> , Wjútj <i>milha</i> Punth <i>mulba</i> , PP <i>milya</i> .

Table 3.1. Illustration of inconsistent correspondence sets.

Hercus (1994:28-29) argues that the change appears to be quite recent in Arabana-Wangkangurru. She cites evidence that place names and songs tend to reflect lamino-palatal consonants, where some equivalent words in everyday speech have dentals. One example is *kathu/katyu* ‘to be silent’ (Hercus (1994:29)). In some words, the lamino-palatal and lamino-dental consonant are in free variation.

From the irregularity of the correspondences it is possible that the contrast might have diffused in Karnic. Since the laminal sounds are a somewhat unstable in some languages, and can be even in free variation, this is not conclusive evidence.

³⁴ For some examples, see table 5.34.

³⁵ Note that many of the irregularities presented here could possibly be explained through borrowing; nonetheless, the point is made.

It cannot thus be established whether there was in Proto-Karnic a distinction between two laminal series. Following Koch's (1997c) Arandic reconstructions, the type of laminal consonant is specified in the reconstructions in this thesis, without a commitment as to whether there was such a contrast in the proto-language. There is insufficient evidence at this time. A detailed reconstruction of the lexicon of Proto-Karnic might provide more evidence, either in the form of minimal pairs or by showing that it is possible that the contrast developed in the daughter languages. This is not possible here, however.

3.2.3 Pre-Stopping

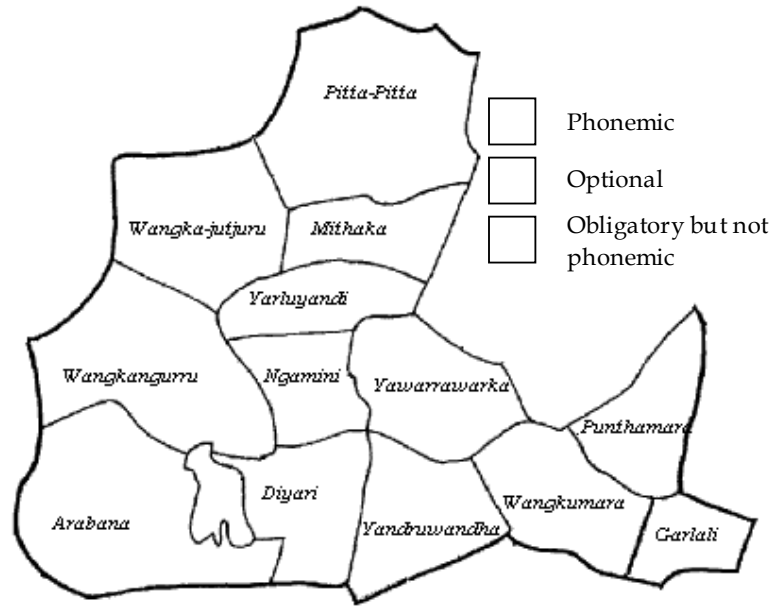
Hercus (1972) contains a survey of the languages of the Lake Eyre basin which show prestopped consonants. In Arabana-Wangkangurru, labial, lamino-dental and apical nasals and laterals show prestopping when they occur following the vowel taking the word's primary stress (Hercus (1994:38)). Nasals remain without prestopping when the first consonant of the word is a nasal.³⁶ In Diyari, Ngamini and Yarluyandi, prestopping is optional and occurs in the same environment as in Arabana-Wangkangurru (that is, after stressed vowels where there is no initial nasal. The following minimal pairs are given in Austin (1981b:19):

- (1) 'you two' *yudla* ~ *yula*
 'yamstick' *wadna* ~ *wana*
 'her' *nhanba* (not *nbadnba*)

In Yandruwandha and Yawarrawarka there is a phonemic opposition between retroflex and apical plain and pre-stopped laterals (Breen (1975:10)). The apico-alveolar nasal was prestopped when it followed the primary stress of the word and no initial nasal was present.

There is no prestopping in Pitta-Pitta or Wangka-jutjuru, nor in Wangkumara, Punthamara or Garlali. We can show the distribution of prestopped consonants on the following map. The shading shows which languages have optional or obligatory prestopping, and whether it affects nasals or laterals or both.

³⁶ Laterals do not occur initially, and so laterals are always prestopped.



Map 3.1. Optional, obligatory and phonemic pre-stopping of nasals and laterals

It is also important to consider which nasals and/or laterals are pre-stopped. In Yandruwandha, for example, retroflex nasals and laterals can be pre-stopped, but this is never the case in Arabana-Wangkangurru. The following table summarises the types of consonants which can be pre-stopped in each language. Question marks following the cross indicate that the form was heard only rarely.

Language	<i>bm</i>	<i>dny</i>	<i>dnb</i>	<i>dn</i>	<i>rdn</i>	<i>kng</i>	<i>dly</i>	<i>rdl</i>	<i>dl</i>	<i>dlb</i>
Ara-Wn	X	X?	X	X			X?		X	X
Diy/Nga/Yarl			X	X					X	X
Yawa/Yandr				X				X	X	X?

Table 3.2. Environments for Pre-stopping.

From table 3.2. it is clear to see that pre-stopping in Arabana-Wangkangurru has a different distribution from that in Yawarrawarka and Yandruwandha, and that Diyari, Ngamini and Yarluyandi largely share the pre-stopping environments common to the languages on either side. This seems strongly suggestive that Diyari, Ngamini and Yarluyandi have developed pre-stopping under areal pressure from the languages to the east and west. Note also that in Diyari and Ngamini pre-stopping is optional; in the surrounding languages, it is not.

Pre-stopping is found in several language groups outside the Lake Eyre basin. In Arandic, for example, pre-stopping of nasals in all places of articulation is phonemically contrasted with plain nasals. In Adnyamathanha, Kuyani and Nukunu pre-stopping is also common (Hercus (1972), Koch (1997c:277)). Pre-stopping is also found at all places of articulation in nasals (but not laterals) in the Arandic languages (Harold Koch, pc).

Thus prestopping would seem to be very much an areal feature.

3.2.4 Voicing Contrasts

A contrast in some environments between voiced and voiceless stops is to be found in all languages but Pitta-Pitta, Wangka-jutjuru and Arabana-Wangkangurru (data were not available for Mithaka). Data are from Austin (1988c) and Breen (1997). The environments in which voiced and voiceless stops contrast vary depending on the language. The following table summarises the distribution. V denotes the contrast occurring intervocalically, N that the contrast occurs in homorganic nasal/stop clusters, and L that the contrast occurs in lateral/stop clusters.

Language	labial	apico-alveolar	retroflex	dental	palatal	velar
Yarluyandi	N	N	V			N
Ngamini		N, L	N, V			
Diyari		N, L	N, V			
Yandr	V, N, L	N	V, N	V, N	V, N	V, N, L
Wa	N, L, V		N, L, V	N, L, V	N, L, V	N, L, V

Table 3.3. Distribution of voicing contrasts

The gaps in the occurrence of a contrast in voiced and voiceless apico-alveolar stops intervocalically in Diyari and Ngamini appears to be that the stop has become a tap. See further Breen (1997).

Yandruwandha and Yawarrawarka have voiced and unvoiced stops at all points of articulation (Austin (1988c:28, 35)). Wangkumara exhibits a contrast in all positions except for the apico-alveolar. Austin (1990a) reconstructs their origin in homorganic clusters after stressed vowels (that is, in the position #NV_), where the initial consonant was a nasal. Clearly distinctions in voicing have spread out of this environment. Austin (1990a) does not imply whether this is an areal or genetic feature.

It is also possible that voicing could have arisen in some environments from a distinction in vowel length in the first syllable of the word. A contrast between long and short vowels has been proposed for Proto-Pama-Nyungan (Dixon (1980:132)). Austin (1988c:26) notes, following Breen (1971b:22) and Dixon (1980:215), that Warluwarra has both voiced and voiceless stops; voiced stops occur following long vowels, and the voiceless counterparts following short vowels.³⁷ It is quite possible that the length of the vowel in the initial syllable could have conditioned the voicing of the stop; once the contrast in vowel length was lost, the voicing of the stops would have then become phonemic in these languages. A detailed lexical reconstruction would probably provide more evidence for this. Since no pronouns are reconstructed with long vowels in Proto-Pama-Nyungan, and in these words voicing can be shown to

³⁷ There are phonetic reasons for this. See further Ladefoged (1993:250).

have arisen because of other conditioning, the point does not affect reconstructions in this thesis.

3.2.5 Trilling of stops

In Diyari, Yandruwandha, Yawarrawarka and Wangkumara, all voiced apical stops have trilled release. Thus $*d > dr$, and in Yandruwandha and Yawarrawarka, $*rd > rdr$. In Diyari, dr is found in clusters and rr intervocally. See further Breen (1997) and Austin (1988b).

In Thirriari the trill and the plain variety are in free variation. In Ngamini most stops are trilled; there are, however, a few exceptions, such as the second person singular ergative pronoun, *yundu*, which is never *ʔyundru*.

3.2.6 Initial Dropping

In Arabana-Wangkangurru some words beginning with vowels can be traced to words which originally began with velar nasals. One of these words is the name Arabana itself, which was recorded by Tindale (1940) as *Ngarabana*. Pronouns and kin terms show the most evidence of initial dropping. For more discussion of initial dropping as it applies to pronouns, see further section 5.3.1.

In Yandruwandha initial *ty-* weakens to *y-* before *i* and *a*. The following table gives a few examples (from Austin (1990a:182)):

Yandruwandha	Yawarrawarka	Gloss
<i>yarra</i>	<i>tyarra</i>	'boomerang'
<i>yiva</i>	<i>tyivaRa</i>	'woman'
<i>yimpa</i>	<i>tyimpa</i>	'black'

Table 3.4. Initial lenition of *ty* in Yandruwandha.

3.2.7 Lenition

In Diyari it appears that some labial stops have lenited to a glide; thus we find Arabana-Wangkangurru *nbupa*, 'spouse', Diyari *nbuwa*, Yandruwandha *nbipa*, Wangka-jutjuru *nbupu* (Proto-Karnic $*nbupa$). Other grammatical examples will be mentioned as they occur.

3.2.8 Phonotactics

All Karnic languages have the same basic phonological structure, and near-identical constraints on sequences of consonants and vowels. All words in all languages must end in a vowel, and all must be of at least two syllables. This does not seem to have been the case in Proto-Karnic, since we can reconstruct words further back than Proto-Karnic in the Karnic languages, which were monosyllabic in the proto-language but not in the daughter language, and where the final syllable is different. This statement also applies to words which contained a closed final syllable. Compare the following correspondence sets, where it can be seen that the daughter languages have all enforced a phonotactic restriction, but have done so in different ways. This clearly implies that the restriction did not apply in the proto-language.

(2) ***mi:l**, Diy, Yarlu, Yawa, Karu *milki*, Nga *mirki*, Yandr, Yawa, *mitji*, Ara *miltja(k)ardi*, Wn *milkikarti*.

***thalany**, Ara, Wn, Diy, Nga, Yarl, Mith, PP *tharli*, Yandr, Yawa *thalinya*.

This is relevant to the discussion of the reconstruction of pronouns, as several pronouns can be reconstructed to the form *CVC. See further chapters 5 and 6.

3.2.9 Stress

Stress is quite uniform, on the first syllable of the word. Rules for the assignment of secondary stress vary from language to language. Most commonly it appears on the third syllable of the word, and a further, weaker stress on the fifth, if such exists. Suffixes are thus often unstressed, although it is noted in Breen (1975a) that disyllabic suffixes in Yandruwandha are sometimes pronounced as separate words, and Austin (1981b:31) notes for Diyari that disyllabic suffixes are assigned a secondary stress on the first syllable. Apparent exceptions due to stress conditions will be noted as they appear.