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Velar-Initial Etyma and Issues in Comparative Pama-Nyungan

by

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A Dissertation Submitted in Partial Fulfillment of the
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We accept this dissertation as conforming
to the required standard

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ABSTRACT

One of the most important questions in Australian comparative linguistics over the last 40 years is the validity of a Pama-Nyungan node in the Australian family tree. Much of the comparative research done on Australian languages has supported the notion of a Pama-Nyungan family, and its validity is now well-established. However, much work remains to be done, both in establishing the relationships among the Pama-Nyungan languages and in reconstructing proto-Pama-Nyungan and determining the details of its development in the various branches of the family tree. This dissertation is a contribution towards the latter effort.

The primary purpose of the present study is to determine the development of the three initial velars, **k*, **ng* and **w*, in 25 Pama-Nyungan languages through 1561 cognate sets. The cognate sets are also an important resource for the study of other aspects of phonological change in Pama-Nyungan languages. The data provide evidence for the weakening of medial consonants, the assimilation of initial velar glides and nasals to the following vowel, prenasalization of medial stops, the development of triconsonantal clusters, and the presence of both a laminal lateral and a retroflex series of consonants in proto-Pama-Nyungan. In addition, statistical evidence is presented which supports the hypothesis that assimilation of the second to the first vowel is an important process in the history of many Pama-Nyungan languages.

This dissertation also discusses important issues regarding the Neogrammarian hypothesis and the comparative method. In particular, the data presented here support the idea that not all sound changes apply in a lexically abrupt, regular manner. Many of the sound changes seen in the data appear to affect only a portion of the eligible forms, and thus provide evidence for the theory of lexical diffusion. Furthermore, most of the changes are found not just in individual languages, but in a number of the languages under study. The data therefore support the notion of pandemic irregularity.

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List of Abbreviations

BAA	Bāgandji
BAY	Bayungu
BGU	Bidyara-Gungabula
BNJ	Bundjalung
DIY	Diyari
DYI	Dyirbal
GUM	Gumbaynggir
GUP	Gupapuyngu
GYA	Gugu-Yalanji
KAU	Kaurna
KLY	Kala Lagaw Ya
NMA	Ngarluma
NYA	Nyangumarta
NYA-S	Nyangumarta-Strelley dialect
NYA-W	Nyangumarta-Wallal dialect
NYU	Nyungar
PIN	Pintupi
PIT	Pitta Pitta
PNK	Pankarla
UMP	Umpila
WEM	Wembawemba
WJK	Wadjuk (Northern Nyungar)
WLP	Warlpiri
WMK	Wik Mungkan
WOI	Woiwurrung
YAN	Yanyuwa
YDN	Yidiny
YIM	Guugu Yimidhirr

pCK	proto-Central-Karnic
pKAN	proto-Kanyara
pKAR	proto-Karnic
pNG	proto-Ngayarda
pNY	proto-Nyungic
pNY (D)	proto-Nyungic (Desert languages)
pNYY	proto-Nyungo-Yuulngic
pP	proto-Pamic
pPM	proto-Pama-Maric
pPN	proto-Pama-Nyungan
pPN (E)	proto-Pama-Nyungan (Eastern languages)
pPN-	proto-Pama-Nyungan (no southeastern languages)
pWK	proto-Western-Karnic
pYUR	proto-Yura

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Dedication

To my son. Jasper Cattell. and to my baby due in eight weeks' time. You have taught me more about life than I could have learned in a lifetime of formal education.

Chapter 1

Introduction

One of the most important questions in Australian comparative linguistics over the last 40 years is the validity of a Pama-Nyungan node in the Australian phylic tree. In 1962, Hale proposed that the Pama-Nyungan languages form a family, which is almost certainly a member of the Australian phylum. Although many researchers have agreed with this, Dixon (1980) felt that the distinction between Pama-Nyungan and non-Pama-Nyungan languages is typological rather than genetic. Thus, he believed that there is just one language family in Australia, and that although the Pama-Nyungan languages are members, they do not share a period of common development separate from the non-Pama-Nyungan languages.

Much of the comparative research done on these languages has supported the notion of a Pama-Nyungan family, and its validity is now well-established. However, much work remains to be done, both in establishing the relationships among the Pama-Nyungan languages and in reconstructing proto-Pama-Nyungan (pPN) and determining the details of its development in the various branches of the family tree. This dissertation is a contribution towards the latter effort.

In Fitzgerald (1991), I focussed on *ng*-initial roots in 19 Pama-Nyungan languages.

I also included roots beginning with *w* in eight languages which may weaken initial **ng* to *w*. The result of the study was 168 cognate sets which appeared to reflect *ng*-initial roots, either at the family level or at subgroup levels. These data did not provide justification for establishing a regular conditioning environment for the weakening of **ng-*.

The primary purpose of the present study is to determine the development of the three initial velars, **k*, **ng* and **w*, in 25 Pama-Nyungan languages through a large number of cognate sets. In addition, this study uses the sets in exploring other issues in Pama-Nyungan historical phonology, such as weakening of medial consonants, assimilation of initial velars to **i*, prenasalization of medial stops, the development of triconsonantal clusters, the history of the laminal lateral and of the retroflex series of consonants, and assimilation of the second vowel to the first. The sets are also useful as a source of corroboration for semantic links between putative cognates.

Although the focus of this study is pPN initial velars, many of the reconstructions presented in Chapters 3-5 are for lower levels in the family tree. These data, then, may be useful for further work on subgroupings in the Pama-Nyungan family.

In the remainder of this chapter, I review past work on comparative Pama-Nyungan, provide a brief introduction to pPN and discuss the languages included in this study. In Chapter 2 , I explore current issues regarding the comparative method and the regularity hypothesis, and discuss the applicability of the method to Pama-Nyungan languages. In addition, I detail the methodology used in this study. Chapters 3, 4 and 5 present the cognate sets resulting from my study. The development of initial velars, as well as other phonological questions, are discussed in Chapter 6, and my conclusions are given in Chapter 7.

1.1 Previous work on Pama-Nyungan

In this section, I summarize the work which has been undertaken to validate Pama-Nyungan as a language family, to establish the subgroupings of the family, and to reconstruct pPN. First, I discuss the history of the notion of Pama-Nyungan as a family. I then list many of the works which have appeared in the last 35-40 years.

Capell (1956:3) recognized the typological distinction between the "prefixing" languages of much of the north and the "suffixing" languages of the south and Queensland. In the former, prefixes are used to mark number and person on verbs. The latter lack prefixes entirely. Capell believed that all of the aboriginal languages of Australia are ultimately related, but that too little evidence remains to reconstruct a proto-language on par with proto-Indo-European. Instead, he (1956:3) proposed the notion of Common Australian, "a group of common elements, classifiable under the headings of phonetics, morphology and vocabulary." Capell (1979) expands on the history of the Australian languages.

A large-scale lexicostatistical study of Australian languages undertaken in the 1960s resulted in a preliminary genetic classification which recognized 29 language families (O'Grady, Voegelin and Voegelin (1966) and O'Grady, Wurm and Hale (1966)). The largest of these, Pama-Nyungan, covers approximately four-fifths of the continent and has approximately 170 daughter languages. The northern boundary of this family roughly corresponds to the boundary between the prefixing and suffixing languages. The remaining families are located in Arnhem Land, the Kimberley region and part of the Gulf country. This classification has been criticized by Platt (1967) and by Dixon (1980), who both seem to misunderstand its purpose. Dixon (1980:262-263) complains that the comparison of the vocabularies

> was applied quite mindlessly, so that a question 'is language X related to

> language Y?' was always provided with an answer 'yes' or 'no.' ... No criteria other than lexicostatistics were given for these [genetic] groups. ... There was no attempt to establish genetic relationship in the established sense ... nor was there any admission that this was necessary.

Dixon (1980:262) also takes issue with the fact that "in most cases only the vocabularies of adjacent languages were compared."

O'Grady and Klokeid (1969:311) emphasize that "[t]he purpose of the creators of the classification was to apply a single technique - the lexicostatistic one - to the task of arriving at a preliminary genetic grouping of Australian languages." They defend the use of lexicostatistics, citing "the lack of time to carry out a classification based, for example, on shared innovations in phonology" (O'Grady and Klokeid 1969:298). The classification was done under the assumption "that pairs of Australian languages which are geographically remote would turn out, in general, to be linguistically far apart also. ... Systematic spot checking in general supported the assumption" (O'Grady and Klokeid 1969:299). This allowed the number of lexical comparisons to be greatly reduced, thereby making the study possible.

Despite the criticism of Platt and Dixon, many Australianists see the classification as a useful starting point for further work. In fact, Blake and Dixon (1991:6) say that "it did provide a good overall picture of the patterns of degrees of relatedness." Since its initial appearance, the classification has been altered to some extent; in most cases revisions are based on grammatical and phonological evidence. Updated versions of the classification appear in Wurm (1971 and 1972). As well, some studies of subgroups have indicated revisions. For example, Yanyuwa was first classified as a non-Pama-Nyungan language, but is now considered to be Pama-Nyungan (Blake 1990); the Tangkan languages were classified as Pama-Nyungan, but have since been found to form a separate family (Evans 1988:91); and the number of non-Pama-

Nyungan families can be reduced. Such fine-tuning is only to be expected as more and more work on the history of the Australian languages is undertaken.

Dixon (1980:226) also doubts whether Pama-Nyungan is in fact a distinct node on the Australian family tree. He says that "the division between PN and nonPN languages is a typological (and areal) one. It should not be inferred that PN is in any sense a genetic unity - that there was a proto-PN, as an early descendant of pA [proto-Australian]." He has since softened his position somewhat, and in 1990 said that Pama-Nyungan "might well be" a genetic entity, "but adequate justification has yet to be produced" (Dixon 1990b:400). By the next year, Blake and Dixon (1991:22-26) speak of Pama-Nyungan as a language family.[1]

In his critique of the notion of Pama-Nyungan as a language family, Dixon (1980:221) states the steps necessary in establishing relationships among languages:

> In order to prove that a group of languages is genetically related, it is necessary to undertake systematic comparison of their phonological, grammatical and lexical systems; to put forward - on the basis of this comparison - a hypothesis about some of the forms and structures that can be assigned to their putative common ancestor; and then to detail the regular changes by which each modern language has developed from the proto-system.

In the remainder of this section, I discuss many of the studies which have been published on Pama-Nyungan in the last 35 years.[2] The list of such works shows

[1] Note that Blake has challenged Dixon's views on Pama-Nyungan, and his work on pronouns (1988, 1990) has been instrumental in establishing the genetic unity of Pama-Nyungan and its relative genetic distance from the non-Pama-Nyungan languages.

[2] I have attempted to include as many works in this discussion as possible. Unfortunately, due to time and resource limitations, I may have omitted some applicable studies. No offense is intended by such omissions, and I would appreciate these being brought to my attention.

that the steps outlined by Dixon are all in progress. The complete establishment of a language family entails a huge amount of work, more than can be done by any one person or small group of researchers, and more than can be done in a short amount of time. As can be seen below, "systematic comparison of [the] phonological, grammatical and lexical systems" of Pama-Nyungan languages is being undertaken, and "hypothes[e]s about some of the forms and structures that can be assigned to their putative common ancestor" are being put forward.

1.1.1 Phonology

Since Hale's study of the Arandic languages in 1962, many papers on the historical phonology of the Pama-Nyungan languages have appeared. These include studies of the development of dialects of a single language, of groups and subgroups of the family and of the family as a whole, as well as proposals regarding the phoneme inventory and phonotactics of pPN.

Hale (1964) gives a phoneme inventory for proto-Pamic, and demonstrates that 13 dialects and languages of the Northern Pamic subgroup, which were at one time thought to be "un-Australian," are indeed members of the Pama-Nyungan family. O'Grady (1966) presents a detailed study of proto-Ngayarda phonology and of the development of the Ngayarda languages.

Dixon (1970) discusses the development of laminal stops and nasals in Australian (mainly Pama-Nyungan) languages. Alpher (1972) looks at the languages of south-western Cape York Peninsula. In 1976, a large number of papers were published on the historical phonology of Pama-Nyungan languages. These include Alpher (1976) on innovations found in Cape York Peninsula languages; Crowley (1976) on the relationships of seven languages of New England, paying particular attention to the phonological changes found in Nganjaywana; Hale (1976b, 1976c, 1976d) on the changes in

several Northern Pamic languages, in Uradhi, and in the Wik languages, respectively, from proto-Pamic; O'Grady (1976) on the development of the Umpila phoneme inventory from that of proto-Pamic: Rigsby (1976) on Kuku-Thaypan, a Pamic language: Sommer (1976b) on metathesis and the loss of initial consonants in three languages of Cape York Peninsula: and Sutton (1976a) on several initial-dropping languages of southern Cape York Peninsula. Blake (1979b) discusses the phonological history of Kalkatungu, while Hercus (1979) examines the dropping of initial consonants in Arabana-Wangkangurru. O'Grady (1979) proposes a phoneme inventory for proto-Nuclear-Pama-Nyungan.

Black (1980) studies the Norman Pamic subgroup. Dixon (1980) includes sections on proto-Australian phonology and phonological change: given that his work involves mainly Pama-Nyungan languages, his "proto-Australian" can be taken to be pPN. Austin (1981b, 1988) details the development of the Kanyara and Mantharta languages of Western Australia. O'Grady (1987) discusses phonological changes resulting in Eastern Pama-Nyungan monosyllabic roots, and Evans (1988) is an important work on the the merger of proto-Australian apicals with laminals in pPN.

Interest in the comparative phonology of Pama-Nyungan has not waned in the present decade. Austin (1990) discusses the development of the Karnic group. Dench (1990) is an autosegmental analysis of apparent diachronic metathesis in certain dialects of Nyungar. Dixon (1990a) details phonological change in dialects of Dyirbal, and Hendrie (1990) studies initial apicals in nine Pama-Nyungan languages. O'Grady (1990e) looks at the phenomenon of prenasalization in Pama-Nyungan languages. Fitzgerald (1991) studies the reflexes of pPN **ng-* in 20 languages, while Chen (1992) examines the development of pPN **w-* in the same languages. Sharpe (1993) discusses the loss of final *r* in Bundjalang. Blake and Reid (1994) look at sound change in the Kulin languages of central and western Victoria, as do Blevins and Marmion (1994) in Nhanta. O'Grady and Fitzgerald (1995) discuss triconsonantal sequences in a number

of Pama-Nyungan languages, and Austin (1997) outlines the phonological development of the languages of central New South Wales. Breen (1997) discusses rhotics and apical stops, while Crowley (1997) looks at the use of the comparative method in Australia, focussing on the languages of northern New South Wales. Fitzgerald (1997) presents a preliminary analysis of the history of the laminal lateral. Koch (1997) looks at the phonological development of the Arandic languages, spoken in the southeast of the Northern Territory. Sharpe (1997) examines the dialects of Bundjalung.

1.1.2 Grammar

Many of the above-mentioned works also include in their scope the diachronic study of morphological and syntactic systems. These studies include O'Grady (1966), Alpher (1972), Hale (1976b, 1976c), Blake (1979b), Black (1980) and Austin (1988). In addition, Hale (1970) looks at passive and ergative constructions. Case marking is a well-covered topic; studies include Hale (1976a) on ergative and locative suffixes; Sommer (1976a) on ergative and instrumental case marking in central Cape York Peninsula; Blake (1977, 1979a); and Klokeid (1978) on the development of accusative and ergative systems in Pama-Nyungan languages. As well, Dixon (1977) discusses syntactic change in Australian languages.

Dixon (1980) briefly discusses the antipassive construction and the development of accusative case marking systems. O'Grady (1981a) provides a reconstruction of the first person dual inclusive pronoun in pPN, as well as a suggestion regarding its origin. Dench (1982) details the development of accusative-type case marking in the Ngayarda languages. Nash (1982) looks at Warlpiri verbs and preverbs. Blake (1987) discusses the development of systems of marking core functions, while Bavin and Shopen (1987) examine changes occurring in the Warlpiri pronominal system and Blake (1988) reconstructs pPN pronouns.

Alpher (1990) studies pPN inflectional verb morphology, and Blake (1990) provides a further look at the use of pronouns in the genetic classification of Australian languages. Heath (1990) compares verbal inflections in Pama-Nyungan and non-Pama-Nyungan languages. Nash (1992) examines the kinship affix **-rti*. Dench (1994a) details changes affecting pronoun paradigms of 13 Pilbara region languages; and Koch (1996) presents several case studies of morphological change in Pama-Nyungan languages. Alpher (1997) conducts a preliminary study of possible morphological sources of noun-final *n* in Cape York languages. Dench (1997) explores the morphological development of complex kinship terms, and Hercus (1997) surveys the use of the verbalizer *-ma-* in the formation of adverbs.

1.1.3 Lexicon

Capell began the work on lexical reconstruction in 1956 with his Common Australian word list. Many of the comparative Pama-Nyungan studies which have been undertaken since then have either focussed on or included lexical reconstructions. For example, Hale (1964, 1976b, 1976c, 1976d) reconstructs proto-Pamic roots. O'Grady (1966) presents 451 reconstructed stems for proto-Ngayarda, with some discussion on further reconstructability to various genetic levels. Merlan (1979) focuses on verbs, and O'Grady (1979) gives reconstructions at the proto-Nuclear-Pama-Nyungan level and at various sublevels.

Black (1980) presents reconstructions for proto-Norman Pamic. Dixon (1980) includes a number of lexical reconstructions which, although labelled as "proto-Australian," are more properly considered pPN. Austin (1981b) gives 475 reconstructions for proto-Kanyara and proto-Mantharta stems. O'Grady (1981a, 1981b, 1987) reconstructs assorted roots, including proto-Nuclear-Pama-Nyungan **yamu*. Alpher and Nash (1982) study the rate of lexical replacement in Australian languages. Nash

(1982) focuses on the etymology of Warlpiri *kurdungurlu*. Austin (1988) provides further reconstructions for proto-Kanyara and proto-Mantharta.

Austin (1990) contains lexical reconstructions for proto-Karnic and its subgroups. Blake and Reid (n.d.) present a large number of cognate sets for the languages of Victoria. In the 1990s, O'Grady and his students have undertaken several studies which include a large number of lexical reconstructions at various levels. Some of these, such as Hendrie (1990), O'Grady (1990e), Fitzgerald (1991, 1997), Chen (1992) and O'Grady and Fitzgerald (1995) were mentioned in Section 1.1.1. Further such works include O'Grady (1990b) on the reflexes of the universal quantifier **parntung* in Pama-Nyungan languages, as well as on numerous other roots; O'Grady (1990c) on roots with **m-*, **j-* and **k-*; O'Grady (1990d) on roots beginning with **pa-*; and O'Grady (1990f) on cognates shared by Wadjuk and Umpila; In addition, Austin (1997) provides 349 reconstructions for proto-Central New South Wales. Evans and Jones (1997) present a number of cognate sets involving terms for wooden and stone implements, while Koch (1997) extends many published cognate sets to include Arandic languages. McConvell (1997a) examines the development of kinship terms in Ngumpin-Yapa, and Nash (1997) studies flora terminology in a number of languages. O'Grady and Fitzgerald (1997) discuss searching for cognates in Pama-Nyungan languages.

1.1.4 Semantics

Several studies have focused on or included discussion of semantic change, both in Pama-Nyungan and in Australian languages in general. Schebeck (1978) summarizes associations between body-part terms and other concepts in the Yuulngu languages of north-east Arnhem Land, and Sommer (1978) discusses the semantic associations of 'eye' and 'no good.' O'Grady (1979) provides illustrations of common semantic

relationships in Australia, as well as discussion of unclassifiable relationships. Dixon (1980) examines types of semantic shift, while Evans (1990) studies three "semantic subnetworks" in Australia. Evans (1992) discusses the use of synchronic polysemy in studying semantic change in Australia. Wilkins (1996) presents examples of natural semantic changes taken from Australian languages, and Evans (1997) examines links between flora and fauna terminology. McConvell (1997b) explores the association between 'fish' and 'meat'. Sharpe (1997) looks at semantic shifts exemplified by the Bundjalung dialects, while Wilkins (1997) studies cultural sources of evidence for semantic associations.

Given the number and variety of works dealing with Pama-Nyungan, it is clear that we are well on the way to fulfilling the conditions for demonstrating genetic relatedness. Especially important are works such as Blake (1988), Evans (1988) and Heath (1990) which compare Pama-Nyungan and non-Pama-Nyungan languages, and provide evidence that Pama-Nyungan is indeed a distinct family (although probably ultimately related to the non-Pama-Nyungan families). Unlike Dixon, many researchers believe Pama-Nyungan to be "well-established by the comparative method" (Ross and Durie 1996:33).

1.2 Proto-Pama-Nyungan

McConvell (1996a:125; 1996b:3)) proposes that pPN may have broken up around 6000 B.P. He arrives at this figure by "the method of 'backtracking' [in which] known stages of expansion and cultural diffusion are sequenced making reasonable inferences about the time needed between each stage and ensuring that sequences in different regions which link together also connect chronologically" (McConvell 1996a:125). Nichols (1992:211) states that "the Pama-Nyungan family ... is of comparable age" to Indo-European, which is about 6000 years old. O'Grady (1979:111, 1990a:xii), however,

feels that the time depth for proto-Pama-Nyungan is somewhat shallower, at approximately 4000 years. He bases his estimate on the amount of change that has occurred, which he believes is on par with that in the Finno-Ugric family (O'Grady, p.c.). Blake and Dixon (1991:25) believe Pama-Nyungan to be "relatively young," although they do not posit a specific age.

Questions regarding the original homeland of the Pama-Nyungan people, and their spread through the modern Pama-Nyungan area have enjoyed renewed interest of late. The reader is referred to McConvell (1996a, 1996b) and Evans and Jones (1997), who present a variety of evidence relating to the expansion of the Pama-Nyungan family. Dixon (1980:158, 1990b:393) posits the consonant inventory seen in Table 1.1 for proto-Australian. Since Dixon's work on comparative phonology has

Table 1.1: Dixon's proto-Australian Consonant Inventory

	labial	apical	laminal	velar
stops	p	t	j	k
nasals	m	n	ny	ng
laterals		l	(ly)	
rhotics		rr, r		
glides	(w)[3]		y	w

focused almost exclusively on Pama-Nyungan languages, we can compare this table to O'Grady's (1979:131) proto-Nuclear Pama-Nyungan inventory. The only differences between the two are that O'Grady treated *r* as a glide, and did not doubt the presence of a laminal lateral.

In later work, O'Grady (1990a:xxi) modified his pPN consonant inventory, given in Table 1.2. Although many Pama-Nyungan languages have both a palatal and a dental laminal series, both Dixon and O'Grady include just a single laminal series for the proto-language, as posited by Dixon (1970) (but see Koch (1997)). Palatal symbols

[3]Note that *w* is both labial and velar.

Table 1.2: O'Grady's pPN Consonant Inventory

	labial	alveolar	retroflex	laminal	velar
stops	p	t	rt	j	k
nasals	m	n	rn	ny	ng
laterals		l	rl	ly	
rhotics		rr			
glides	(w)		r	y	w

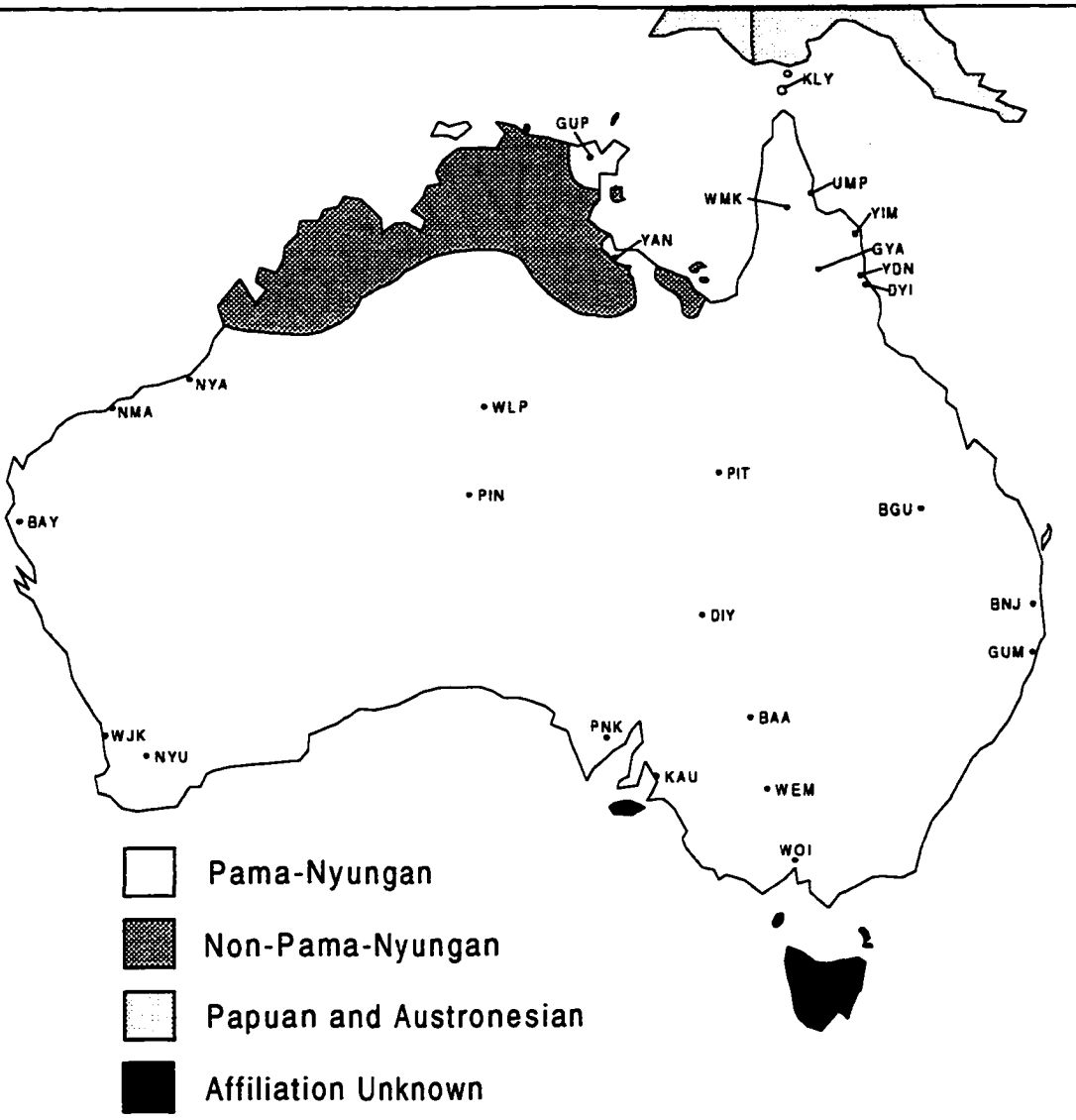
are used to represent this series. Both systems also contain a labial and velar series. In addition, Dixon and O'Grady agree that the proto-language had three vowels (*i*, *a* and *u*), with distinctive length in the initial syllable.

The above inventories differ in three aspects. First, Dixon treats *r* as a rhotic, while in O'Grady's system it is a glide. Second, Dixon proposes a single apical series, which O'Grady divides into an alveolar and retroflex series. Third, O'Grady posits a laminal lateral *ly*, while Dixon is unsure of its presence. In Chapter 6, the latter two issues are examined in light of the present study.

Much about the phonotactics of pPN has been determined (O'Grady 1990a:xxii). Most roots were disyllabic, and nasals, laterals, rhotics and glides could occur word-finally. Stops were found in this position only in onomatopoetic interjections. As is the case in most Australian languages, pPN words were all consonant-initial. The distinction between the alveolar and retroflex apical series was neutralized in initial position, and **rr* was not found in this position. Although O'Grady (1990a:xxii) has stated that **ly* was also disallowed word-initially, he has since reversed his position because of the recently noted presence of *lh* in initial position in Yanyuwa (O'Grady, p.c.). O'Grady and Fitzgerald (1995) present evidence that, in addition to biconsonantal medial sequences, pPN allowed triconsonantal medial sequences made up of a non-nasal resonant followed by a homorganic nasal-stop cluster.

1.3 Languages in the Study

The 25 languages used in this study are Bāgandji, Bayungu, Bidyara-Gungabula, Bundjalung, Diyari, Dyirbal, Gugu-Yalanji, Gumbaynggir, Gupapuyngu, Guugu Yimidhirr, Kala Lagaw Ya, Kaurna, Ngarluma, Nyangumarta, Nyungar (of which Wadjuk is a dialect), Pankarla, Pintupi, Pitta Pitta, Umpila, Warlpiri, Wembawemba, Wik Mungkan, Woiwurrung, Yanyuwa and Yidiny. They were chosen for their relatively conservative phonological systems and for their geographical spread across the Pama-Nyungan area; see Map 1 for their approximate locations.



Map 1: Approximate Locations of Languages

BAA	Baagandji	NYU	Nyungar
BAY	Bayungu	PIN	Pintupi
BGU	Bidyara-Gungabula	PIT	Pitta-Pitta
BNJ	Bundjalung	PNK	Pankarla
DIY	Diyari	UMP	Umpila
DYI	Dyirbal	WEM	Wembawemba
GUM	Gumbaynggir	WJK	Wadjuk
GUP	Gupapuyngu	WLP	Warlpiri
GYA	Gugu-Yalanji	WMK	Wik-Mungkan
KAU	Kaurna	WOI	Woiwurrung
KLY	Kala Lagaw Ya	YAN	Yanyuwa
NMA	Ngarluma	YDN	Yidiny
NYA	Nyangumarta	YIM	Guugu Yimidhirr

Nineteen of these languages (all but Gumbaynggir, Kala Lagaw Ya, Ngarluma, Pankarla, Woiwurrung and Yanyuwa) were also used in Fitzgerald (1991) and Chen (1992); in this study, Bundjalung is used in place of Gidhabal, which is one of its dialects.

In this section, I give brief sociolinguistic information, sources of data and the phoneme inventory for each language. I also discuss the subgroupings of the Pama-Nyungan family assumed for these languages.

1.3.1 Sociolinguistic Information

The languages in this study range from extinct, such as Woiwurrung, to relatively strong and viable, such as Warlpiri. Many of the languages have a small number of speakers left and are no longer being learned by children. Others are the first languages of children in their communities and/or are being used in school programs. In the following discussion, languages are listed in the subgroup order given in Section 1.3.4. I give the location of each language, and I try to give up-to-date information on the number of speakers and of the status of the language in the community; this has not been possible in all cases.

There are approximately 800 speakers of Nyangumarta (NYA) (Sharp 1997:329), which is spoken at Strelley (-S), LaGrange and Port Hedland in Western Australia. It was spoken at Wallal (-W) until the 1970s.

Warlpiri (WLP), with approximately 3000 speakers, is "one of the strongest surviving Aboriginal languages" (Bavin and Shopen 1991:104). It is the community language at Yuendumu, Willowa and Lajamanu in central Australia (Bavin 1993:85), and has been used in bilingual programs (Yallop 1982:164).

Pintupi (PIN) is a dialect of the Western Desert language, which has over 3000 speakers. PIN is spoken at Balgo Hills and Billiluna in Western Australia, and at Papunya and Yuendumu in the Northern Territory, and has been used in bilingual programs (Yallop 1982:47-48, 164).

Kaurna (KAU) was the language of the Adelaide Plains. It was recorded by Teichelmann and Schürmann in 1840, and the last fluent speaker died in 1929. KAU language programs at both the elementary and secondary levels have recently been undertaken (Amery and Simpson 1994:144-148).

Pankarla (PNK) was recorded by Schürmann in 1844. It was noted by Hale and O'Grady in 1960 as having partial speakers (O'Grady, p.c.)

Nyungar (NYU) is a collection of dialects which was originally spoken in southwestern Western Australia. Few speakers remain today; most of these speak the eastern dialect (Dench 1994b:173-174). Wadjuk (WJK) was the northern dialect of Nyungar, and was spoken in the area of Perth (Dench 1994b:175). It was recorded in the nineteenth century by Moore.

Ngarluma (NMA), studied by Hale in 1960, probably has no fluent speakers remaining today.

Bayungu (BAY) was traditionally spoken in northwestern Western Australia, "along the coast and inland along the Minilya and Lyndon Rivers north-east of the present-day town of Carnarvon." The few remaining speakers of BAY live in Carnarvon (Austin 1992:v).

Gupapuyngu (GUP) is a member of the Yuulngu subgroup of the Pama-Nyungan enclave in northeastern Arnhem Land. The Yuulngu languages have more than 3000 speakers. GUP is a major dialect spoken at Milingimbi and has been used in bilingual

programs (Yallop 1982:54, 164).

Yanyuwa (YAN) has approximately 100-200 speakers in the area of Borroloola. Some members of the younger generation have a passive knowledge of the language (Megan Morais, p.c.).

Kala Lagaw Ya (KLY) is spoken on the Western Torres Strait Islands. As of 1991, there were 3500-4000 speakers of Kala Lagaw languages on the western islands (Ford and Ober 1991:118).

Umpila (UMP) is spoken in northern Cape York Peninsula (Harris and O'Grady 1976:165).

Wik-Mungkan (WMK) is spoken at Aurukun on the west coast of Cape York Peninsula, where speakers of many Wik-dialects, as well as of other languages, moved from the 1920s to the 1960s. WMK has become the main language spoken in the community. It was also used in a bilingual school program from 1973 to 1988, and has recently been re- introduced into the school system (Sayers 1994:352-353). In 1982, WMK was estimated to have 800-1000 speakers (Yallop 1982:44).

Guugu Yimidhirr (YIM) is a language of northern Queensland, and most of its present-day speakers live at Hopevale Mission, north of Cooktown. As of 1978, Guugu Yimidhirr was still the first language of children in the community, although there were no bilingual school programs (Haviland 1979:27, 35).

Gugu-Yalanji (GYA) is spoken in southeastern Cape York Peninsula. In 1982, GYA had 500-600 speakers (Hershberger and Hershberger 1982:v), and had been used in bilingual programs (Yallop 1982:164).

Yidiny (YDN) was the language of the Cairns-Yarrabah area of Queensland. As of 1991, only a few speakers were still alive (Dixon 1991:25).

Dyirbal (DYI) was also spoken in the Cairns rain forest region of Queensland. In 1972, there were approximately 30 speakers, living mostly in the Murray Upper region (Dixon 1972:25, 37).

Bidyara-Gungabula (BGU) was spoken at Augathella, Charleville and Clermont in southern Queensland. In 1972, a number of elderly speakers remained (Breen 1973:3-5).

Bundjalung (BNJ) was spoken in northeastern New South Wales. Only a few, elderly native speakers are left (Sharpe 1994:1).

Gumbaynggir (GUM) was also spoken in northern New South Wales, and was a neighbour of Bundjalung. As of 1979, a single speaker remained (Eades 1979:244).

Wembawemba (WEM) was a Kulin language spoken in western Victoria (Hercus 1994:100). Only elderly speakers were still alive in 1969 (Hercus 1969:9).

Woiwurrung (WOI) was the traditional language of central Victoria, including the Melbourne area. The language could not survive European settlement of the area, and by the 1960s, only a salvage study could be undertaken. Fortunately, several word lists were recorded in the late nineteenth century (Blake 1991:31-58).

Bāgandji (BAA) was once spoken in western New South Wales, along the Darling River (Hercus 1976:229).

Diyari (DIY) was spoken in northern South Australia. At the time of first European contact, there were probably over 1000 Diyari speakers; as of 1994, only two fluent speakers remained (Austin 1994:125-126).

Pitta-Pitta (PIT) was a dialect of an unnamed southwestern Queensland language. In 1979, there were just two speakers left (Blake 1979c:183-185).

1.3.2 Data Sources and Transcription

The word lists for the languages in this study are of widely varying length. The YIM vocabulary, for example, is three and one-half pages long, while the WLP dictionary, which includes a vast number of entries, derived forms and example sentences, takes up over 6.5 megabytes of disk space. For WLP, NYU, BAY and YDN, which were also used in Fitzgerald (1991), new sources of data have recently appeared. In addition, a dictionary for all the Bundjalung dialects has also been recently published; it subsumes the Gidhabal dictionary used in Fitzgerald (1991). The database for the present study includes all velar- and vowel-initial forms. Table 1.3 lists the source(s) of data and the number of items in the database for each language.

For most of the languages, field work has been undertaken by modern linguists; exceptions to this are KAU and PNK which were both recorded in the nineteenth century. Although these sources are not written in a modern transcription, Capell (1971:668) says that "[t]he German writers used a phonemic script which is still quite a passable guide to the sounds intended." Much of the data presented here for WJK, a dialect of NYU, is also from the nineteenth century; however, more recently recorded data are also used. Approximately 100 words were recorded for WOI in the 1960s by Luise Hercus (Blake 1991:58). Otherwise, data for this language are also from the nineteenth century. Blake (1991) has standardized the transcriptions from the old sources in light of Hercus' work and of "the fact that Australian languages tend to have very similar sets of ... phonemes" (Blake 1991:58).

There is considerable variation in the transcription systems used by lexicographers of Australian languages. For example, since relatively few languages have a voicing or fortis/lenis distinction, some sources use *b*, *d* and *g*, while others use *p*, *t* and *k*. Many employ a practical orthography, which contains only typewriter-type symbols; thus, retroflexes are written as *rt*, *rn* and *rl*, *ŋ* as *ng*, *ʔ* as ', and so on. Others use symbols

Table 1.3: List of Sources

Nyangumarta-Strelley	Hale et al. (1980)	641
Nyangumarta-Wallal	O'Grady and Fitzgerald (in prep.)	836
Warlpiri	Laughren et al. (1995)	2273
Pintupi	Hansen and Hansen (1974)	1015
Kaurna	Teichelmann and Schürmann (1840)	544
Pankarla	Schürmann (1844)	852
Nyungar	Douglas (1976) and Dench (1994)	591
Wadjuk	Moore (1884)	681
Ngarluma	Hale (1982)	671
Bayungu	O'Grady's field notes	474
Gupapuyngu	Lawton and Lowe (n.d.)	1022
Yanyuwa	Bradley et al. (1992)	1842
Kala Lagaw Ya	Bani and Bani (1975)	870
Umpila	O'Grady (n.d.)	468
Wik Mungkan	Kilham et al. (1986)	917
Guugu Yimidhirr	Haviland (1979)	135
Gugu-Yalanji	Hershberger and Hershberger (1982)	643
Yidiny	Dixon (1991)	822
Dyirbal	Dixon (1972)	224
Bidyara-Gungabula	Breen (1973)	316
Bundjalang	Sharpe (1992)	713
Gumbaynggir	Eades (1979)	247
Wembawemba	Hercus (1969)	261
Woiwurrung	Blake (1991)	438
Bāgandji	Hercus (1982)	557
Diyari	Austin (1981a)	237
Pitta Pitta	Blake (1979c)	311

from the phonetic alphabet and diacritics. In addition, some of the languages in this study, such as GUP, have well-established orthographies used by the speakers.

In order to facilitate comparisons among the languages for the purposes of this dissertation, most of the data are presented in the "ptk" orthography. For stops, fricatives, nasals and laterals, the following symbols are used: labials *p* and *m*; alveolars *t*, *s*, *n* and *l*; retroflexes *rt*, *rn* and *rl*; dentals *th*, *nh* and *lh*; palatals *j*, *ny* and *ly*; velars *k* and *ng*; and glottal stop '. For those languages having a voicing or fortis/lenis

distinction. both voiceless and voiced symbols are used; the cluster consisting of an alveolar nasal and a voiced velar stop is written *n=g* to distinguish it from the velar nasal. For the rhotics. *rr* is an alveolar flap/trill. *r* is a retroflex glide and *rrh* is an alveolar trill in languages having both a flap and a trill. There are two additional glides. *y* and *w*. Most of the Australian languages have at most five phonemic vowel qualities. *i*. *e*. *a*. *o* and *u*: length is indicated by two vowels. *ii*. *ee*. *aa*. *oo* and *uu*. Data from nineteenth-century sources are left unchanged because in many cases we cannot be certain of the actual pronunciation. These data are given in small upper case symbols to remind the reader that they are not written in a standard transcription system. Forms from WOI are given as in Blake (1991).

1.3.3 Phoneme Inventories

The phoneme inventories for the languages in this study are given in Tables 1.4 and 1.5.[4]

[4]The caption "F" refers to fricatives. Some dialects of NYU have developed phonemic vowel length; see Dench (1994b:9-10). Breen (1997:75) provides possible alternative phoneme tables for BGU. The inventory seen here is the one given in the BGU data source (Breen 1973). Hercus (1994) does not use ə or *o* for WEM. However, the data in this study are taken from Hercus (1969), which does use them.

Table 1.4: Phoneme Inventories (part 1)

Lang.	Stops						F	Nasals						Laterals				Rhotics			Glides		Vowels				
NYA	p	t	rt		j	k		m	n	rn		ny	ng	l	rl		ly	rr		r	y	w	i		a		u
																							ii		aa		uu
WLP	p	t	rt		j	k		m	n	rn		ny	ng	l	rl		ly	rr	rd	r	y	w	i		a		u
																							ii		aa		uu
PIN	p	t	rt		j	k		m	n	rn		ny	ng	l	rl		ly	rr		r	y	w	i		a		u
																							ii		aa		uu
KAU	P	T	RT	T	TY	K		M	N	RN	N	NY	NG	L	RL	L	LY	R		R	Y	W	I	E	A	O	U
	PP	TT		TT		KK		MM	NN		NN			LL		LL		RR		RR	I	U					
	B	D				G			DN					DL													
PNK	P	T	RT	T	TY	K		M	N	RN	N	NY	NG	L	RL	L	LY	R		R	Y	W	I	E	A	O	U
	PP	TT		TT		KK		MM	NN		NN			LL		LL		RR		RR	I	U					
	B	D				G			DN					DL													
NYU	p	t	rt	th	j	k		m	n	rn	nh	ny	ng	l	rl		ly	rr		r	y	w	i	e	a	o	u
WJK	P	T	RT	TD	TJ	K		M	N		N-Y		NG	L			L-Y	R		R	Y	W	I	E	A	O	U
	PP	T	RT	DT	T-Y	KK		MM	NN					LL		LL		RR		RR							
	B	D	RTD		DJ	G														RR-R							
	BB	DD			D-J	GG																					
	B-B				D-Y																						
NMA	p	t	rt	th	j	k		m	n	rn	nh	ny	ng	l	rl	lh	ly	rr		r	y	w	i		a		u
BAY	p	t	rt	th	j	k		m	n	rn	nh	ny	ng	l	rl	lh	ly	rr		r	y	w	i		a		u
																							ii		aa		uu
GUP	p	t	rt	th	c	k	'	m	n	rn	nh	ny	ng	l	rl			rr		r	y	w	i		a		u
	b	d	rd	dh	j	g																	ii		aa		uu
YAN	p	t	rt	th	j	k		m	n	rn	nh	ny	ng	l	rl	lh	ly	rr		r	y	w	i		a		u

Table 1.5: Phoneme Inventories (part 2)

Lang.	Stops						F	Nasals				Laterals	Rhotics	Glides	Vowels					
KLY	p	t		th		k	s	m	n		ng	l	r	y w	i	e	ɔ	a	o	u
	b	d		dh		g	z								ii	ee	ɔɔ	aa	oo	uu
UMP	p	t		th	j	k	'	m	n		nh ny ng	l	rr	y w	i			a		u
															ii			aa		uu
WMK	p	t		th	j	k	'	m	n		nh ny ng	l	rr	y w	i	e		a	o	u
															ii	ee		aa	oo	uu
YIM	p	t	(rt)	th	j	k		m	n	(rn)	nh ny ng	l	rr	r	y w	i			a		u
																ii			aa		uu
GYA	p	t			j	k		m	n		ny ng	l	rr	r	y w	i			a		u
YDN	p	t			j	k		m	n		ny ng	l	rr	r	y w	i			a		u
																ii			aa		uu
DYI	p	t			j	k		m	n		ny ng	l	rr	r	y w	i			a		u
BGU	p	t	rt	th	j	k		m	n		nh ny ng	l	rr	r	y w	i			a		u
																			aa		
BNJ	p	t			j	k		m	n		ny ng	l	r		y w	i	e		a		u
																ii	ee		aa		uu
GUM	p	t			j	k		m	n		ny ng	l	rr	r	y w	i			a		u
																ii			aa		uu
WEM	p	t	rt	th	j	k		m	n	rn	ny ng	l	rr	r	y w	i	e	ɔ	a	o	u
WOI	p	t	rt	th	j	k		m	n	rn	nh ny ng	l rl	rr	r	y w	i	(e)		a	(o)	u
BAA	p	t	rt	th	j	k		m	n	rn	nh ny ng	l rl	rr	r	y w	i			a		u
																ii			aa		uu
DIY	p	t	rt	th	j	k		m	n	rn	nh ny ng	l rl	rr	rrh r	y w	i			a		u
		d	rd																		
PIT	p	t	rt	th	j	k		m	n	rn	nh ny ng	l rl	rr	rrh r	y w	i			a		u

GUP is the only language in this study with the full set of seven place distinctions found in the Pama-Nyungan family. Only GUP, WMK and UMP have a glottal stop; NYA, WLP and PIN have only one laminal series; and most eastern languages lack a retroflex series. GYA, YDN, DYI, BNJ and GUM show only four places of articulation for stops and nasals. Regarding YIM, Haviland (1979:37) states that "[t]he status of the retroflex stop and nasal as distinct phonemes is somewhat problematic." KLY is one of the few Australian languages with fricatives. A fortis/lenis distinction has developed in GUP and KLY and in the apical series in DIY.

It is usually the case that Australian languages have a nasal corresponding to each stop. Exceptions among the languages in this study are KLY, BGU and WEM, each of which is "missing" at least one nasal.

Most of the languages have either a lateral for every non-peripheral place of articulation, or just a single lateral. Exceptions to these generalizations are GUP, WOI and possibly WJK (although the NYU data indicate that WJK did have a retroflex lateral). Most of the languages also continue the two pPN rhotics, although these have merged in KLY and BNJ, and pPN **r* became a glottal stop in UMP and WMK. Three languages, WLP, PIT and DIY, have developed a third rhotic. WLP *rd* is an apico-postalveolar flap and PIT and DIY *rrh* is an apico-alveolar trill.

Most of the languages in this study have a three-vowel system; additional vowels have developed in NYU, WJK (based on NYU data), KLY, WMK, BNJ, WEM, and possibly in KAU, PNK and WOI. The phonological inventories of WJK, KAU, PNK and WOI cannot be stated with certainty, because all or most of their data are from nineteenth-century sources. For example, it is not clear whether WOI had one or two laminal series, a retroflex lateral, one or two rhotics, and three or more vowels (Blake 1991:59-62).

1.3.4 Assumed Subgrouping

The following subgroupings are assumed in this dissertation:[5]

Nyungo-Yuulngic Group	
Nyungic subgroup	
Marrngu sub-subgroup	NYA
Yapa sub-subgroup	WLP
Wati sub-subgroup	PIN
Yura sub-subgroup	GAW, PNK
Nyungar sub-subgroup	NYU, WJK
Ngayarda sub-subgroup	NMA
Kanyara-Mantharta-Yuulngu subgroup	
Kanyara sub-subgroup	BAY
Yuulngu sub-subgroup	GUP
Warluwaric Group	YAN
Mabaygic Group	KLY
Pama-Maric Group	
Middle-Pama subgroup	UMP, WMK
Eastern-Pama subgroup	YIM, GYA
Atherton-Pama subgroup	YDN
Yara subgroup	DYI
Mari subgroup	BGU
Bundjalungic Group	BNJ
Gumbaynggiric Group	GUM

[5]Note that only those levels relevant to the languages in this study are shown. Thus, for example, although the Kanyara-Mantharta-Yuulngu subgroup contains a Mantharta sub-subgroup, no Mantharta languages are used in this study, and the Mantharta branch is therefore not included in this list.

Kulinic Group	WEM, WOI
North Darling Group	BAA
Karnic Group	PIT
Central Karnic subgroup	
Western Karnic sub-subgroup	DIY

These subgroups are roughly based on O'Grady, Voegelin and Voegelin (1966), with a number of modifications. The Kanyara-Mantharta-Yuulngu subgroup reflects the suspected relatively close relationship between languages such as BAY and GUP (O'Grady 1959); the Nyungo-Yuulngic group contains both this and the Nyungic subgroups. Blake (1988) shows that YAN, which was classified as a non-Pama-Nyungan language, is actually Pama-Nyungan, and he proposes that it is a member of the Warluwaric group. DIY and PIT are considered to be members of the Karnic group, as established by Austin (1990).

Additional modifications have been proposed since 1966. For example, Wurm (1972) believes that GYA, YIM, DYI and YDN are not Pamic languages. He posits a Yalanjic group, containing GYA and YIM, a Dyirbalic group and a Yidinyic group. He also classifies UMP as a member of a Northeastern-Pama subgroup, not of the Middle-Pama group. Although the Pamic languages have been well-studied in relation to other Australian languages, the relationships among them have not been definitively established. I therefore follow the subgrouping given in O'Grady, Voegelin and Voegelin (1966) and O'Grady, Wurm and Hale (1966), which is largely based on the work of Hale (see also Hale 1976b, 1976c, 1976d).

Work in progress by McConvell and Laughren (1996) and Laughren and McConvell (1996) on the Nyungic languages has resulted in a classification differing in many respects from that shown above. The Kanyara and Mantharta sub-subgroups are included as members of the Nyungic group (as they were in the original classifi-

cation), and their possible relationship with the Yuulngic languages is not discussed. In addition, this work has suggested a number of relationships among the Nyungic languages which would add structure to a relatively flat family tree. However, as the authors themselves consider their classification to be highly tentative, I will continue to assume the subgroupings shown above.

It is fully expected that future work will indicate that further changes to the classification of Pama-Nyungan languages are necessary. The impact of such changes on this work would not be huge, since its primary purpose is to study the development of initial velars, not to establish subgroupings. A re-evaluation of the proto-languages for which reconstructions are given would of course be called for.

Chapter 2

Methodology

Many interesting issues regarding the comparative method have been raised in recent years, including the regularity of sound change and the applicability of the comparative method to Australian languages. In this chapter, I will discuss several aspects of methodology. First, I will review the traditional version of the comparative method, and discuss some of the problems encountered in its application. I will then briefly summarize several views on sound change which differ in various regards from the Neogrammarian one. In Section 2.3, I compare "bottom-up" and "top-down" approaches to comparison and describe some of the advantages and disadvantages of the latter direction. Finally, I detail the method used in this study. Unfortunately, many interesting issues relating to the comparative method and Australian languages are beyond the scope of this chapter. For discussions on the applicability of the method to unwritten languages, see Haas (1969) and Campbell (1996). For a review of arguments specifically concerned with Australian languages, the reader is referred to Chen (1992).

2.1 Review of the Comparative Method

The comparative method has long been considered a very powerful and useful tool in the study of the history of languages. Although the comparative method is often equated with the Neogrammarian hypothesis, in Grimm's time no distinction was made between regular and irregular sound correspondences. Toward the end of the nineteenth century, the Neogrammarians put forward the hypothesis that sound change is regular: that is, all exceptions can be explained as cases of analogical change or borrowing (Crowley 1992:225-228). This assumption has been the foundation of the comparative method ever since. However, it does not always hold, as discussed below.

The method is presented in detail in Anttila (1972), Goyvaerts (1975), Bynon (1977), Crowley (1992), McMahon (1994), Fox (1995), and many other historical linguistics textbooks. In this section, I briefly outline the method as it is traditionally taught, and then discuss some problems which arise when it is actually applied. Crowley (1992:110-111, 228) gives the following summary of the steps involved in comparing two or more languages:

1. Sort out those forms which appear to be cognate and ignore the non-cognate forms.

2. Write out the full set of correspondences between the languages you are looking at (including correspondences where the sounds are identical all the way through) ....

3. Separate out those correspondences which are systematic from those which are isolated (i.e. which occur in only one or two words) and ignore the isolated correspondences.

4. Group together all correspondences that have reflexes that are phonetically similar.

5. Look for evidence of complementary and contrastive distribution between these suspicious pairs of correspondences.

6. For each correspondence set that is not in complementary distribution with another correspondence set. assume that it goes back to a separate original phoneme.

7. Make an estimation about the original form of the phoneme using the following criteria:

   (a) The proposed original phoneme must be plausible ....

   (b) The sound that has the widest distribution in the daughter languages is most likely to be the original phoneme.

   (c) A sound corresponding to a gap in the reconstructed phoneme inventory of the proto-language is likely to be a possible reconstruction for one of the correspondence sets.

   (d) A sound that does not occur in any of the daughter languages should not be reconstructed unless there are very good reasons for doing so.

8. For each group of correspondence sets that are in complementary distribution. assume that they all go back to a single proto-phoneme ....

The first step is not always as straightforward as it appears, for a number of reasons. When beginning a comparative study, we cannot know what types of correspondences to expect, and this makes it sometimes difficult to judge putative cognates. If we are comparing a large number of languages, or if the languages have extensive dictionaries, the number of forms exhibiting potentially plausible sound correspondences

can be daunting. It is therefore helpful to have some idea of the types of sound changes that occur in the family or group, because changes which are common in one set of languages may not necessarily be so in another. For example, in both the Germanic and Armenian branches of Indo-European certain stops shift to fricatives: in Germanic, plain voiceless stops change to the corresponding fricatives as part of Grimm's Law (Baldi 1983:130), and in Armenian, proto-Indo-European **p* becomes *h* (Baldi 1983:80). Similar changes are extremely rare in Pama-Nyungan languages, and in fact most members of the family do not have fricatives. Some Pama-Nyungan languages, however, drop initial consonants to an extent not seen in Indo- European. By knowing which changes are common, we can start our search with the most likely forms.

In addition, it can be very difficult to distinguish borrowings from true cognates, especially in the early stages of a study or when working with languages without a written history. For this reason, many studies begin with a comparison of basic vocabulary items, such as terms for body parts, kinship relations, human actions and pronouns. It is felt that these types of words are less likely to be borrowed and are thus more useful for establishing sound correspondences. This generalization, however, is not necessarily true of all language families. Australian languages are well-known for banning the use of words that are phonologically similar to the name of a person who has died, no matter what those words may be. For example, the first person singular pronoun was replaced twice in ten years in the Western Desert language due to death taboos (Dixon 1980:29). Replacements are often borrowed from neighbouring languages.

Both sound and meaning must be considered in the first step of the method, but phonological plausibility is the more important aspect since meaning can change in ways which are not obvious. This is especially true if the languages under study are part of a culture different from our own. We often encounter the problem of judg-

ing possible relationships among different meanings. Forms which are phonologically plausible cognates may have divergent meanings which make it difficult to determine whether the forms are reflexes of a single protoform or of homophonous protoforms. This situation can be especially problematic in families such as Pama-Nyungan where the modern languages have similar phonological inventories, resulting in many homophonous forms across the languages. There are a number of sources of possible corroboration for semantic relationships, including synchronically polysemous words, ritual languages and language games, and other cognates sets (see Fitzgerald 1991:28-31). Although some researchers, such as Evans (1992:476), believe that polysemy is the strongest type of evidence, the difficulty of distinguishing polysemous forms from homophonous ones also occurs at the synchronic level. Many classifications of semantic shifts have been put forward (see, for example, Bloomfield (1933:426-427)), and recent work by Wilkins (1981, 1996, 1997) and Evans (1990, 1992, 1997) helps to clarify the notion of naturalness in semantic change. As with sound changes, some types of semantic relationships are very common in certain families, while others are rare. For example, relationships between body parts and verbs and between body parts and kin terms are relatively common in Pama-Nyungan. Occurrences of degeneration and elevation are hard to find, perhaps because the societal structure is not a strongly hierarchical one.

After we have gathered a number of putative cognate sets, we lay out the sound correspondences exhibited in them; ideally, the correspondences will be regular, and the conditioning environments for the sound changes will be clear. The third step is to eliminate the sporadic correspondences and keep those that are regular. This is not complicated if we have one correspondence that stands out as "regular" with a few minor exceptions. However, especially in the early stages of the work, it is often difficult to determine which correspondences are the regular ones. Fox (1995:63) notes that circularity is a potential problem at this stage; we judge forms as "cognate because they can be reconstructed with the same proto-phoneme, where the proto-phoneme

is itself the result of assuming that they *are* cognate" (Fox's emphasis). Determining regular correspondences is especially difficult in cases where a phoneme x in one language could correspond to either phoneme y or phoneme z in another language, and where there is not complementary distribution of the two correspondence sets. This problem is further complicated if the numbers of possible cognate sets supporting each correspondence are roughly equal, so that neither set can be called the "regular" one.

We may also be reluctant to dismiss apparently irregular correspondences out of hand because they recur more than a few times. Anttila (1972:335) recognizes that

> [i]n the beginning everything is very provisional, because borrowings, analogical creations, conditioning environments, and so on, can be detected gradually. Thus what appeared to be clear correspondences at first glance are often not exactly that.

He suggests that comparativists use two types of sound correspondence. *True correspondences* are the type assumed in the Neogrammarian hypothesis; they are regular and the environments in which they occur can be determined. *Matchings* are "tentative" correspondences which occur at least twice in the data, and are thus nonrandom (Anttila 1972:335). Anttila (1972:336) states that

> [t]he value of matchings is that they allow the linguist freedom for analytic operations without commitment to any ultimate historical explanation. This is necessary, because the final explanation is rarely (or never) apparent at the beginning.

Although some practitioners of the comparative method may not approve of the notion of matchings, recall that exceptions to Grimm's law were not explained for

over 50 years. The cognate sets in which the exceptions occurred were not thrown out, but rather the correspondences they exhibited were treated as what Anttila calls matchings. The regularity hypothesis often does not hold at every stage of the analysis and the use of matchings allows us to keep track of those correspondences which are plausible and recurring but not completely regular.

An example of a case in which matchings can be valuable is that described by Grace (1996), who compared two Austronesian languages from New Caledonia, Xārācii and its neighbour, the language spoken at Grand Couli, which appear to be very closely related. These languages are considered by Grace (1996:158) to be "aberrant;" that is, "the position of these languages and the changes which they have undergone are difficult to establish with certainty."[1] He collected over nine hundred pairs "of lexical items ... which were well matched in meaning and which ... showed sufficient phonetic similarity to justify an initial hypothesis that they were cognate" (Grace 1996:166). When tabulating the sound correspondences for these pairs, Grace found that 56 consonant correspondences and 67 vowel correspondences each occurred at least five times in his data. He states that

> [i]t was remarkably difficult to find even the approximate place to draw the line between clearly valid and clearly invalid correspondences. What was particularly discouraging was that no obvious conditioning - no indications of complementation among any of these correspondences - was apparent (Grace 1996:167).

Although none of Grace's correspondences can be considered completely regular, they all qualify as matchings and should be retained for future analysis. Further work, perhaps with the addition of more languages to the study, may clarify the sound changes which have taken place in Xārācii and Grand Couli.

[1] See Grace (1990) for more information on aberrant languages.

Our next step is to reconstruct the proto-phonemes represented by the regular correspondence sets. According to the summary given above, correspondence sets found to be in complementary distribution are assumed to reflect one phoneme, as do each of the remaining sets which do not occur in complementary distribution. If our sound correspondences are completely regular, reconstruction of the proto-language's phoneme inventory is easily achieved. However, as is often the case, our data may exhibit a number of recurring correspondences (or matchings) which do not occur in complementary distribution. Strictly, the method would require us to reconstruct a separate phoneme for each correspondence set; this is sometimes indicated by subscripting a number onto a phoneme symbol. For example, consider the hypothetical situation shown below:

(2.1)

A	B	C	D	E	
k	*k*	*k*	*k*	*k*	$*k_1$
k	*k*	*k*	*k*	*ŋ*	$*k_2$
k	*k*	*k*	*ŋ*	*ŋ*	$*k_3$
k	*k*	*ŋ*	*ŋ*	*ŋ*	$*ŋ_1$
k	*ŋ*	*ŋ*	*ŋ*	*ŋ*	$*ŋ_2$
ŋ	*ŋ*	*ŋ*	*ŋ*	*ŋ*	$*ŋ_3$

Here we have five languages (A, B, C, D and E) which exhibit six different correspondence sets involving *k* and *ŋ*. Let us say that each set occurs at least five times in the data and that the sets are not in complementary distribution, thereby qualifying as matchings according to Anttila's criteria. In the first set, all languages have *k* and we therefore want to reconstruct **k* for the proto-language. Similarly, we want to reconstruct **ŋ* for the last correspondence set. The intervening sets have varying numbers of languages with *k* and *ŋ*. Following the principle stated by Crowley above that the most widely distributed sound is most often the one that should be reconstructed as the proto-phoneme, our data indicate that **k* should be reconstructed for the second and third sets, and **ŋ* for the fourth and fifth. However, according to the traditional version of the comparative method, we cannot posit the same proto-phoneme for

more than one correspondence or set of complementary correspondences. As shown in the above table, we can add a subscript to the phoneme symbol. This serves to distinguish the proto-phonemes and indicates that the correspondence sets are not reflections of the same phoneme.

The use of subscripts, and more generally the principle of reconstructing a separate phoneme for every correspondence set, can soon become unwieldy. In the above example, with five languages and two phonemes, the number of possible correspondence sets is 2^5, or 32. If we are comparing 30 languages, and looking again at just two phonemes, the number of possible correspondences is over a billion. Even if just a small percentage of the possible correspondences actually occur in the data, the number of proto-phonemes which must be reconstructed becomes almost impossible to manage. In addition, the use of separate phonemes implies that the inventory of the proto-language was much larger than it likely was; that is, the reconstructions do not represent what the inventory realistically was like. For our hypothetical example, we do not really wish to say that the proto-language had three *k*-type and three *g*-type phonemes, nor is it probable that each of the correspondence sets actually reflect separate phonemes.

Blust (1996:145-146) examines a number of cognate sets taken from Dempwolff (1938), which contain unexpected reflexes of proto-Oceanic **g* and **k* in five languages that regularly preserve the voicing distinction. Blust (1996:149) calls the idea of reconstructing a separate phoneme for each correspondence set "an explanatory dead-end, since the first fifteen comparisons alone involve eight distinct velar correspondences and would consequently require the reconstruction of eight new velar stops distinct from **g* and **k*." Consider also Grace's study mentioned above. The two languages he compared each have 26 consonants and 18 vowels, but his cognate sets exhibited 123 correspondences which each occurred five or more times with no obvious evidence of complementary distribution (Grace 1996:167). He gave up the

notion of reconstructing the proto-language, stating that the use of separate symbols for each correspondence set in this case is "clearly hopeless" (Grace 1996:167).

Rather than following a straight path from cognates to correspondences to reconstructions, we often find ourselves going back and forth between putative cognates and possible correspondence sets, because "a crucial part of the evidence establishing the validity of a sound correspondence is that it is found in a sufficient number of (what appear to be) cognates, and a crucial part of the evidence establishing forms as cognate is that they are related by (what appear to be) regular sound correspondences" ((Grace 1996:165) (see also Fox (1995:87-88) and Ross and Durie (1996:10)). At the same time, we may have to search for corroboration for apparent semantic relationships. According to the Neogrammarian view, our goal in this work is to build a corpus of cognate sets exhibiting regular sound correspondences and to eliminate or explain all irregular correspondences, so that the reconstructed proto-phonemes are in a one-to-one relationship with the correspondences (or with complementary sets of correspondences). In reality, however, this is often not possible, as is discussed further in the next section.

2.2 Alternative Views on Sound Change

Although the Neogrammarian view of sound change has been the dominant one since its inception, it has always had its critics. Summaries of nineteenth and early twentieth century opposition to the Neogrammarian hypothesis can be found in many sources, such as Chen (1977) and Labov (1981, 1994), as well as in a number of introductory textbooks, such as Crowley (1992). The topic has enjoyed renewed interest in recent decades, due mainly to sociolinguistic studies of sound change in progress, such as those undertaken by Labov, and to the development of the theory of lexical diffusion.

In this section, I discuss a few of the more recently proposed amendments to or arguments against the Neogrammarian position. I focus mainly on two aspects of the arguments, the question of regularity and the notions of lexical abruptness versus gradualness. Other important issues, which unfortunately cannot be discussed here, include the reasons behind language change, the interaction of components of the grammar, social aspects of the spread of change, and the effects of language contact on change. I first summarize a recent proposal by Campbell on sources of irregularity. Secondly, I briefly describe the theory of lexical diffusion and discuss how it differs from the Neogrammarian hypothesis. Thirdly, Labov's views on resolving the controversy between the Neogrammarian and lexical diffusion schools are presented. Fourthly, I describe the role of the Neogrammarian hypothesis as seen by scholars recognizing irregular sound change. Finally, I discuss a type of irregularity which poses problems for both theories of sound change.

2.2.1 Campbell

While Campbell follows the hypothesis that sound change is regular, calling it the "cornerstone which underlies our ability to recover linguistic history by the comparative method," he states that regularity may be obscured by a number of factors, many of them sociocultural in nature (Campbell 1996:72). The first of these is sound symbolism. In some languages, a root is altered by the use of different sounds to express different sizes or intensities of meaning. When these languages are compared with related languages which do not use this device, or which use different sounds to express the same meaning, sound symbolism forms may appear to exhibit irregular sound correspondences (Campbell 1996:72-73). Related phenomena are onomatopoeia and affective or expressive symbolism. The latter type of symbolism is used "to reflect ... affectations, heightened expressive value, or the speaker's attitude" (Campbell 1996:73). As with sound symbolism, onomatopoeia and affective symbolism can re-

sult in irregular correspondences.

Many cases of unexpected change in order to avoid homophony have been reported. This can take the form of lexical replacement, but can also be achieved by the failure of certain forms to go through otherwise regular phonological changes, or by the application of irregular changes. Campbell reports that different dialects of one language may employ different strategies to prevent the development of homophonous forms, so that this may result in irregular correspondences even at the dialectal level (Campbell 1996:77-78). Regular sound changes may also be blocked by morphological conditioning. This occurs "only where an otherwise regular sound change would have adverse effects on speakers' ability to process important morphosyntactic functions;" for example, a regular rule of deletion may not apply to certain suffixes (Campbell 1996:79).

Borrowing is a well-recognized source of apparently irregular sound correspondences. A less well-studied, but nevertheless documented, source can occur in dying languages. Campbell attributes irregular sound correspondences exhibited by such languages "to the imperfect learning on the part of not fully competent speakers of the obsolescing languages" (Campbell 1996:80-81). A source of irregularity not discussed by Campbell is taboo deformation. In many cultures, words resembling names of the dead, or words considered to be "dangerous" for other reasons may be altered phonologically or replaced altogether.

The main point presented by Campbell (1996) is that sound change is essentially regular; if it were not, we would not be able to recognize the apparent irregularities produced by sound symbolism, onomatopoeia, affective symbolism, avoidance of homophony, morphological conditioning, borrowing, and language death. Although he accepts more sources of explanation for exceptions than the Neogrammarians did, he affirms their principle of regularity. In addition to the Neogrammarian hypothesis,

however, we need "supplementary principles ... for explicating the full picture of linguistic change and for explaining seeming exceptions to the regularity of sound change" (Campbell 1996:86).

2.2.2 Lexical Diffusion

The theory of lexical diffusion was first presented by Wang (1969). Since then, numerous studies have provided evidence for the theory.[2] The focus of much of Wang's writing has been on the nature of sound change. Strict followers of the Neogrammarian hypothesis believe that sound change is phonetically gradual and lexically abrupt; that is, all eligible forms are affected at one time. As Wang (1979:357) states, "many writers of the Neogrammarian persuasion appear to believe that this combination of lexical abruptness and phonetic gradualness is *the* process of sound change" (Wang's emphasis). However, there are many types of sound change such as flip-flop, metathesis, epenthesis, deletion, and some shifts to discontinuous places of articulation, which cannot be phonetically gradual (Wang 1969:13, Cheng and Wang 1977:148-149). The lexical diffusion view of sound change is summarized by Cheng and Wang (1977:150):

> A closer look at changes in progress and a more careful examination of large quantities of residual forms lead us to conclude that most (not necessarily all) types of phonological change are phonetically abrupt but lexically gradual. ... [W]e hold that words change their pronunciations by discrete perceptible increments .... but severally at a time ... rather than always in a homogeneous block.

[2] A review of all of the relevant literature is beyond the scope of this dissertation. Wang (1977) includes papers on languages as varied as English, German, Swedish, Chinese and Nitinat. See Labov (1981, 1994) for comprehensive lists of work in this theory.

Many changes operate over time in an S-shaped curve, affecting a few forms at the beginning, gathering speed and operating on a large number of forms, and then slowly applying to the remaining forms.[3] Which items undergo a change in its early stages can be affected by "frequency, salience within a culture, and phonological form" (Aitchison 1990:13).

The concept of lexical abruptness expressed in the Neogrammarian point of view implies that sound change is always regular; there should be no residual forms after a sound change has applied, except for those produced through the effects of analogy and borrowing. Under lexical diffusion, we expect to find exceptions to the change, as well as alternating forms. This does not mean, however, that lexical diffusionists have abandoned the notion of regularity, as can be seen in the following statement by Cheng and Wang (1977:150-151) (see also Wang and Lien (1993:348) and Lieberman (1990:710)):

> Note that we are not disputing the assumption that phonological change is largely regular. In fact, the long range effects of the two conceptions may be very similar. The difference lies rather in the description (and ultimately, the explanation) of the change mechanism, i.e. how the change is actually implemented.

Scholars on both sides of this controversy recognize that exceptions to regular change do occur. As Chen (1977:202) states, "we are curious to know why there are residual forms which take exception to the remarkable regularity of phonological processes attested over and over again in an impressive number of widely divergent languages spanning over centuries, even millennia, and across vast geographical distances." Neogrammarians traditionally attribute these exceptions to analogy and borrowing.

[3]For a case study showing these three stages of diffusion in three closely related Salish languages, see Fitzgerald (to appear).

However, many practitioners of lexical diffusion feel that these potential causes are appealed to too often, and that we must look for additional answers.

Under lexical diffusion, sound changes are lexically gradual, which means that two or more changes which potentially affect the same forms can operate at the same time. One change can bleed another before it has had a chance to operate on a given form, thereby resulting in a permanent exception to the second change (Wang 1969, Wang and Lien 1993). According to Wang (1969:10, 17), a sound change which has received no competition, and which has been completed, will be regular. However, a lexically gradual implementation of sound change can lead to four sources of irregular forms. As summarized by McMahon (1994:54), irregularities may be caused by a sound change that is not yet complete; by a change that has "run out of momentum before affecting the last few eligible items;" by a sound change that has reversed itself after it has begun; or by a number of changes that intersect in their conditioning environment and time period, thus competing for forms.

2.2.3 Labov

Given that followers of the Neogrammarian hypothesis see sound change as phonetically gradual and lexically abrupt, while those of lexical diffusion believe it to be phonetically abrupt (at least in many cases) and lexically gradual, it appears that the two theories are mutually exclusive. Nevertheless, Labov (1981) feels that the controversy can be resolved. He reviews many studies, as well as his own data on sound change in progress, and finds strong evidence for each position. He attempts to begin characterizing types of sound change in an effort to determine which follow the Neogrammarian pattern of regularity, and which are diffused through the lexicon. Labov summarizes this preliminary work by saying, "[w]e have located Neogrammarian regularity in low-level output rules, and lexical diffusion in the redistribution of

an abstract word class into other abstract classes;" further work is needed to study the "properties of discreteness, abstractness, grammatical conditioning, and social conditioning" (Labov 1981:304).

Labov (1994) expands his earlier discussion. He states the problem as follows (Labov 1994:422):

> There is more than enough evidence to justify taking one position or the other - either that sound change is lexically regular or that it is not. But given this situation, one can take a firm position for one side only by dismissing or ignoring the evidence on the other side. ... some linguists acknowledge that there is evidence on both sides, while in practice they are committed to a single-minded program.

What is needed is a "higher-level theory ... that will take into account, as well as account for, the findings on both sides of the controversy" (Labov 1994:422). Labov takes a step back from the rhetoric presented by followers of each position and carefully reviews a relatively large number of documented sound changes using statistical and (where possible) instrumental analysis.

As a result of this review, Labov (1994:471) finds that

> [t]here is no basis for contending that lexical diffusion is somehow more fundamental than regular, phonetically motivated sound change. On the contrary, if we were to decide the issue by counting cases, there appear to be far more substantially documented cases of Neogrammarian sound change than of lexical diffusion. The upshot of this discussion is not, however, a victory for the Neogrammarians. There are more than enough solid examples of sounds changing one word at a time to support the view

that lexical diffusion is deeply rooted in the process of change.

Thus, the controversy cannot be resolved by stating that one side is right and the other is wrong. Instead, we need to find a way to incorporate both lexical regularity and lexical irregularity into a theory of sound change. Based on the studies under review, Labov (1994:542) posits the following properties for lexically abrupt and lexically gradual change:

> **Regular sound change** is the result of a gradual transformation of a single phonetic feature of a phoneme in a continuous phonetic space. It is characteristic of the initial stages of a change that develops within a linguistic system, without lexical or grammatical conditioning or any degree of social awareness ('change from below').
>
> **Lexical diffusion** is the result of the abrupt substitution of one phoneme for another in words that contain that phoneme. The older and newer forms of the word will usually differ by several phonetic features. This process is most characteristic of the late stages of an internal change that has been differentiated by lexical and grammatical conditioning, or has developed a high degree of social awareness or of borrowings from other systems ('change from above').

These characteristics allow Labov (1994:543) to predict which path specific types of sound change will follow. Thus, shifting of vowels, the diphthongization of high vowels, changes in manner of articulation for consonants, the vocalization of liquids and the deletion of glides and schwa are likely to be regular. Shortening and lengthening, the diphthongization of mid and low vowels, changes in place of articulation for consonants, metathesis of liquids and stops and the deletion of obstruents are likely to proceed by diffusion through the lexicon.

Further work and analysis will allow us to evaluate Labov's properties of regular and diffusional change, and to test his predictions, as well as making new predictions, regarding the patterns exhibited by different types of change. A new view of sound change which recognizes both Neogrammarian regularity and lexical diffusion offers many possibilities for interesting and exciting research in historical linguistics.

2.2.4 Pandemic Irregularity

Blust (1996) defines a type of irregularity, which he calls "pandemic," that poses problems for both the regularity hypothesis and the theory of lexical diffusion. In cases of pandemic irregularity, irregular correspondences "recur (independently, in different lexical items) throughout an entire language family or major subgroup" (Blust 1996:137).

Blust discusses two cases of pandemic irregularity in Austronesian languages, the data for which were originally presented by Dempwolff (1938). The first involves a "facultative nasal" and is exhibited in cognate sets where some of the languages have a single medial consonant and some have a prenasalized stop. For the six languages studied, there is no pattern of agreement regarding the presence or absence of the prenasalized stop; that is, for a given cognate set, "any one or more of these six languages may show a simple/prenasalized disagreement in relation to the others" and in some cases a language may have doublets, one form having a single consonant and the other having a prenasalized stop (Blust 1996:139-140). The nasal cannot be analyzed as an infix, because it does not appear to have any meaning or function in any of the languages, and it can occur in more than one word class. Nor is there any apparent conditioning for a sound change of prenasalization. In one of the six languages, borrowing may be the source of some prenasalized forms, but there is no evidence for borrowing in any of the others (Blust 1996:142-143). Thus, the

correspondences between single consonants and prenasalized stops in medial position do not conform to the Neogrammarian view of sound change.

The second Austronesian example of pandemic irregularity is that of "voicing crossover," discussed briefly in Section 2.1. In this case, there is sometimes disagreement among the five languages studied regarding the value for voicing of reflexes of **g* and **k*. One or more languages in a cognate set may reflect **g* as *k*, or **k* as *g*. Again, all the languages studied do this to some extent, and there is no pattern of agreement or disagreement among them (Blust 1996:145).

Blust (1990a:257-258) briefly describes two further cases of pandemic irregularity in Austronesian languages. The first involves a number of languages which appear to have multiple reflexes of proto-Austronesian **R*, which was an alveolar or uvular trill. In the second, a number of languages sporadically front **u* to *i*, resulting either in doublets (one with *u* and one with *i*), or in a single form with a front vowel.

Pandemic irregularity is not limited to Austronesian languages. In fact, prenasalization is commonly found in many Pama-Nyungan languages, as discussed by O'Grady (1990e) and O'Grady and Fitzgerald (1995:456). As in Austronesian, different languages show prenasalization of different forms, with no general pattern of agreement. Initial and medial lenition of stops and nasals, and harmonization of V_2 to V_1, which are presented in Chapter 6, are other common processes in Pama-Nyungan with a pandemic pattern. Further examples may include stem accretion, in which apparently meaningless particles are affixed to roots, harmonization of V_2 to V_3 and other changes in vowels.

Cases of pandemic irregularity cannot be easily explained as sound changes in progress. As Blust (1996:143) states, "[t]he advocate of this position ... would be forced to assume that the *same sound change* is in progress simultaneously in many different languages and has not been completed in any of them" (Blust's emphasis).

Individual instances of a given case can perhaps be due to some type of secondary factor, such as borrowing or analogical change, influencing a regular pattern of correspondences, or they may be part of a sound change in progress in a given language. However, the overall pattern of pandemic irregularity resists explanation from both the Neogrammarian and the lexical diffusion points of view (Blust 1996:144).

2.2.5 Role of the Neogrammarian Hypothesis

Although not all historical linguists agree with the strict version of the Neogrammarian hypothesis, they are unanimous in their recognition of its role in past studies of sound change (see, for example, Hock (1986:36), Labov (1981, 1994), Blust (1990a, 1996), Campbell (1996), as well as many others). Without the assumption that sound change is regular, the progress which has occurred in comparative work would not have been possible. Most researchers also acknowledge that sound change is "overwhelmingly regular" (Blust 1996:151), and Wang (1979:369) states that "[t]he Neogrammarian conception of language change will probably continue to be part of the truth." Various theories have been put forward regarding the reason behind this regularity. For example, Aitchison (1990:25) feels that once a sound change has started picking up speed, "the likelihood is that it will travel through the language fairly fast: this is primarily because there are fewer phonemes than morphemes, and fewer phonological environments than syntactic ones." Lieberman (1990:710-712) posits reasons for both regularity and irregularity:

> Regularity is necessary to languages because it is more efficient to communicate with a system .... The regularity of sound change is governed by the needs of communication which impose, or allow, both upper and lower limits on it. If sound change is too irregular, ... then the communication must cease, since the listener won't know the new repertory of

> symbols. If sound change is absolutely regular, then we lose some of the richness of nuance which is added to speech by its being more complex than simple ostentation [and] ... the possibility, for example, of retaining some unchanged earlier forms with their emotional and/or referential overtones would be lost.

Thus, while it is widely accepted that sound change is often regular, it is also believed that cases of irregularity need to be acknowledged.

Because many sound changes do operate according to Neogrammarian principles, and others exhibit regularity when completed, the Neogrammarian hypothesis and the comparative method continue to have an important role in comparative studies. As Baldi (1990a:10) says, "historical linguists should carry out their research as if all change were regular." The Neogrammarian hypothesis should be looked upon as a "working hypothesis" (Lieberman 1990:715), a "methodological strategy" (Goyvaerts 1975:187-188), or a "necessary idealization" (Fox 1995:140).[4] We must keep in mind, however, that

> the heuristic value of the regularity hypothesis and the truth of its claims are separate issues. ... The regularity hypothesis is not a divine dictum nor a fact of Nature: it is a scientific hypothesis, and like any other hypothesis, it is in need of relentless scrutiny and testing (Blust 1990a:256).

If, on the one hand, we dismiss the notion of regularity entirely, then the comparative method loses its usefulness, and we will miss the fact that many sound changes are completely regular. On the other hand, if we dogmatically insist that all sound changes proceed according to Neogrammarian principles, then we must ignore those

[4]Similar sentiments are expressed by many scholars, including Hock (1986:660) and Lass (1993:176-177).

changes which are clear cases of lexical diffusion or pandemic irregularity. By applying the comparative method under the working hypothesis that sound change is regular, we will find those changes that conform to the hypothesis, while not ignoring the fact that residual forms do occur.

2.3 Bottom-Up and Top-Down Comparison

The application of the comparative method to a language family can follow either a "bottom-up" or a "top-down" approach. In the former, a small number of closely related languages are compared and the resulting reconstructions are posited for the proto-language of a subgroup. In the latter, less closely related languages, which are usually widely scattered geographically, are considered, and the reconstructions are for a higher-level proto-language. Although there may be a feeling that comparative work should start at the bottom of the family tree and proceed up, the two approaches are not mutually exclusive, nor do the proto-languages for all subgroups need to be reconstructed before work can begin on the family-level proto-language. In fact, as Alpher (1990:155) states, work on the Indo-European family has been carried out from both directions:

> [The] strategy of working from the small towards the large seems sensible, but it is not in fact the path followed in the early years of Indo-European scholarship, the usual paradigm case of linguistic historical comparison. The reconstruction of Proto-Indo-European proceeded from the evidence in one or two languages of each subgroup - Germanic, Slavic, Indic, and so on. This work did not wait for the reconstruction of Proto-Germanic, Proto-Slavic and the rest, but rather by its results influenced these efforts, and the two levels of effort continue to cross-fertilize. Nor did the original effort at reconstruction in Indo-European depend in any fundamental

> way on decisions about subgrouping, and contemporary scholars are still arguing about the existence of Italo-Celtic and Balto-Slavic.

A similar view is expressed by Lieberman (1990:700).

Blust (1990b:141), in his discussion of proto-Oceanic, also expresses the opinion that "reconstruction from the top down" is necessary. Anttila (1972:346), who uses the term "inverted reconstruction," discusses how each approach can further the other:

> One speaks of reconstruction when one makes inferences from below into earlier stages, and of inverted reconstruction, if there is evidence from a higher node with respect to the one which is our target. Thus in reconstructing Proto-Germanic, information from Proto-Indo-European reconstructed on a wider scale may prove very useful indeed. We see also that inverted reconstruction is part of what is known as confirmation, or comparative checking, with further independent material. When it was said that Latin *serps* is highly unlikely from the Indo-European side .... a principle of inverted reconstruction was used. It is natural that such triangulation from above and below will often lead to a correct solution that would otherwise have taken much more labor, if it were possible at all.

Both approaches are well-represented in comparative Pama-Nyungan studies. Many of the works discussed in Chapter 1 are "bottom-up" studies which focus on given languages, subgroups or geographical regions; much more work is needed in this direction. As well, many important studies in comparative Pama-Nyungan (and in comparative Australian) have adopted the "top-down" approach. These serve to justify the notion of a Pama-Nyungan family, as well as to highlight some of the

phonological, grammatical and semantic changes which are common in the family. One of the pioneering projects for Pama-Nyungan comparative linguistics was the large-scale lexicostatistical study presented in O'Grady, Voegelin and Voegelin (1966) and summarized in map form by O'Grady, Wurm and Hale (1966) (see Section 1.1). This work pointed the way for numerous bottom-up comparisons which seek to answer questions regarding the relationships among the Pama-Nyungan languages.

The present work is a top-down study. A number of problems are encountered when proceeding in this direction. First, the researcher is likely to be less familiar with each of the languages, especially when there is a large number of them, than if a smaller number of more closely related languages were the focus. Second, it may be more difficult to isolate borrowings as neighbouring languages are often not examined. Third, the study may have an extremely large database of forms to compare, and for a family such as Pama-Nyungan in which the languages have relatively similar phoneme inventories, it may be difficult to distinguish true cognates from simply homophonous forms. As a result of the last two problems, it may be harder to establish regular sound correspondences among the languages. However, top-down studies such as this one are valuable for the picture they give of the family as a whole. In addition, they often provide a very large number of cognate sets and reconstructions which show us some of the characteristics of the family-level proto-language (and possibly of some of the lower-level proto-languages as well). These are also useful for further detailed study of specific issues regarding types of sound changes and subgrouping.

2.4 Method Used in this Study

In this section I discuss the method used in the study, which is based on that described in O'Grady (1990e) and O'Grady and Fitzgerald (1997), and which differs in some ways from the traditional comparative method. I first give a brief overview of certain

characteristics of the Pama-Nyungan languages which simplify a cognate search. I then discuss the details of the method.

2.4.1 Overview

Previous work on members of the Pama-Nyungan family has revealed several facts. First, many Pama-Nyungan languages are extremely conservative with respect to sound change, to the extent that a proto-form, such as **pinang* 'ear,' may be reflected by identical or similar forms throughout the family. Secondly, the majority of pPN reconstructions are disyllabic, with stress occurring on the first vowel; this vowel is thus less likely to change than is the second. Thirdly, a variety of phonological changes has been attested in Pama-Nyungan languages, including initial and medial lenition of stops and nasals, prenasalization of medial stops, rhotics and glides, and the dropping of initial consonants. When one is undertaking a cognate search, the phonological conservatism of most Pama-Nyungan languages allows us to focus on a particular $C_1V_1C_2$ pattern (where C_2 may be a cluster), and the observed types of sound change point us to phonologically possible cognates. For example, if we choose to concentrate on the configuration *kuk-*, we should compare those forms beginning with *kuk-*, *nguk-*, *wuk-*, *uk-*, *kungk-*, *ngungk-*, *wungk-*, *ungk-*, *kung-*, *ngung-*, *wung-*, *ung-*, *kuw-*, *nguw-*, *wuw-* and *uw-*, which could be arrived at by initial and medial lenition, prenasalization and initial-dropping. This approach often leads fairly quickly to a large number of possible cognate sets.

A disadvantage of the conservative phonologies of Pama-Nyungan languages is that it can be difficult to distinguish reflexes of homophonous proto-roots from true cognates. Therefore, knowledge of the types of semantic relationships and shifts found in the family is very useful. A number of types are attested, including narrowing, widening, metaphor, metonymy and synecdoche (see Bloomfield 1933:426-427).

The following examples illustrate further associations which are important in Pama-Nyungan languages:

(2.2) a. YDN *kurran* 'long, tall;' GUP *gurri.ri* 'short.'

b. DYI *pinta* 'shoulder, waterfall.'

c. NYA-S *kurna-(ny)* 'swallow;' WEM *kurn* 'throat.'

d. WJK *NGOBERN* 'the eldest son or forefinger.'

e. GUP *ngorra* 'lie down, sleep.'

In (2.2a), we see an association between antonyms. The next three examples show relationships between body parts and natural phenomena, verbs and kinship terms, respectively. The form in (2.2e) illustrates the link "between an activity that *potentially could* and one that *actually does* have a certain result (Dixon 1980:103; Dixon's emphasis). Types of semantic change found in Pama-Nyungan languages are discussed in more detail in Fitzgerald (1991:31-45). Evans (1990, 1992, 1997) and Wilkins (1981, 1996, 1997) are doing important work in the classification and corroboration of many types of semantic change in Australian languages.

2.4.2 Details of the Method

As mentioned in Chapter 1, the 25 languages used in this study were chosen on the basis of their relatively conservative phonologies and their geographical spread. The cognate search undertaken for this dissertation can be divided roughly into two stages, the first of which was to collect possible cognate sets. The first step of this stage was to create a database of forms in Microsoft Access. For each language, all roots beginning with *k, ng, w* or a vowel were entered into the database. In order to limit the number of items, only those derived forms which illustrate a phonological

process or semantic relationship were included. Each record of the database is made up of fields for language name, form, gloss, C_1, V_1, C_2 and V_2. The database contains approximately 18,600 entries, including both roots and derived forms.

The next step focused on phonology, searching for forms conforming to a particular $C_1V_1C_2$ pattern. Given the common processes of lenition and prenasalization discussed above, the consonants were treated as classes based on place of articulation. Because V_1 is usually retained, only one vowel was considered at a time. For example, one search extracted those forms beginning with the pattern velar-*u*-labial. The result of this search was a smaller, although still relatively large, set of forms.

The focus of the search then shifted to semantics. A query was run on the glosses of the set of forms resulting from the previous step. It extracted all words with lexical meaning and counted the number of times each word appeared in the set of glosses. This step thus resulted in a list of English words and their frequencies. For example, for the velar-*u*-labial search, the first ten lines of the 1688 line list contained the following entries:

(2.3)

Word	Count
plant	14
big	14
urine	14
large	13
has	12
magpie	11
white	11
time	10
being	10
man	10

Because the number of forms conforming to a given $C_1V_1C_2$ pattern is large, and the task of comparing each of these forms with all of the others is intractable, this list of gloss frequencies was a useful starting point for the actual cognate search. Queries

could then be run which extracted all those forms the glosses of which contained a given word or one of a list of given words. Thus, I could extract, for example, all of the velar-*u*-labial forms with "urine" in their glosses. I could also take advantage of known semantic relationships by searching for a list of words such as 'urine,' 'bladder,' and 'water' at one time. The result of this query appears as follows, with the database form identification number followed by the language, word and gloss; and the list is sorted by the word:

(2.4)

Form ID	Language	Word	Gloss
11444	KAU	*KUMBO*	'urine'
12687	PNK	*KUMBU*	'urine'
12476	NYU	*kump*	'urine'
12068	WMK	*kump*	'urine'
11670	WLP	*kumpa.kumpa*	'froth, foam, scum; ... used water, frothy water'
12222	PIN	*kumpu*	'urine'
12268	UMP	*kumpu*	'bladder, urine'
12441	NYA-S	*kumpu*	'urine'
12529	NYA-W	*kumpu*	'urine'
172	NMA	*kumpu*	'urine'
11482	GYA	*kumpu*	'urine'
11293	BAY	*kumpu*	'urine'
12530	NYA-W	*kumpu.rru.mpu.rru*	'bladder'
11488	GYA	*kumuy*	'flourescence under water ...'
12269	UMP	*kumuy*	'waterweed'
11465	GYA	*kuparr*	'big black freshwater eelfish'
12400	KLY	*KUPUIEI*	'coco-nut water-bottle'
12698	PNK	*KURPA-TA*	'to sprinkle with water'
12233	PIN	*kurrpi-rnu*	'to sprinkle with water ...'
2039	NYU-E	*kuump*	'urine'
2039	NYU-N	*kumpu, GUMBU*	'urine'
11895	WLP	*ngupala*	'bladder'
3462	YAN	*ngurrbantharra*	'roaring, of floodwaters ...'
12429	KLY	*ubaalu, UBAL*	'bladder'
3953	YAN	*wujbantharra*	'flowing; of water, honey, ...'
12116	WMK	*wum*	'part of the waterlily flower ...'
12195	YDN	*wupul*	'water rat'
4190	YAN	*wuwan*	'dry; waterless; expressionless'

In the next step, I again focused on phonology, while also paying attention to semantics. The set of forms resulting from the previous query were divided into cognate sets on mainly phonological grounds. Although any form with a given $C_1V_1C_2$ configuration could conceivably be related to any other (within semantic limitations), it was often clear that more than one cognate set was included in the list of forms with a given gloss. However, at this stage of the study it was difficult to determine which putative sound correspondences would later turn out to be important. Therefore, if I was in doubt as to whether a group of forms should be divided, I kept the forms together for later analysis. The above list was divided into two groups; the first contains forms starting with *kump*, as well as WLP *ngupala*:

(2.5)

Form ID	Language	Word	Gloss
11444	KAU	*KUMBO*	'urine'
12687	PNK	*KUMBU*	'urine'
12476	NYU	*kump*	'urine'
12068	WMK	*kump*	'urine'
11670	WLP	*kumpa.kumpa*	'froth, foam, scum; ... used water, frothy water'
12222	PIN	*kumpu*	'urine'
12268	UMP	*kumpu*	'bladder, urine'
12441	NYA-S	*kumpu*	'urine'
12529	NYA-W	*kumpu*	'urine'
172	NMA	*kumpu*	'urine'
11482	GYA	*kumpu*	'urine'
11293	BAY	*kumpu*	'urine'
12530	NYA-W	*kumpu.rru.mpu.rru*	'bladder'
2039	NYU-E	*kuump*	'urine'
2039	NYU-N	*kumpu, GUMBU*	'urine'
11895	WLP	*ngupala*	'bladder'
12429	KLY	*ubaalu, UBAL*	'bladder'

The second set contains just the following two forms:

(2.6)

Form ID	Language	Word	Gloss
12698	PNK	*KURPA-TA*	'to sprinkle with water'
12233	PIN	*kurrpi-rnu*	'to sprinkle with water ...'

Once the gloss frequency list had been exhausted, there was still a number of forms of the given $C_1V_1C_2$ pattern which were not included in any cognate set. In many cases this was the result of the forms having words in their glosses which did not occur in many other glosses. These forms were printed, as were the cognate sets resulting from the above steps. Each form was then compared "by hand" to the cognate sets and to the other unassigned forms. Forms were added to existing sets, and many new sets were created. Of course, not every form was eventually assigned to a set; the history of these forms is left for future work.

These steps were followed for the following configurations: velar-*a*-labial, velar-*a*-velar, velar-*a*-laminal, velar-*a*-apical, velar-*i*-labial, velar-*i*-velar, velar-*i*-laminal, velar-*i*-apical, velar-*u*-labial, velar-*u*-velar, velar-*u*-laminal and velar-*u*-apical. The result of the first stage of the study was approximately 2000 putative cognate sets of varying size and plausibility.

In the second stage, the cognate sets were reviewed and analyzed. First, the least plausible sets were discarded: many of these involved vague glosses such as "species of tree." Others appeared to be phonologically or semantically weak for various reasons. In some cases, the apparent weaknesses may be a result of this study being conducted from a top-down approach, in that all the stages of a phonological or semantic change may not be visible from this angle. Careful comparison and reconstruction at subgroup levels may reveal regular relationships and reinstate the status of some of these sets. In addition to weak sets, those involving only two languages which are known to be very closely related, such as YIM and GYA or WLP and PIN, were also discarded. In a top-down study it is difficult to isolate borrowings among such languages, and these sets do not contribute much to a study such as this.

Some scholars feel that a putative cognate set with just two members is not valid. Others regularly include such sets in their work. In the context of this study, two-

member sets are included except as explained above. It is possible that one form in a two-member set may later be shown to be a borrowing, the result of taboo deformation or the result of analogical change. However, given that the languages involved often exhibit both geographical and genetic distance, such a set would still be evidence for the relatedness of languages in one region to those in another. I believe that most of the two-member sets included in Chapters 3-5 will be corroborated by the addition of forms from more languages; unfortunately this must be left for future work.

The remaining sets were rated on a scale of one to five based on apparent plausibility: the rating was necessarily subjective, but was based as much as possible on experience. Those that were rated two or below were sets with divergent meanings not encountered before, or with sound correspondences which seem less likely or less common. Issues such as the initial consonant, possible prenasalization, possible medial lenition, and the quality of the second vowel were ignored here, since these are the kinds of correspondences the study is attempting to establish. The remaining steps of the analysis were conducted only on those sets rated three or above.

The next step in the analysis was to run a query which, for each language, produced a number of tables of cognate sets. These listed the sets in which *ng*-initial forms correspond to *k*-initial forms in other languages, those in which *w*-initial forms correspond to *k*-initial forms, and those in which *w*-initial forms correspond to *ng*-initial forms. For those languages which potentially drop initial consonants, three tables listed the sets in which vowel-initial forms correspond to *k*-, *ng*- or *w*-initial forms in other languages. These tables gave a preliminary picture of which weakening and dropping processes occur in which languages.

The sets in these lists fall into three broad categories: those which appear to be clear examples of weakening, those which present some phonological or semantic cause for hesitation, and those which do not actually exhibit weakening and should

be discarded or divided into a number of smaller sets. At this stage of the analysis, I went through the sets to determine their types. Sets of the second type were put aside until those of the first and third types had been analyzed. The first type of set is one in which the only major difference between the forms is C_1; the rest of the phonemes and the meanings are the same or relatable; an example is seen below.

(2.7) WLP *nguna-mi* 'lie ...; sleep ...;' NYU *ngurni.ny, ngurnti.ny* 'lying, lying down;' UMP *wuna-* 'lie, sleep, stay the night;' WMK *wun-an* 'lie down, live, stay; ... stative verb ... to be;' YIM *wu-naa-* 'lie, exist;' GYA *wuna-y* 'to lie down; to sleep; to have; state of being;' YDN *wuna-N* 'lie, sleep, live;' BGU *wuna-* 'to lie down.' (4.208).

The third type of set may contain a form with apparent weakening from a language which has no other strong examples in the database. In this case, either the form (or the entire set) would be discarded, or if the form seemed plausible in all other respects, it was retained and labelled as "residue" (see Chapter 3 for a description of residue). Another situation which would give rise to the third type of set would be one in which a large number of forms were included in one set during the first stage of the cognate search. Consider the following two sets, which were originally one:

(2.8) a. KAU *NGAPA.PPI* 'grandmother on father's side,' *NGAPI.TYA* 'grandchild of the NGAPAPPI;' NMA *ngapa.ri* 'father's mother, daughter's daughter;' BAY *ngapa.ri* 'father's mother; son's child;' YAN *ngapu.ji* 'father's mother; father's mother's brother; sister's son's child; sister's son's child; son's child;' KLY *NGEP* 'grandchild;' WEM *ngapa* 'maternal grandfather,' *ngapu.ntek* 'my grandchild;' WOI *ngaba* 'father's father.' (4.92)

b. NYA-S *kaparli.ji* 'father's mother and female ego's son,' -W *kaparli.ji* 'father's mother;' WLP *kaparli* 'grandmother;' PIN *kaparli* 'wife's mother's father's sister ... first daughter's daughter ... all one's departed female an-

cestors ... all one's female offspring;' NYU *kaparli* 'old woman.' (3.171).

In the first group, we see a widely scattered group of languages, including three Nyungic languages, with initial *ng*. The second group contains four Nyungic languages with initial *k*. The widespread nature of the first group indicates that the original large set should be divided. Otherwise, we would be positing that weakening of **k-* to *ng* occurred separately in seven languages (future work may show these sets to be ultimately related). The third type of set could also contain a number of forms from a single language, some of which have one initial consonant and some of which have another, or it could include forms with divergent meanings which might be, but are not necessarily, related. Analysis of these putative sets often indicates that they should be divided into smaller sets, based on phonology and/or semantics.

Once the first and third types of sets had been dealt with, those of the second type were re-evaluated and were either retained or discarded. The set in (2.4) is an example of the second type of set with respect to KLY *ubaalu*, *UBAL*, which differs both in initial and medial consonants from the other forms in the set. Further analysis of initial weakening indicates that the dropping of **k-* is common in KLY, and a correspondence between voiced stops in KLY (which does not allow homorganic nasal-stop clusters) and these clusters in other languages is also attested. Therefore, the KLY form can remain in the above set. WLP *ngupala*, however, was eventually deleted from this set because analysis of medials turned up no further examples of the loss of a nasal in WLP.

These steps were repeated for the analysis of other possible sound changes such as prenasalization, medial weakening, the assimilation of initial velar glides and nasals to the following vowel, and changes affecting the laminal lateral. In addition, those sets which were initially rated as two or below were briefly re-evaluated in light of the

results obtained from the stronger sets. Proto-forms were then reconstructed at the level indicated by the languages in each set. Although many of the correspondences found in the data are not completely regular. subscripts or other methods of distinguishing each correspondence were not used because of the problems discussed in Section 2.1 above. The result of the study is 1561 cognate sets. presented in Chapters 3. 4 and 5. The findings of the analysis are discussed in Chapter 6.

Chapter 3

*k-Initial Etyma

The cognate sets resulting from this study are given in this and the following two chapters; they are divided into three groups based on the initial consonant of the protoform (**k-*, **ng-* and **w-*), and each group is presented in a separate chapter. Each chapter is in turn divided into three based on $*V_1$. Some of these cognate sets have appeared in whole or in part in other works. The reader is referred to the studies discussed in the literature review in Chapter 1, especially to those in Section 1.1.3. Specific references are rarely given in the cognate sets below. There is a degree of disagreement in the literature regarding the place of some forms; one researcher may place a given form in one set, while another feels it properly belongs in a different set. Even within a given author's body of work, sets may be altered as additional data are consulted and more knowledge is gained. Collating all of the proposed sets is a monumental task and well beyond the scope of this dissertation.

Reconstructions from established subgroups are included in the cognate sets. They are taken from the following sources: pKAR, pWK and pCK are from Austin (1990), pNG is from O'Grady (1966), pP is from Hale (1976b, 1976c, 1976d), pKAN is from Austin (1981, 1988). Corroboration for putative semantic associations is given where necessary. Otherwise, due to space considerations, discussion of the sets is kept to a

minimum.

Recall from Chapter 2 that Anttila recommends the concept of matchings as a way to keep track of those correspondences which appear to be recurring but are not regular. He states that two occurrences of a correspondence are enough to classify it as "nonrandom." It is very likely that two is not a statistically significant measure of nonrandomness. However, determining a significant number of occurrences is an extremely difficult statistical problem, which depends on a variety of factors including the likelihood of a given phonological shape, the size of the database and number of forms in cognate sets. Furthermore, the significant number would vary from language to language. Therefore, the choice of the number of occurrences needed to classify a potential correspondence as a matching is an arbitrary one. I follow Anttila in calling any correspondence that occurs at least twice a matching; forms that exhibit matchings are included in the following sets.

Many of my cognate sets include a section entitle "residue." This contains forms which appear to be plausible cognates but which, for either phonological or semantic reasons, I hesitate to include as members of the set. For example, a form exhibiting an uncorroborated semantic shift, or one with an otherwise unattested sound correspondence would be classified as residue. This section is used to keep track of forms which may later prove to be actual cognates. The residue section also records forms which may exhibit a relationship between *rr* and *t*, about which my data contain inconclusive evidence; further work on this issue is needed.

A number of conventions are used in the cognate sets and reconstructions. Productive morpheme boundaries are marked with a hyphen, while a dot denotes unproductive ones. In many cases involving apical medial consonants, languages with two apical series will disagree as to whether an alveolar or a retroflex should be reconstructed. This is indicated by the use of *(r)* in the protoform. Uppercase letters are

used in the reconstructions when the cognate sets include data only from old sources, or when a feature of a phoneme is unclear. For example, if a set does not include a form from a language considered to be diagnostic for vowel length (see below), the reconstructed vowel is presented in uppercase. Similarly, if it is not clear which rhotic was present in the protoform, *R* is reconstructed.

Three languages in this study, YIM, UMP and BNJ, are taken to be diagnostic for vowel length in the first syllable (see Fitzgerald (1991:22-23)). In the rare cases where two of these languages disagree regarding this feature, an uppercase vowel is reconstructed. Four languages, BNJ, WEM, WOI and GUM are believed to be preserve final nasals. It is suspected (O'Grady, p.c.) that many eastern languages retain all ancestral final sonorants, and O'Grady has in the past considered such languages to be diagnostic. However, the eastern languages often disagree as to the presence or absence of a final sonorant, as well as to which sonorant should be reconstructed. I therefore use the following procedure: if BNJ, WEM, WOI or GUM has a final nasal, it is reconstructed. If two of these languages disagree as to which nasal is present, the two nasals are presented in parentheses (as, for example *(m/ng)*). If one of the other eastern languages has a final sonorant, or if BNJ, WEM, WOI, or GUM has a final sonorant other than a nasal, it is reconstructed in parentheses. Again, if there is disagreement among the languages, the two (or more) sonorants are listed. The use of parentheses here is to indicate that a final sonorant may have been present in the protoform, but more work needs to be done before it can be reconstructed with confidence.[1]

Reconstructions are labelled according to the family subgrouping listed in Chapter 1. In some cases, the labels are annotated further. At the family level, reconstructions for sets lacking putative cognates from the south-east are marked "pPN-." Etyma

[1] A preliminary study of fluctuating final *n* in the Cape York languages has very recently appeared (Alpher 1997).

for sets containing only eastern languages are denoted "pPN (E)." Similarly, pNY reconstructions based on data from just NYA, PIN and/or WLP are marked "pNY (D)." These augmented labels are not meant to suggest nodes in the family tree, but are rather used to indicate that important groups of languages are not represented in the cognate sets.

3.1 *ka-

3.1. pNYY **ka* > WLP *ka* '(aux-clitic) present tense;' PIN *ka* 'but (conj.);' NYU *KA* 'or;' GUP *ga* 'and.' Yanyuwa's verbal prefix *k- ~ka-* may also belong in this set.

3.2. pPN **kaa-* > NYA-W *ka-nya* 'to bring, carry, convey; to conduct (a person);' WLP *ka-nyi* 'take, bring, carry, transport, drive; wear; take, carry off; bring, lead, take (imperative *ka-ngka*);' KAU *KA..NGGA-NDI* 'to lead; ...; accompany; to bear a child; bring forth;' PNK *KA..NGGA-TA* 'to drive, lead;' NYU *GA..NGO-W* 'to bring; to carry; to fetch; to take;' KLY *a.ngayk, ANGAI* 'carry,' *ANGI-* 'put on, as clothes, wear;' BNJ *kaa.ng-, kaa.nga-, kaa.ngka-* 'to take, to carry, to obtain, to pick up;' PIT *ka.ngka-* 'bring.' These forms likely descend from the monosyllabic verb root **kaa-* 'to carry, bring, take' reconstructed by Dixon (1980:404). As happened in many languages with **nga-* (4.1), the root may have been reanalysed as disyllabic, resulting in its fusion with inflectional morphemes, including purposive **-ngku* and past tense **-ngu*. Further work is needed to confirm or refute this analysis. The sets in (3.79), (3.156), (3.282) and (3.319) may also reflect **kaa-*.

3.3. pPN **kaja* > NYU *kaji.n* 'devil,' *kaji.n* 'dead,' *KADJI.N* 'soul; spirit ...;' UMP *katha* 'rotten;' WMK *kath* 'rotten (e.g. food), foul smell ...; very old;' YIM *katha* 'rotten;' YDN *kaja* 'male ghost, white man;' BGU *kaja* 'rotten;' WEM *ngatha* 'devil, goblin;' BAA *kathi, kathi.ka* 'sour, bitter-tasting.' (pP **kaja*). A large

number of sets in my data exhibit a range of 'negative' meanings. These include (3.160), (3.204), (3.237), (3.648), (3.756), (4.62), (4.81), (4.138), (4.202), (5.7), (5.68), (5.82), (5.118), (5.225), (5.248) , (5.252), (5.273) and (5.345). This set may be related to that in (3.15) by the association between 'child' and 'bad' discussed by Evans (1992).

3.4. pPN- (E) **kaja-* > KLY *GASA.MI-* 'find;' UMP *ngaja-* 'arrive at, reach, find, go to, go see, come up to.'

3.5. pPN- (E) **kAja* > YAN *ma-kaja.kaja* ' ceremonial headress which takes feather plume attachments;' BGU *katha* 'hair (of head).'

3.6. pP **kAja* > WMK *kaanj.al* 'tree possum;' YDN *kaja.rrA* 'possum sp.'

3.7. pPN **kaja(l)* > GUP *gaaca.la* 'precious, highly valued;' KLY *KAZA.N* 'kindness;' WMK *aj-min* '(to do something) well, properly,' *aj-ump-an* 'to make attractive, to look nice;' BNJ *kanyjal* 'nice; handsome;' BAA *kaja.rlka, kanja.rlka* 'good, beautiful;' DIY *kanyji* 'can.'

3.8. pPN **kAjang* > NYU *GOTY.N* 'a hollow or swamp with a little water;' GUM *kanyjaang* 'swamp.'

3.9. pPN (E) **kAji* > WMK *kaath.ama* 'no, none;' WEM *kaji.na-* 'to be unable.'

3.10. pPN (E) **kAji* > WMK *keej* 'all egrets (often called white cranes locally);' WEM *kathi.ng-pang* 'white-faced crane, *Ardea novaehollandiae*.'

3.11. pPN- (E) **kAji* > KLY *GASI* 'arrowroot (?);' WMK *aaj.ij* 'ground up arrowroot, flour.'

3.12. pPN- **kaji(n)* > WLP *kaja.larra* 'scoop, scraper,' *kaji.pa* 'ceremonial baton,

dancing stick;' PIN *kaji* 'spear ...;' BAY *kaji.ri* 'spear;' UMP *kajin* 'digging stick;' WMK *kej.an* 'wooden digging stick or fighting stick;' DYI *kajin* 'yamstick,' *kajin* 'girl;' DIY *kaji* 'spear.' (pP **kajin*).

3.13. pPN **kaju* > NYA-S *kaju* 'axe.' -W *kaju* 'tomahawk, axe;' WLP *kaju.rr-paji-rni* 'cut off, sever;' NYU *koj* 'a small stone axe; tomahawk, hatchet, axe,' *koj, kaju, koja* 'stone axe.' *KADJO* 'a native hammer ...;' NMA *kaju* 'axe:' BAY *kaju* 'stone axe;' YAN *watha.ngu-ma-ntharra* 'cutting up meat;' UMP *waja.manu* 'stone ax;' BAA *katha-katha-* 'to chop into pieces.'

3.14. pPN- **kaju-* > UMP *katha-* 'tie it;' WMK *kath-an* 'tie, or wrap ...;' GYA *kaja-l* 'to tie.' We can reconstruct this protoform at the pPN- level because Ngarla, a western language, has *kaju-n* 'tie.'

3.15. pPN **kAju* > WLP *kaja* 'son, nephew, boy, grandchild, grandnephew;' PIN *kaja* 'son; one's sister's son;' PNK *KAITYA* 'small, little, infant, child;' NYU *kaja* 'child:' GUP *gaathu* 'man's son or daughter, his brother's son or daughter, woman's brother's son or daughter;' YAN *kaja.kaja* 'son; brother's son; daughter; brother's daughter,' *watha* 'young; immature;' KLY *kaazi, KAZI* 'son, daughter;' DYI *kaji.ya* 'young girl;' BAA *kaja.la* 'small,' *kaji.luku* 'narrow, small, little,' *kathu.ka* 'short.' This set may be related to that in (3.3) by the association between 'child' and 'bad' discussed by Evans (1992).

3.16. pPM **kAju* > YDN *kaju, kajuu* 'black tree ant;' BGU *kathu* 'meat ant.'

3.17. pPN- **kAju(l)* > BAY *ngaju.rr.pa* 'mangrove;' GUP *gathu.rl'* 'mangroves;' GYA *kajul* 'species of mangrove.' (pKAN **ngajurrpa*).

3.18. pPN- (E) **kAju(l)* > YAN *ngathu.ngathu* 'offending in speech and manner; by lying, by speaking excessively, ...;' YDN *kajil* 'pretending;' DYI *kajil.mpa-y*

'prevaricate, pretend;' BGU *kathi-* 'to tell a lie.'

3.19. pPN (E) **kajung* > BGU *kaju.kayi* 'later on;' WEM *kathang* 'afterwards, later.'

3.20. pPN- (E) **kaaju(rr)* > YAN *na-waji* 'armpit under flipper of dugong,' *nta-waji.mpangu* 'armpit, your;' UMP *waatha* 'armpit;' YDN *kanyjarr* 'armpit;' WEM *katha.p* 'armpit.' (pP **waaju*).

3.21. pPN- **kajV* > NYA-S *kaja* 'long way.' -W *kaja* 'far, distant:' WLP *-kanja.yi* '(so) far, (so) distant, (so) long;' NYU *kweja.ng, kweja.l* 'a long time ago:' UMP *kaji* 'far:' WMK *kej* 'long way off (in distance or time);' YIM *kathii* 'distant;' YDN *kaji* 'long way off.' (pP **kaji*).

3.22. pNYY **kajV* > NYU *weej, waji, weja* 'emu,' *WIDJI* 'an emu; a dragon-fly;' BAY *kaja.lpu* 'emu.'

3.23. pPN- **kAjV* > WLP *kaji.warra* 'cousins, grand-aunts, sisters:' YAN *a-atha.tha* 'your sister, my cousin when speaking to male cousin;' YDN *kanyji.rri* 'cousin.'

3.24. pPN- (E) **kAjV* > YAN *kaji.kaji* 'quickly;' KLY *kazi.ge, KASI.GI* 'quick, hurried;' WMK *ath-ath, oth-oth* 'quickly, hard;' BGU *kaja.rta, kaja.rta.kathi* 'directly (time).'
Residue: WLP *kajupu* 'straight, direct, short-cut, ...'

3.25. pPN **kajV(l)* > NYA-W *ngaji* 'sugar;' YAN *a-aju.ntu* 'sugar bag;' BNJ *kathal* 'sweet,' *kathal.kaany* 'sugar.'
Residue: PNK *NGALTYA* 'sweet, eatable, drinkable.' The possibility that this form had a medial lateral warrants its classification as residue.

3.26. pPN- **kaajV(y)* > NMA *kanyji* 'side,' *kanyji-ka-lku* 'turn it on its side;' UMP *kaathay* 'flank (of body).'

3.27. pPN **kaka* > NYA-S *ngaka.ta* 'pygmy tailed skink,' -W *ngangku.kutu* 'lizard species;' NMA *ngaka.rta.ra* 'short lizard ...;' YAN *a-kangka.rl.kangka.rl* 'Blue-tongue lizard, ... (*Tiliqua scinoides*);' BNJ *kaka.paling* 'Gould's Goanna, *Varanus gouldii*;' BAA *kaaku.mpirrartija* '"Jacky Lizard," ... (*Amphibolurus muriatus*).'

3.28. pPN- **kaka* > PIN *kaka.l.kaka.l-pa* 'delirious, ... of a staggering, sick person,' *kaki.ti.kiti* 'dazed; usually through lack of water;' GUP *gak-thu-n* 'vomit;' KLY *GAGA.DI, GOGA.DI* 'weak, faint;' WMK *ak.aram-an* 'wither away, dry up, fade away (used of flowers, plants, and people and animals),' *angk.ang-an* 'sick;' YIM *kaka* 'poison, sick, salty;' GYA *kaka* 'sore, achey; bad tasting food; salt water, ocean water.'

3.29. pPN- **kaka* > WLP *kaka* 'excrement, faeces ...;' YAN *kaka* 'faeces; filth; shit;' WMK *kak* 'faeces.'

3.30. pNYY **kaka* > NYU *ngaka.rl* 'seagull;' GUP *gaka.rrarr* 'silver gull.'

3.31. pPN **kAka* > PNK *KAKKA.LLE* 'a belt or girdle made of the hair of the head ...;' BAY *waka.rri* 'hairbelt; human hair to tie around arm in initiation,' *waka.rti* 'hair-string;' BAA *kaka.ji* 'hair-string.' (pKAN **wakarri*).

3.32. pPN **kAka* > NYA-S *kaka.lya.lya* 'Major Mitchell cockatoo,' *ngaka.lya.lya* 'sulphur crested cockatoo,' -W *ngaka.lya.lya* 'White Cockatoo;' WLP *kaka.lya.lya, kaka.lya.lyi, ngawa.lya.lya* 'Cacatua leadbeateri, Pink Cockatoo, Major Mitchell's cockatoo;' KAU *NGAKA.LLA* 'a species of paroquet (blue mountain);' BAY *kaka.ju* 'white cockatoo;' GUP *gayka.rri* 'cockatoo;' YDN *wangku.lay* 'white cockatoo;'

BAA *kaka.mpa* 'white cockatoo, corella.'

3.33. pPN- **kAka* > NYA-S *kaka.rra* 'east.' *kaka.rra.ra* 'sunrise,' -W *kaka.rni raa* 'first light, dawn.' *kaka.rra* 'east;' WLP *kaka.rra-ra* 'east, in the east, to the east.' *kaka.rru* 'east, easterly;' PIN *kaka.rra, kaka.rra.ra* 'east;' NYU *kaka.rr* 'east.' *KAKU.R, KAGGA.L* 'the east;' YAN *aka.rru* 'east.' The forms in this set may be related to those in (3.37), which mean 'moon;' a relationship between 'moon' and 'east' is seen in the cognate pair WLP *mari.l.pi* 'moon,' KAU *MARI* 'east.' However, the presence of *ng*-initial YAN forms in (3.37) and vowel-initial YAN forms in this set are cause for hesitation in combining the two.

3.34. pPN- **kAka* > PNK *KAKKE.LLI* 'mangrove tree;' GYA *kaka.ji* 'species of mangrove ....'

3.35. pPN (E) **kaakan* > BNJ *kaakan* 'sea;' GUM *kaakal* 'sea, beach;' WOI *gaga.rru.k* 'sand.'

3.36. pPN **kaka(R)* > WLP *kaka.rda* 'nape, ... neck-bone ...;' BNJ *kangkar* 'neck, nape of neck.'

3.37. pPN- **kAki* > KAU *KAKI.RRA* 'moon;' YAN *ngaka.rla* 'moon; month;' DYI *kaka.lum* 'moon;' BGU *kaka.rta* 'moon, month.' (pP **kakara*). See also (3.37).

3.38. pNY **kaku* > NYA-S *kaku-(rn)* 'gone, never to return, forget,' -W *kaku-rnu* 'not to register properly, i.e. to forget, to fail to see or hear something, to overlook ...;' KAU *WAKKA.RE-NDI* 'to err; stray; to be lost; giddy; ignorant,' *WAKKA.RIAPPE-NDI* 'to forget; not to think of; to leave behind.'

3.39. pPN- **kAku* > NYA-S *kangku.ji* 'eldest sister,' -W *kangku.ji* 'elder sister;' WLP *kaku* 'elder sister, senior sister;' PIN *kangku.ru* 'a male's or female's elder sister;' DIY *kaku* 'elder sister;' PIT *kaku* 'older sister.' (pKAR **kaku*).

3.40. pPN- **kAku* > PNK *KAKKU.RRI-TI* 'to wish, desire, like;' WMK *kaangk* 'to like, want, need; also used emphatically ... to mean something like "must," "just have to."'

3.41. pPN- **kAku* > NYA-W *kaku* 'deep, far in, a great distance;' GUP *waga.bac* 'very long way away;' YAN *waka* 'away.' *waka-waka.la* 'great distance.'

3.42. pPN- **kAku-* > NYA-S *waki-ya-(n)* 'go across;' KLY *KAKU.R.KA-TAI-, KAKU.R-PATAI-* 'step across.'

3.43. pPN **kakum* > GUP *waka.l* 'fun, playing around, loose behaviour;' YAN *kaki.lhi* 'nuisance;' BNJ *kakum* 'fun, joke;' WEM *weka-* 'to laugh.'

3.44. pPN **kaaku(m/n)* > GYA *waku.ka* 'kookaburra;' BGU *kaku.parra* 'kookaburra;' BNJ *kaakun* 'Laughing Kookaburra, *Dacelo gigas*;' GUM *kaakum* 'kookaburra.'
Residue: YDN *kakurarr* 'leatherhead.'

3.45. pPN **kakung* > NYA-S *kaka.ji* 'mother's brother; wife's father for male ego.' -W *kaka.ji, kaka* 'mother's brother; wife's father (?);' NYU *kongk, kangku, kongka* 'uncle, mother's brother.' *KANGU.N* 'uncle; father-in-law;' NMA *kaka* 'uncle, mother's brother, son's daughter's son ;' BGU *kanga.ny, kanga.njila* 'mother's brother;' BNJ *kakuung (?)* 'mother's brother;' BAA *waaka.ja* 'uncle, mother's brother, ...,' *waka.ja* 'uncle (mother's brother);' DIY *kaka* 'mother's brother.' (pNG **kaka*, pWK **kaka*). This set may be related to that in (3.46).
Residue: WOI *gan-gan* 'mother's brother.' It is not clear whether this WOI form has a *-nk-, -ng-* or *-ngk-*.

3.46. pPN **kakung* > WLP *kaki.yi, kayi* 'brother, male cousin;' PIN *kaaka* 'older brother;' BNJ *kakuung* 'male's older brother, great-grandfather; brother or male

cousin of any great-grandparent;' GUM *kaku* 'brother (elder?);' BAA *kaaku.ja* 'elder brother.' This set may be related to that in (3.45).

3.47. pP **kAku(ny)* > GYA *kaku* 'lawyer cane top;' YDN *kakiny* 'split lawyer cane.'

3.48. pPN- **kAkV* > NYU *KAKA.M* 'the rump;' BAY *kaka.ra* 'hip;' YDN *kaki* 'side of bottom of back.' (pKAN **kakara*).

3.49. pPN- **kAkV(l)* > WLP *kaki.lya* 'small baby;' YIM *kangkal* 'child;' GYA *kangkal* 'one's own child: son, daughter.'

3.50. pPN- **kakVn* > NYA-W *kaki.rr* 'edible yellow egg-like globules, ..., found with ngarriji (native honey);' BAY *kaku.l* 'testicles;' KLY *kaku.r, KAKU.R(U)* 'egg, testicles, scrotum;' UMP *wakan* 'testicles, scrotum.' (pKAN **kakul*).

3.51. pPN **kaala* > NYA-S *karla.rna.rra* 'new.' *wala.ngka.rr* 'in front of.' -W *wala.ngkarr(-a)* 'in front, forward, first: the more distant past;' YAN *wala.kululu* 'while ago; while back: another day;' DYI *kala* 'earlier on today;' BGU *kala* 'now.' *kala.mukiny* 'recent, new;' BNJ *-kaal, -ngkaal* 'after;' GUM *kala* 'then, and, while etc.;' WOI *gali.nuth* 'in front.'

3.52. pPN **kAla-* > NYA-S *wala-(rn)* 'return.' -W *wala.ni* 'a turning back.' *wala.ni-ji-* 'to return (tr.); to put back into its place;' DYI *wala.ka-y* 'return (home);' GUM *kaala.wa-* 'return, go home.'

3.53. pPN (E) **kAla(y)* > GUM *wala* 'perhaps, maybe;' WOI *galai* 'perhaps.'

3.54. pYUR **KALBA* > KAU *KATPA.RNDA* 'the temples;' PNK *KALBA* 'cheek, side of the head.' Note also Jiwarli *karlpi.l.pi* 'flank.'

3.55. pPN **kali* > GUP *gali.c-ma-n* 'to bring close;' BNJ *kala* 'this, close, visible,'

kale.thal 'over here.'

3.56. pPN (E) **kali* > YAN *ala.rra-ma-ntharra* 'liking; appreciating;' BNJ *-kali* 'typified by, fond of ...;' WEM *kali.na-* 'to love someone.'

3.57. pPN (E) **kali(l)* > YAN *kali.rr.kali.rr* 'thin; emaciated; bony;' KLY *kala.y-nga* 'fat person;' BNJ *kaleel* 'thin.'

3.58. pP **kAlji-* > GYA *kalji-l* 'to vomit;' YDN *kalnyji-N* 'have bilious attack.'
Residue: PIN *kalyju.kalyju* 'hungry.'

3.59. pPN **kalka* > NYA-W *kalka.rr.mara* 'forked branch,' *kalka.rra* 'a stick used for plaiting ...;' NYU *KALGA* '... a stick with a crook at each end ...;' YAN *kalka.ji* '... wire spear with four heavy wire prongs;' KLY *ALKA.DI* 'barb of javelin;' UMP *kalka* 'quill of porcupine; fighting spear,' *walki* 'stingray's barb, nail;' WMK *kek* 'spear,' *walk* '... stingray barb or nail ...: spear type;' YIM *kalka* 'spear;' GYA *kalka* 'fishing spear, also generic term for spear;' DYI *ngalka-l* 'poke with stick;' WOI *galk* 'stick, tree, wood,' *galk-galk* 'stick;' BAA *kalku.rru* '... a barbed spear.' (pP **kalka*).
Residue: BNJ *walka* 'scratch marks.'

3.60. pPN (E) **kalka-* > YAN *alka.ntha-ma-nthamarra* 'butchering, an animal: cutting up pieces of meat;' BNJ *kalka-* 'to chop, cut.'
Residue: GUM *kayki-* 'cut.' I have no further evidence that GUM changes **-l-* to *-y-*.

3.61. pPN- **kAlka(n)* > NYU *kalka.rt, kalka.rta* 'mullet,' *KALKĂ.DĂ* 'the mullet-fish;' GYA *kalngkan* 'small mullet,' *ngalkun* 'mullet.'

3.62. pPN- **kAlkar* > PNK *KALKAR.I.DNI* 'ancient,' *KALKARR.A* 'long time ago, of yore;' YDN *kalkar* 'old; for a long time.'

3.63. pPM **kaalki-* > UMP *kaalki-* 'sprinkle; baptise;' BGU *kalki-* 'to pour.'

3.64. pPN- **kAlku* > PNK *KALKU-TU* 'to be in pain.' *KALKU.RRI-TI* 'to be sick, ill;' NMA *kalka.rl* 'vomit;' YAN *alku* '(noun) vomit.'

3.65. pPN- **kAlku-* > NYU *WAL-GU.R* 'to laugh;' YAN *kalka.l-ma-ntharra* 'laughing loudly.'

3.66. pNYY **kalkV* > WLP *kalku-rnu* 'this way, this side, facing this way ...;' PIN *kalku.rni* 'this side ...;' GUP *galki* 'close to, near, soon.'

3.67. pPN **kAlkV* > NYA-S *ngalka.rr* 'large species of ant,' -W *ngalka.rr* 'black ant;' GUP *gaalka.l* 'ants;' BAA *kalki.rri* 'bull-ant.'

3.68. pPN- **kAlkV(y)* > WLP *walki.rdi, warlki.rdi* '*Demansia psammophis*, Yellow-faced Whip Snake;' GYA *kalka.muku* 'green tree snake;' DYI *walkuy* 'brown snake.'

3.69. pPN- (E) **kAlmpa* > YAN *ma-kampa.nyi* 'yam species ...;' WMK *almp* 'yam-digging stick ...;' YDN *kalmpa* 'a mountain yam.'

3.70. pPM **kAlnga* > GYA *kalnga* 'mother's brother; great grandson;' YDN *kalnga* 'mother's brother.'
Residue: GUP *galngapan* 'closely related.'

3.71. pPN **kAlpu* > NYA-W *kalpa.rti* 'upper leg, thigh;' PIN *kalpa.rta* 'a short spear ...;' PNK *KALBA* 'lap;' YAN *kalpu* 'spear thrower ...;' WMK *ep* 'lap,' *ngalp* 'flat wide woomera ...;' WOI *galbu.rra-marriwan* 'woomera (*marriwan* 'woomera');' DIY *ngalpa* 'lap.' A relationship between 'thigh' and 'woomera' is also found in the polysemous NYA-S form *warlpa.rra* 'front thigh muscle; woomera' seen in (5.163). Note also the WLP form *wala.ny.pa* 'native pick-axe ...; calf of leg.'

3.72. pPN (E) **kAlpV(l)* > GYA *walpul-walpul* 'butterfly ...;' BAA *kaalpi-kaalpi.ka* 'moth.'

3.73. pPN (E) **kAltu* > KAU *KALTA* 'species of guana ...;' BAA *kaltu* 'sleepy lizard:' DIY *kalta* 'blue tongue lizard.' (pKAR **kalta*).

3.74. pP **kalu* > WMK *kal.aju* '... fish called Alligator Gar ....' *kali.j* 'Northern Snub-nosed garfish (*Arrhamphus sclerolepis*);' GYA *kalu* 'garfish.'

3.75. pPN- **kAlu* > WLP *kala.jirdi* 'grass sp.;' PNK *KALA.WIDNA* 'a coarse, reedy sort of grass;' PIT *kalu* 'reed.'

3.76. pPN- **kAlu* > NMA *kalu.ny.ja* 'mouse sp.;' WMK *kal* 'rat.'

3.77. pPN- **kAlu* > PNK *KALU.RU* 'bold, fierce;' YAN *kalu.kalu* 'proud; arrogant; swaggering.'

3.78. pNY **kalV* > NYA-W *kala.la.kala.la* '... large red ant;' PNK *KADLO* 'the large black species of ant, lion ant;' NYU *KALLI.LI. KALLI.P* '*Formica maxima*, the lion ant ....'

3.79. pPN **kalV-* > NYU *KOLO* 'denoting motion in general;' UMP *a.la-* 'take it, get it, pick it up,' *kali-* 'take, convey, carry,' *kalu-* 'carry, take, direct, read;' WMK *kal-an* 'bring, carry, take ...; have, wear ...;' YDN *kali-N* 'go;' WEM *kali.pa-* 'to gather up one's belongings, to collect things together.'

3.80. pPN (E) **kaalV* > WMK *kaal'* 'ear;' WOI *KEELO.NITH* 'hear, understand.' (pP **kaalu*).

3.81. pPN- **KALV* > PNK *KALLA* 'voice, speech, dialect,' *KALLA-TA* 'to call, hail;' KLY *KOLE-* 'address or call to a number of men.'

Residue: NMA *kalhu-ku* 'to call out to;' BAY *karlu.rnka-y-* 'call out; miaow.' It is not clear which of these forms belongs in the above set, as PNK *-LL-* and KLY *-L-* could correspond either to *-lh-* or to *-rl-*.

3.82. pPN (E) **kalVny* > BNJ *kalany* 'alone, solitary;' GUM *kalu.kun* 'one, other.'

3.83. pNYY **kalya* > NYU *ngaly, ngalya* 'armpit.' *NGAL-YA* 'the arm-pit;' BAY *kalya* 'armpit.' (pKAN **kalya*).

3.84. pPN **kaalya-* > NYA-S *kalya.ma-(rn)* 'leave.' -W *kalya!* 'clear out! leave me alone! ...;' WLP *walya.parr-paji-* 'cut loose, cut out, cut away from;' PNK *KALYA.U-TU* '... to make a motion with the hand to another person to keep at a distance;' BAY *kalha.rri-y-* 'get out of the way;' GUP *galalk-thu-n* 'to run very fast;' WMK *kenth-an* 'chase away; make (someone) be (something);' BNJ *kaatha-* 'to chase, to hunt;' BAA *kalya-* 'to run.'
Residue: GUP *gacu.y* 'off you go! Go away!.' Although a change from **-ly-* to *-j-* is found in some languages, there is no further evidence in my data for such a change in GUP.

3.85. pPN **kAlya* > WLP *kalya.rr.pa* 'three, few, several;' WEM *kalə.pul* 'two.'

3.86. pPN- **kAlya* > NYU *GAL-YA.RN* 'salt;' YAN *alhi.pi* 'salt water; sea.'

3.87. pPN **kalyan* > WLP *kalya.rra* 'hook, barb;' YAN *ngalhin* 'hook used for fishing; hook of spear thrower; barb on a barbed spear; barb on a barbed harpoon point;' KLY *KALA.K* 'a spear, javelin,' *koela.k* 'spear;' YDN *kala* 'spear; echidna spine;' BNJ *kalan* 'spear point,' *kalan* 'sharp; spear point.'
Residue: WOI *KAL-LU.P* 'fork.'

3.88. pNY **kalyira* > NYA-S *kalyira* 'white stone, possible quartz;' NMA *kalyira* 'white quartz.' Borrowing may be a factor in this set.

3.89. pPN- **kAlypi(n)* > WLP *kalypa* 'joey;' YDN *kalpin* 'son;' DYI *kalpin* 'child (of male ego).'

3.90. pPN- **kAlypu* > PIN *ngalypu.ru* 'sugar bag, i.e. wild honey;' GYA *kalpu.ri.ji* 'species of bee.'

3.91. pPN **kAlypu(n)* > NYA-W *kalypa* 'a stone chisel;' YDN *kalpan* 'stone axe;' BGU *kalpa-* 'to prise out;' WOI *galba.ling* 'axe,' *galbun-galbun-djiap* 'knife.'

3.92. pNYY **kalyu* > WLP *kalyu* 'water, rain, humidity, rain-cloud, water source;' PIN *kalyu* 'water; surface or rain water;' PNK *KALLA* 'pond, pool;' BAY *kalyu.Ra* 'urine.'
Residue: NMA *kalhu.purlu* 'bullfrog (heard after rain).'

3.93. pPN **kAlyu* > WLP *kaly.pirri* 'cold, chilly, cool (weather);' PNK *KALYO.RU* 'chill, bleak, whizzing;' KLY *galu.pa-n* 'shiver from cold;' BAA *kalyi.rr.manta* 'cold, cool,' *kalyi.rru* 'cold, pleasantly cool.'
Residue: NYA-W *kalalarra* 'a very cold, light southeast air (usually before sunrise in July).' Because NYA has a laminal lateral, the presence of an apical lateral here is unexpected.

3.94. pPN- **kAlyV* > KAU *KALYA.MA.RRO* 'lively; active; gay;' YAN *alhi.kalhi* 'refreshed.'

3.95. pPN **kama(y)* > KAU *NGAMMA* 'heavy; stout;' NYU *NGOMO.N* 'large; big;' KLY *KAMA.T* 'gross;' BNJ *kamay* 'big, large; flat.'

3.96. pPN (E) **kAma(y)* > GUM *kamay* 'spear;' WOI *gaam* 'stick.'

3.97. pPN **kami(m)* > NYA-S *kami.ji* 'mother's mother, female ego's daughter's child,' *kami.rarra* 'young woman; granddaughter,' -W *kami.ji* 'mother's mother;'

PIN *kami* 'wife's mother's father's sister; first daughter's daugher;' KAU *KAMMA.MMI* 'grandmother on the mother's side,' *KAMMI.LYA* 'grandchild;' GUP *gami.nyarr* 'grandchild;' UMP *kami.ju* 'husband's daughter's son, husband's daughter's daughter, mother's daughter's daughter;' YIM *kami.nhtharr* 'son's child (male speaking);' GYA *kami* 'grandfather (father's father); grandmother (mother's mother).' *kami.njarr* 'grandchild - daughter's child;' YDN *kamim* 'father's father;' BGU *kami* 'mother's mother;' BNJ *kami* 'father's mother; sister or female cousin of father's mother or father's father; female ego's grandchild;' GUM *kami* 'grandmother;' DIY *kami* 'father's mother.'
Residue: WLP *kami.na* 'girl, young teenage girl ...;' PIN *kami.na* 'a girl after her first sexual experience ....'

3.98. pPN- **kampa* > NYA-S *kampa-(ny)* 'burn.' *kampa-(rn)* 'cook.' -W *kampa-rna* 'to burn, cook (tr.), roast.' *kampi-nyi* 'to burn (intr.) to be on fire, to cook (intr.);' WLP *kampa-mi* 'burn, be hot, be alight;' PIN *kampa-ngu* 'to burn or heat ...[of] the sun or fire;' KAU *KAMBA-NDI* 'to roast; to boil,' *KAMBA.RE-NDI* 'to be hot ...;' PNK *KAMBA-TA* 'to cook, bake, roast ...;' NMA *kampa-ku* 'to burn, be alight, to cook, to get ripe.' *kampa-lku* 'to burn, light it, to shine - of sun;' BAY *kampa-* 'burn;' YAN *a-kampa* 'sun.' *kampa.mparra* 'bush fire ...;' UMP *kampa.l* 'sun;' WMK *waamp.ar* 'bushfire;' YDN *kampa-L* 'cook kapamari style.' (pNG **kampa-*, pP **kampal(a)*).

3.99. pPN **kAmpa* > PIN *kampa.ngka* 'one who desires to fight,' *kampa.ngka wangka-ngu* 'to talk secretly ...;' BAA *kampa-* 'to tell stories, to gossip, to swear,' *kampa-manta-* 'to be upset.'

3.100. pPN- **kAmpa* > WLP *-kampa.rni* 'first, first in order, initial,' *kampa.rru* 'first (in order), ahead, before ...;' BAY *kampa.rri* 'ahead (spatially), before (temporally);' YAN *ampi.npirri* 'first position; being in front.' (pKAN **kamparri*).

3.101. pPN **kampan* > NMA *kampa.l.kampa.l* 'spotted - as of native cat;' BNJ *kampaan* 'banded, striped,' *kampan* 'cicatrice, ritual scar.'

3.102. pPN- **kAmpi* > NYU *ngampi.n* 'pigeon;' YDN *kampi.nU* 'top-knot pigeon.'

3.103. pPN (E) **kAmpi* > GYA *kampi* '... clothing;' YDN *kampi* 'flat: clothes;' BAA *kampi* 'shirt, clothes.'

3.104. pPM **kAmpi* > YIM *kampa.kampa* 'old woman;' GYA *kampa* 'old woman;' BGU *kampi* 'woman.'

3.105. pPN- (E) **kAmpi-* > YDN *kampi-L* 'report;' PIT *kampa-* 'send word to.'

3.106. pP **kAmpi(l)* > YDN *kampi.rA/a* 'tableland;' DYI *kampil* 'mountains, tableland.'

3.107. pPN **kaampi(y)* > BAY *kampa.rta.rri-Y-* 'thirsty;' BNJ *kaampay* 'mouth;' GUM *ngampii-* 'drink.'
Residue: YAN *kampu.ta* 'drink made from the juice of pandanus nut.'

3.108. pPN **kAmpu* > NYA-S *kampu.rta* 'no mother or father;' NMA *kampu.rta* 'bereaved nephew, son, son-in-law;' BAA *kampi.ja* 'father.'

3.109. pPN- (E) **kAmpu* > YAN *a-kampu.l.murtu* 'Black Duck (*Anas superciliosa*);' WMK *kamp* 'duck; Grey Teal (*Anas gibberifrons*).'

3.110. pPN **kampu(l)* > NMA *kampu* 'short;' GUP *gamba.rr* 'many (people, animals);' UMP *kampa.nhu* 'big – as fish;' GYA *kampal* 'low level, within reach;' BNJ *kampu.nting* 'very big, exceptionally big.' An antonymic relationship between 'big' and 'small' is also seen in the reflexes of **tuungku*; the PIN form means 'short,' while that in UMP means 'long.' Corroboration for a relationship between 'big' and

'many' is found in (3.281), (3.565), (3.744) and in the KAU form *WITTE* 'large; much; quick; very; ably.'

3.111. pNY **kamu* > NYA-W *kamu.kamu.ma-rna* 'to ask for:' PNK *KAMMA-TA* 'to tell, intercede for, ask.'

3.112. pPN- **kAmu* > GUP *gaamu.rra* 'decay (teeth):' YDN *ngamu.ngkara* 'toothache.'
Residue: UMP *kaman* 'tooth.'

3.113. pPN- **kAmu(y)* > PIN *kami.ji* 'juice of some berry fruits:' YAN *kamu.kamu* 'alcohol; beer:' KLY *GAUMA* 'a lagoon;' UMP *kamu* 'blood;' WMK *kaam* '... small shallow lagoons of salt water.' *kam* 'juice:' GYA *kama* 'vomit (n.).' *kamu-kamu* 'strong drink, usually beer;' YDN *kamay* 'vomit:' DYI *kamu* 'water:' BGU *kamu* 'water, rain.' (pP **kamu*).

3.114. pPN **kAmV* > PIN *wamu.ru* 'a variety of small kangaroo:' WEM *kama* 'common black wallaby.' These forms are not included in (3.191) because there is no further evidence that PIN weakens medial stops to nasals.

3.115. pPN- **kaamV(r)* > NMA *kamu.ngu* 'hungry;' BAY *kamu* 'hungry;' UMP *kaama* 'mouth;' DYI *ngamir* 'hungry;' PIT *ngama.lyja(la)* 'hungry.' (pNG **kamu*).
Residue: GYA *ngawur* 'always coming for food.' This is the sole instance in my data of GYA possibly weakening a medial nasal to a glide.

3.116. pNY **kana* > PIN *kana* 'alive, awake, conscious, raw ...;' PNK *KANNA.RRI-TI* 'to awake, get up.'

3.117. pPN **kana-* > WLP *wana.pi* 'whole, ... untouched, undamaged, ... unaltered ...,' *wana.wu* 'whole, undisturbed, untouched;' GUP *gana-n, gana.rr.tha-ma* 'leave;' KLY *wana-n* 'put; leave, let be,' *WANI-* 'be left alone;' UMP

wana- 'leave it;' BNJ *wana-* 'to leave;' GUM *wanaa.wa-* 'leave.'

3.118. pPN- **kAna* > GUP *gana'* 'enough, adequate;' WMK *kan* '... something that is already ... finished: ... "then" or "now" ... right now, at once.' *kan.ak* 'ready to do something; ... "Enough!".'

3.119. pPN (E) **kAna* > YAN *ma-kana.rl* 'intestines of goanna/long necked turtle;' YDN *kana.wangki* 'belly up;' BAA *kana.nya* 'stomach (internal).'

3.120. pPN **kAna(ny/y)* > NYA-W *kana.rr-kana.rr-pi-ni* 'to scrape;' WLP *kana* 'digging-stick;' BGU *kana* 'yamstick;' BNJ *kanay* 'yamstick, digging stick;' GUM *kanay* 'yamstick;' WOI *ganany* 'yamstick.'

3.121. pPN- **kana(y)* > PNK *KANNE.LLI* 'old, abandoned;' KLY *KAINE* 'first time;' YIM *kanaay.ku* 'before, long ago;' YDN *kana.ngkarr* 'do first.' *kani.kani* 'long time ago;' DYI *kana* 'front.' *kani* 'long way;' BGU *kani.kani* 'in front.'

3.122. pP **kaangka* > WMK *angk* 'a type of yam (maybe *Cayratia* sp.) ...;' YIM *kaangka* 'yam.'

3.123. pP **kAngka* > WMK *kaangk* 'occurring in *kuuy kaangk* "native grape vine" (*Ampelocissus acetosa*)" and *may kaangk* "bush grapes";' GYA *kangka* 'wild grape ....'

3.124. pPN- (E) **kAngku* > GYA *kangku* 'low gap in mountain, mountain pass;' PIT *kangka* 'gully.'

3.125. pPN- **kangku(l)* > NYA-S *kangku* 'knee;' UMP *kangkul* 'elbow.'

3.126. pPN **kangkV* > KAU *KOKA.RE-NDI* 'to cry; scream; weep;' GYA *ngangku.rr* 'bark, as of dog (n);' BGU *kangka-* 'to call out, to sing out;' BNJ

kangka- 'to call out, shout at;' GUM *kangkaa.li-* 'bark, call out.'

3.127. pPN (E) **kAngkV(l)* > GYA *kangkul* 'cheek;' WOI *wangga. wang* 'cheek.'

3.128. pPN (E) **kAngu* > BAA *kanga.ra* 'sweat;' DIY *kangu* 'sweat.' (pWK **kangu*).

3.129. pPN (E) **kani-* > YDN *kani-L* 'coil round, wrap up;' BNJ *kani-* 'tie, tie up;' GUM *kani-* 'tie up;' WEM *kena-* 'to tie, to tie up.'

3.130. pPN- **kanja* > PIN *kanja* 'front of neck; underside of chin;' BGU *kanja-* 'to swallow.' See (3.701) and (4.194) for further evidence of a relationship between 'throat' or 'neck' and 'swallow.'

3.131. pNYY **kanjarri* > NMA *kantharri* 'mother's mother, son's daughter; queen bee;' BAY *kantharri* 'mother's mother, grandchild.' (pNG **kanhtha.rri*).

3.132. pPN- **kanjV(n)* > WLP *kanji* 'lap;' UMP *kanthan* 'thigh, thighbone; hind flipper of turtle;' WMK *kaanj* 'bone.'

3.133. pPN **kAnka* > NYA-S *kanka* 'in the air, above.' *kanka-ji-(n)* 'lift; make a signal,' -W *kanka* 'up,' *kanka-ma-rna* 'to lift up;' WLP *kanka.ra* 'over, out from;' PIN *kanka.rra* 'above, up ....' *kanka.rra-nu* 'to lift or raise;' KAU *KARNKA-NDI* 'to raise; heave; lift; to draw or dig out;' PNK *KARNKA-TA* 'to raise, lift, take up.' *KARNKA.RRA* 'above;' NMA *kanka.ra* 'up, upwards,' *kanka.rni* 'on top, on top of;' BAY *kanka.ra* 'up, above, over;' YAN *anka* 'higher place; up ; above; inland;' BAA *wanka-la-* 'to go up a hill,' *wanka-wanka-* 'to rise, to fly up, to lift up.' (pNG **kanka*, pKAN **kankara*).
Residue: BGU *nganka.ny* 'over.' My data contain no further evidence that BGU weakens initial **k* to *ng*.

3.134. pPN- (E) **kAnka* > WMK *ank.an* 'tomahawk;' BGU *kanka.rri, kanka.yi* 'knife (for fighting);' PIT *kanka.ri* 'stone knife.'

3.135. pPN- (E) **kAnka* > YAN *wanka.rra* 'long;' WMK *kaank.an* 'short.'

3.136. pPN (E) **kAnkan* > BGU *kankal* 'feather;' WOI *gangan* 'feather.'

3.137. pPN (E) **kankuny* > YDN *kanku.lA/a* 'grey wallaby;' BNJ *wankuny* 'male Scrub Wallaby.'

3.138. pPN- **kAnku(r)* > WLP *nganku.rr.pa* 'right through, continually;' GYA *kankur* 'right off, right through.'

3.139. pPN- (E) **kAnkV* > YAN *wanka.la* 'olden times; ancestors (human); past times; long ago;' WMK *keenk* 'first in line; first in time, a long time ago.'

3.140. pPM **kAnkV* > GYA *kanka* 'hole;' DYI *nganku* 'mouth.' A relationship between 'hole' and 'mouth' is also found in (3.668) and in (3.785), which contains the polysemous KLY form *GUD(A)* 'an opening, hole, mouth, doorway ....'

3.141. pNYY **kanpa* > PIN *kanpa.rr.ka, kanpa.rr.ja* 'centipede;' NYU *kanpa.rr, kanpa.rra* 'centipede,' *KANBĂ.RRA* '*Scolopendra*, a centipede;' BAY *kanpa* 'scorpion.' A relationship between 'centipede' and 'scorpion' is also found in the reflexes of pPN **junyjun* (O'Grady, p.c.).

3.142. pNYY **kanparr* > NMA *kanparr* 'spider (generic);' BAY *kanparr* 'thread cross.' (pKAN **kanparr*).

3.143. pNY **kanpi* > NYA-W *wanpi.ny* 'eyelash;' NYU *KANBI.GUR* 'the eyelash.' Note also YDN *panpi* 'eyebrow; river bank.'

3.144. pPN **kAnpu(l)* > WLP *kanpa.rlu* 'same place, one place, ...;' GYA *kanpal*

'some of, the rest of;' WOI *ganbu* 'one.' Corroboration for a relationship between 'one' and 'some' is found in (3.472).

3.145. pPN- **kAnta(l)* > WLP *kanta.ly-pari* 'smooth, slippery;' YDN *kantal* 'smooth, slippery.'

3.146. pNY **kanti* > NYA-W *kanti* 'a type of stone chisel;' WLP *kanti* 'flint, white chert; stone-knife, ...;' PIN *kanti* 'stone knife ...;' NYU *GANDE* 'a sort of slate stone.'

3.147. pPN- **kAntu* > WLP *kantu.ka* 'fire-place, hearth;' DYI *kanta-y* 'burn.'

3.148. pPN- **kAntu* > GUP *ganda.ki* 'kangaroo,' *ganda.yala* 'gen. term for male kangaroo,' *garnda.lpu.rru* 'gen. term for female kangaroos;' DIY *kantu* 'wallaby.' (pCK **kantu*).

3.149. pPN **kAnV* > KAU *KADNO* 'a species of large lizard...;' PNK *KADNO* 'a yellow striped species of lizard;' WEM *ken* 'frilly neck lizard;' BAA *kaani* 'frill-necked lizard;' DIY *kani* 'frill necked lizard.'
Residue: BAA *kaanyi* 'frill-neck lizard.' A laminal nasal is unexpected here.

3.150. pPN **kanya* > GUP *ganha.rr.nhu.ru* 'father's mother or her brother or sister;' BAA *kany(i).ja* '(maternal) grandmother;' DIY *kanhi.ni* 'mother's mother;' PIT *kanyi.ni* 'mother's mother.' (pKAR **kanyini*).

3.151. pP **kanya* > WMK *kenh* 'freshwater crocodile (*Crocodylus johnstoni*);' YDN *kanya.rrA/a* 'crocodile.'
Residue: YAN *a-kaji* 'Freshwater Crocodile (*Crocodylus johnstonii*).' This form is not included in the above set because my data contains no examples of YDN weakening medial stops to nasals.

3.152. pPN **kAnya* > KAU *KANYA.PPA* 'a small species of rock-crystal;' PNK *KANYA* 'stone, rock;' BAA *kanya* 'cooking stone ....'
Residue: WLP *kanya.rla* '*Macropus robustus (erubescens)*, Euro, Hill Kangaroo, Rock Wallaby;' PIN *kanya.rla* 'euro; species of rock kangaroo.' These forms may be related to the above set through the notion of 'rock.'

3.153. pPN (E) **kAnya* > GYA *kanya.ji* 'freshwater catfish;' WEM *wanya.kai* 'catfish.'

3.154. pPM **kAnya* > WMK *any* 'fast, very quickly;' BGU *kanya.rtu* 'directly (time).'

3.155. pPN **kanya(r)* > NYU *kanya* 'Go on, you're bashful/shy!.' *kanya-kanya* 'You're a coward! You're ashamed!;' GUP *ganyi.m'-thu-n* 'to jump in fright, be startled;' BNJ *kayeer, keyeer* 'ashamed, embarrassed, shy.'

3.156. pPN **kAnyja-* > PNK *KANTYI-TI* 'to lead, conduct.' *KANTYI.NGARRI-TI* 'to carry about with one .... to save;' YAN *kantha.rra* 'carrying; bringing; taking; receiving;' WOI *wanydha.dji-* 'bring.' This set may be related to that in (3.2).

3.157. pPN (E) **kAnyja-* > WMK *kenj-an* 'to provoke someone till he gives you a hiding,' *kenj.ath-an* 'to get someone involved in blame, or in unpleasantness;' BAA *kanhtha-* 'to run someone down, to spread bad gossip about someone.'

3.158. pPN (E) **kanyja(l)* > GYA *kanjal* 'mate, one who is with you so you will not be alone;' BNJ *kanyji-* 'be married to;' WEM *nganyi.juk* '(her) lover; sometimes also ... 'husband'.'

3.159. pNY **kanyjurr-* > NYA-W *kanjurr.pi-ni* 'to sneeze;' NMA *kanyjirr.ma-ku* 'to sneeze.'

3.160. pPN (E) **kAnyjV* > WMK *weenth* 'deaf; mad, foolish, apparently incapable of understanding, distracted;' GUM *kanyjaa.rri-* 'forget;' WOI *WEENTHU.NGA* 'hear, understand.' See (3.3) for a list of sets exhibiting relationships between 'negative' concepts.

3.161. pPN (E) **kAnyu(l)* > YIM *kanhil* 'traditional song;' GYA *kanyil* 'curse song;' BAA *wanyu* 'corroboree song, ritual song.'

3.162. pNYY **kanyV* > NYA-S *kany.ji-(rn)* 'look for,' -W *kan.ji-rni* 'to look for, seek (in negative, = "not to find");' BAY *kanya.rni-l-* 'find.' The *-ji-* in the NYA forms may be a verb formative (O'Grady p.c.)

3.163. pNY **kanyV* > PIN *kanyi-rnu* 'to keep, have, hold ...;' PNK *KANYA.NUNGKU-TU* 'to detain by force, prevent;' NMA *kanyi.(r)ni-ku* 'to hold.' (pNG **kanyi-(L)-*).

3.164. pPN- **kAnyV* > KAU *KANYA.NYA* 'a crowd, dense multitude of men, heap;' YAN *nganyi.l* 'gathering, of people.'

3.165. pNY **kapa* > NYA-S *ngampa-pi-(n)* 'cross back to;' WLP *ngapa.rr.pa* 'cross-over, opposite directions, exchange;' PIN *ngapa.rr.ka* 'across; the crossing of two persons coming from opposite directions ...,' *ngapa.rri* 'in return; used of a return journey ...; to be returning;' PNK *KAPPA.LLI-TI* 'to go back, return home.'

3.166. pNY **kapa-* > PIN *kapa.rn-ngara-ngu* 'to be prepared and ready to depart;' NMA *wapa.ka-lku* 'to ready it, to get it ready.'

3.167. pPN **kApa* > KLY *gaba.gab* 'fighting stick,' *GABA.GABA* 'a club; stone disc club; staves;' BAA *kaapa.ka* 'fighting spear.'
Residue: NYU *KOBA.RT* 'a species of spear-wood ....'

3.168. pPN **kApa* > WLP *kapa.l-kapa.l.pa* 'blindly, unsteadily,' *kapa.l.pa* 'immobilized, unconscious,' *kapu.ru* 'disbelieving, uncertain, distrustful (of);' PNK *KAPPA.RRA* 'weak, tired, lazy, laziness;' YAN *kapa.rr.kapa.rr* 'bad-mannered: ill-behaved: rude.' *kapa.rrini-njarra* 'giddy; dizzy; vertigo;' KLY *KAUBA* 'laziness, weakness, fatigue.' *KAUBAD-WAKAI-ASI* 'doubt:' WOI *gabu.t* 'dumb.'

3.169. pPN- **kApa* > WLP *kapa.n.ku* 'fast, hastily, quickly:' WMK *kamp* 'fast.'

3.170. pPN (E) **kApa* > WMK *kap* 'east;' GUM *kaapa* 'upriver, west, inland.'

3.171. pNY **kaparli* > NYA-S *kaparli.ji* 'father's mother and female ego's son.' -W *kaparli.ji* 'father's mother:' WLP *kaparli* 'grandmother:' PIN *kaparli* 'wife's mother's father's sister ... first daughter's daughter ... all one's departed female ancestors ... all one's female offspring;' NYU *kaparli* 'old woman.' See also (4.92).

3.172. pPN (E) **kAparn* > KLY *APO.RE.GA* '... the large grey crane of Australia:' DYI *kapal* 'crane:' WOI *gawarn* 'nankeen kestrel:' BAA *kawa.mpa* 'the Nankeen crane.'

3.173. pPN (E) **kapa(y)* > BGU *kapa* 'honey:' BNJ *kapay* 'small species of bee: honey of kapay bee; sugar.'

3.174. pPN- **kapi(rr)* > WLP *kapi.rdi* 'senior sister, ... elder sister ....' *kapu.rlu* 'senior sister, big sister :' YIM *kapiirr* 'girl.'

3.175. pPN **kapu* > BAY *kapu.L.kuRa* 'winter;' KLY *gaabu-* '(be) cold, freeze,' *GABU* 'cold, cool,' *gabu thonar* 'winter;' BNJ *ngapu.r.kale* 'frost.'

3.176. pPN- **kapu* > PIN *kapu.tu* 'together; to come together ...,' *kapu.tu-nu* 'to squeeze together ...; to gather together ...;' NYU *GAMBA.RN, GĂMBĂ.RN.BARDO* 'to associate with; to accompany;' KLY *KABU* 'a knot,' *KABU-IDAI-* 'fasten, tie knot;'

UMP *kapu* 'curled up – as in sleep;' YDN *wapu* 'in company with.'

3.177. pPN **kApu* > PIN *kapu.ra.rr.ji* 'kidney;' BAY *kapu.rtu.rtu.ny* 'kidney;' KLY *GABU* 'intestine of turtle;' GUM *kampa.w* 'kidney.' (pKAN **kapurtiny*).

3.178. pPN **kApu* > WLP *kapa.kapa* 'well behaved, peaceful;' PIN *wapa.wapa* 'an expression of joy; to become joyful;' KAU *KOPI.RI* 'expressing assent; well; very well;' PNK *KAPPA.KKA-TA* 'to love, court,' *WAPPI.LYE* 'better, restored to health;' NYU *kwap. kwapa* 'good, well,' *GWABBA* 'good; pretty; right; ... well in health;' NMA *wapa* 'good, well;' BAY *kapa.rnta.rri.tha* 'expert;' KLY *KAPU* 'good to look at, beautiful.' *kapu-nga* 'good;' UMP *wa'a* 'alright, ok;' WOI *gabi.ndhon* 'happy.' (pNG **wapa*).

3.179. pPN- **kApu* > NYA-S *kapu.kurri* 'dream,' -W *kapu.karri* 'a dream;' PIN *kapu.kurri-ngu* 'to dream ...;' DIY *ngapi.ja* 'dream, dream totem.'

3.180. pPN- **kApu* > GUP *gawu.lurr. gabu.lurr* 'grass used for rubbing medicine;' KLY *GABU* 'medicine, rubbed on body.'

3.181. pPN- **kApu* > GUP *gapu.rla* 'practically blind person who squints;' YAN *kapu.ji* 'blind; poor vision; person wearing glasses.'

3.182. pPN- (E) **kApu* > YAN *kapu.rrarra-ntharra* 'holding a dugong/sea-turtle harpoon;' KLY *WAP* 'a dugong harpoon;' WMK *waap* 'harpoon for dugong or turtle ....'

3.183. pPN **kapul* > NYU *KABA.RDA* 'a species of snake, cream-coloured with dark spots;' UMP *kapal* 'bandy-bandy snake;' GYA *kapul* 'rock python,' *kapul.ja.ka* 'striped water snake, known as the zebra snake;' DYI *kapul* 'forest carpet-snake;' BGU *kapul* 'carpet snake.'

3.184. pPN- **kapu(l)* > PIN *kapa* 'abdomen skin,' *kapu.rn-pa* 'stomach; any concave surface;' NYU *kapu.rl, kopu.rl* 'stomach, abdomen,' *korpa.l/kopra.l, kapu.rla* 'stomach, guts,' *GABBĂ.RN* '... the abdomen,' *KOBBĂ.LO* 'stomach; belly;' YIM *kampul* 'stomach, matriline.'
Residue: NYA-W *kapu.n* 'skin.'

3.185. pPN (E) **kapu(l)* > DYI *wapu* 'scrub (n.);' BNJ *kapal* 'forest ...; scrub ....'

3.186. pPN- (E) **kapu(l)* > YAN *kapu.rla* 'Ghost Gum (*Eucalyptus papuana*);' UMP *kampul* 'gum tree, river gum, bloodwood;' WMK *kamp* 'bloodwood tree;' YDN *kampul* '*Eucalyptus intermedia* and *E. polycarpa*, bloodwood.'

3.187. pNY (D) **kapuly* > NYA-W *kapuly.u* 'soft; dispersing, thinning out (of clouds);' PIN *kapaly-pa* 'soft flexible tender meat after cooking; to make soft, flexible.'

3.188. pPN **kApun* > GUP *gaamu.rung* 'witchetty grub;' UMP *ka'un* 'witchetty grub;' WMK *ap.ar* 'small stinging caterpillar ...;' WEM *kapun* 'grub;' PIT *kapa.ra* 'witchetty grub.'

3.189. pPN **kApu(r)* > PNK *KAPPŬ.RRU* 'arm pit;' GYA *kapa.ri* 'armpit;' YDN *kapar* 'lower arm;' BGU *kapa.rt* 'armpit;' DIY *kapu.rrha* 'armpit.' (pCK **kapurrha*).

3.190. pNY **kapV* > NYA-S *kapa.li* 'just like, might be;' NYU *GABBY.N* 'perhaps; likely; it may be so.'

3.191. pPN **kApV* > NYU *KAABO* 'a battue of kangaroo. ... a number of people are going together to hunt kangaroo;' GUM *kaapi* 'wallaby.'

3.192. pPN- **kApV* > NYA-S *kapa.lya* 'small dog;' BAY *kapa.rla* 'dog;' YAN

ngapu.rntu.ngu 'swear word for a dog.' (pKAN **kaparla*).

3.193. pPN- **kApV* > WLP *kapu. kapi* 'future tense;' BGU *kapu. kapu.kathi. kapu.wathi. kapu.wali* 'later. in a while, for a while.'

3.194. pPN- **kApV* > PNK *KAPPO* 'three, several;' GYA *kampi.r.kampin* 'uncountable numbers.'

3.195. pPN- **kApV* > GUP *gamu.nunggu* 'white clay, paint; yellow clay, paint.' *gapa.rn* 'white clay;' YDN *kapu.ju* 'white clay.'

3.196. pPN **kapV(ny/ng)* > PIN *kapi* 'water: surface or rain water.' *kapu.ltu* 'urine ...;' KAU *KAPPE-NDI* 'to vomit;' PNK *KAPI* 'water;' NYU *kapa. kaip/keep. kapi. kap* 'water. rain.' *GABBI* 'water;' GUP *gapu* 'water;' UMP *kapi.ka.mu.ta* 'The Waterhole (place name);' WMK *ap.alej* 'salt water. really clear sparkling water ....' *kaap* 'real wet season; a tropical storm; a year;' GYA *kampal-kampal* 'mud.' *kampar* 'white clay; wet season.' *kapa* 'rain:' YDN *kapa.nU* 'rain;' DYI *kampal* 'rain:' BGU *kapuny* 'egg. brains;' BNJ *kapuny* 'egg;' WEM *kapəl* 'river. general term;' WOI *gabing* 'snow;' DIY *kapi* 'egg.' (pP **kaapa*).

3.197. pNY **kara* > NYA-W *kari.rr.ka-nya* 'to slip (as on rocks or in mud) (past tense form);' WLP *kara.ly.pa* 'smooth.' *kara.ly-kara.ly.pa* 'slippery;' NYU *GARRA.GÄR* 'slippery;' NMA *kara.rr.wanyjarri-ku* 'to slip.' *karu.nu* 'smooth surface.'

3.198. pNY **kara* > NYA-S *kara* 'west,' -W *kara* 'west;' WLP *kara-purda* 'warm westerly wind ...;' PNK *KARRE.NNI* 'east, easterly wind;' NYU *KARI.NG* 'the south-west wind.'

3.199. pPN- **kARa* > NYU *GORAH* 'a long time ago,' *GORI.JAT* 'first; before;' WMK *ka'.atham, ka'.athangam* 'first (one), earlier time.'

3.200. pPN- **kAra* > NYA-S *kara.rr* 'tight, firm, solid, tough;' NMA *kara.rr* 'hard;' WMK *kar.angk* 'really strong and powerful (people, God).'

3.201. pPM **kAra* > YDN *kara.kata-N* 'trample on;' BGU *kara-* 'to step on, to kick.'

3.202. pPN **kara(rr)* > PNK *KARA* 'grass:' GYA *kararr* 'grass: blanket to lie on ....:' BNJ *karaa.pil, karee.pil* 'Blady Grass (*Imperata cylindrica*).'

3.203. pNYY **kari* > NYA-S *kari* 'poison, alcohol,' -W *kari* 'hot (as curry); bitter; sour (of liquids); ... liquor of any kind;' NYU *kari* 'wine;' NMA *kari* 'bitter, alcoholic beverage, medicine, poisonous - of snake ;' BAY *kari* 'alcoholic drink.' (pNG **kari*).

3.204. pPN **kaari* > WLP *kari* 'failing, mistaking,' *kari-ja* 'I don't know, search me, nothing to do with me;' GUP *gara.rr.kara.rr* 'discoloured, dirty;' KLY *KARA.WAEG, KORA.WAIG* 'one who cannot, one who is unable;' WMK *ke'* 'don't!, no!;' YIM *kaari* 'no, not;' GYA *kari* 'negative, no ....' (pP **kari*). See (3.3) for a list of sets exhibiting relationships between 'negative' concepts.

3.205. pPN **kAri* > WLP *kari-pardu* 'sister, female cousin;' PIN *kari.partu* 'male ego's older sister;' WOI *KARRI-KARRI-IMBOO* 'cousin.'

3.206. pPN **kAri* > WLP *wara-wara-ma-ni* 'exclaim, call out, cry out,' *warda.rrarra* 'calling out, yell;' YAN *ara.nta-yarra* 'calling out for someone to come and look;' GYA *wari* 'sign, call, message which is sent by telepathy;' WOI *gari.mnin* 'yell.'

3.207. pPN **kAri-* > WLP *kara.njurr.pa* 'sinking;' BNJ *kaari.ngkaa-* 'to choke, to drown,' *kari.ngkaa-* 'to sink, to drown, to choke;' WEM *ngare.ngka-, ngar.ngka-* 'to drown.' See also (4.98).

3.208. pPN- **kari(n)* > WLP *-kari* 'wards, towards, in direction of,' *kari* 'long way, far;' KAU *KARA.DLA, KARA.DLO* 'far off; long away;' BNJ *karin* 'close, near;' DIY *kara.kara* 'close, near.' An antonymic relationship between 'near' and 'far' is also seen in (3.251), (3.378) and (3.797).

3.209. pNYY **kArka* > KAU *KARKA* 'sunset; twilight; dusk.' *KARKA.WARRI* 'evening breeze; dusk;' GUP *garka.mbarryirri* 'daybreak.'

3.210. pPM **kaarku(n)* > YIM *kaarka* 'younger brother;' YDN *karkun* 'son.'

3.211. pPN **karla-* > PIN *kaarla-nu* 'to become broken;' YAN *karla-ma-ntharra* 'breaking apart; breaking open;' WOI *KALLOO.RNANGAT* 'break.'

3.212. pNY **karla-* > NYA-S *karli-(ny)* 'dig,' -W *karli-nyi* 'to dig; to scratch (skin, etc.);' WLP *karla-mi* 'dig (up); ... dig for.' *karla.ngu-jarra-parnta* 'scorpion;' NMA *karla.nja* 'scorpion.'

3.213. pNY **ka(r)la* > WLP *karla.rra-karla.rra* 'evening, late afternoon;' NYU *kala.rak* 'afternoon, evening.'

3.214. pPN **kArla* > WLP *karla.mpi* 'creek, waterhole ;' KLY *ala.dhi* 'in *moegisan ala.dhi* 'vomit' and *mos ala.dhi* 'spit';' WOI *gala.da* 'river, creek.'

3.215. pPN- **kArla* > PNK *KALA.L.BALLA* 'sand fly;' NMA *karla.wirrura* 'dragon fly;' YDN *kala.mparaa* 'march fly.'

3.216. pPN **kA(r)la* > WLP *kala.pirla, kala.purla* 'on the back of, on the spine of, piggyback;' PIN *kali.pi* 'buttock area;' KAU *KADLO.ADLO* 'the posterior parts of the thigh;' PNK *KADLA* 'tail,' *KADLI* 'behind;' KLY *ALA* 'hip,' *KAL(A)* 'the hinder part; back; starboard of canoe;' UMP *kala* 'buttocks;' BAA *karla* 'behind, bottom;' PIT *karla* 'thigh.'

3.217. pPN- **kA(r)la* > WLP *kala.wurru* 'Yellow Goanna,' *karla.rn.jirri* '*Lophognathus longirostris*, Long-nosed Dragon;' PNK *KALLA* 'sleeping lizard;' NYU *kala.ri* 'lizard (generic);' NMA *karli.rri* 'water dragon? - lizard in water ...;' BAY *kala.rra* 'bearded dragon;' GYA *kala.jarr* 'scrub goanna.' (pKAN **kalarra*).

3.218. pNY (D) **karlaya* > NYA-S *karlaya* 'emu;' WLP *karlaya* '*Dromaius novaehollandiae*. Emu;' PIN *karlaya* 'emu.' Borrowing may have taken place among these languages.

3.219. pNY **karli* > NYU *KALI.NG* 'to sweep the earth with boughs;' NMA *warli* 'clear, swept clean.' *warli.ka-lku* 'to sweep.'

3.220. pNYY **ka(r)li* > NYA-S *karli* 'boomerang,' *karli-karri-(ny)* 'new moon.' -W *karli* 'boomerang; new moon (figuratively);' WLP *karli* 'boomerang;, umbilical cord (male only);' PIN *karli* 'boomerang ... generic term.' *karli-karli* 'crooked;' KAU *KARLA.PINDI* 'the depression at the inner part of the elbow;' NYU *kerl, karli, kerla* 'boomerang;' NMA *kali* 'new moon to half moon;' GUP *garli.garli* 'boomerang.' Evidence for a relationship between 'bent' or 'crooked' and 'elbow' is found in a number of sets in my data, including (3.540), (3.809), (3.614), (3.719), (3.685) and (5.183). A relationship between 'crooked' and 'boomerang' is also seen in (3.427) and in (5.208). 'Boomerang' can be related to 'half moon' by shape. This association is also seen in (3.430).

3.221. pPN **kArli* > NMA *karli* 'forehead;' GUM *kaali* 'head,' *kali.mpin* 'hat.'

3.222. pPN **kA(r)li* > KAU *KADLI* 'dog;' WEM *kali* 'dog;' BAA *karli* 'dog, dingo.'

3.223. pPN- **kArli(n)* > NMA *karla.mana* 'small hawk sp. ...;' BAY *karla.karla.ra* 'goshawk;' GYA *kalin-kalin* 'kestral hawk;' PIT *ngala.wirra* 'eaglehawk.' (pKAN **karlakarlara*).

3.224. pPN- **kaa(r)lka* > WLP *karlku.lyu* 'down into hole,' *karlku.lyu-ka-nyi* 'fall downward into, tumble into;' GUP *galki.rri-* 'fall; to blow (of wind),' *garlka.rl* 'holey;' WMK *keek-an* 'fall.' (pP **kaalka-*).

3.225. pPN- (E) **kArlki* > YAN *a-karlki* 'Small lizard species ... (*Carlia sp*);' GYA *kalka.rru.mpa.rr* 'species of lizard ....'

3.226. pNY **karlkV* > NYA-S *karlka.ny* 'kangaroo (N.B. not to be used, due to death);' NYU *GARLGY.TE* '*Hypsiprymnus Gilbertii*; a species of kangaroo.'

3.227. pPN- **kA(r)lkV* > BAY *kalku-L-* 'wait;' GUP *galku-n* 'wait;' DIY *karlka-* 'wait for.' (pWK **karlka-*).

3.228. pPN- **kArlpa(rr)* > PIN *karlpu.rrura* 'two brothers ...;' PNK *KALBE.LLI* 'two, a pair;' GYA *kalparr* 'together because of mutual interest.'

3.229. pNY **karlpi* > PIN *karlpi* 'Mingkurlpa leaf tree; chewing leaf;' PNK *KALBI* 'leaf.'

3.230. pPN **ka(r)lpV-* > NYA-W *karlpa.nga.ka-nya* 'to carry on the shoulders ...;' WLP *warlpa.ly-jiti-mi* 'put out something hanging down;' PIN *karlpa-ngu* 'to climb; used of a person getting into a car or mounting a horse;' NMA *karlpa-ku* 'to climb, to rise, to rise of sun, to wake,' *karlpa-lku* 'to carry, bring, ... lead ...;' BAY *karlpa-y-* 'get up, stand up; rise (sun);' YAN *warlpa-ntharra* 'climbing,' *warlpa.rl.pa* 'hanging down ...;' UMP *al'a.ka-* 'come in, rise - of tide,' *al'a.la-* 'lift it;' DYI *walmpi-l* 'raise, lift, wake up;' BGU *walpa.ma-* 'to hang (trans.),' *walpa.na-* 'to hang (intr.), to ride (a horse), ..., to perch;' BNJ *walpa-* 'to hang (something);' BAA *walpa-* 'to carry,' *walpi-* 'to lift up.' (pNG **karlpa-*, pKAN **karlpa-Y*). See also (5.67). See (3.259) for a discussion of the relationship between 'climb' and 'hang.'

3.231. pPN **kA(r)lpV* > PIN *kaarlpa* 'a piece which is broken off a long object,'

kaarlpu-ngu 'to break;' WEM *kalpa-* 'to cut,' *kalpu.ta-* 'to cut up, to chop (e.g. wood) ...;' WOI *galba.la-* 'chop,' *KALBU.RA* 'broken.'

3.232. pPN- **kA(r)lta* > PIN *karlta* 'deep voice;' DIY *kalda* 'sound of human voices in distance.'

3.233. pPN- **kA(r)lti* > PIN *karlta* 'salty water;' DIY *kaldi* 'salty.'

3.234. pPN **kArlu* > PIN *karlu* 'penis ...;' KAU *KADLO.MUKA* 'testes;' PNK *KADLO* 'testicle;' GUP *ngarlu* 'part of penis covered by foreskin;' BAA *karlu* 'penis.'

3.235. pPN- **kArlu* > WLP *karli.ngardu.ngardu* 'collar-bone, clavicle;' KLY *KALU.M-RID* 'the collar bone.'

3.236. pPN- **kA(r)lu* > NYA-S *karli.pirri* 'pancreas;' WLP *karli.kita* 'kidney;' NMA *karli.pirri* 'red flat liver-like bodypart growing on intestines (probably kidney). ...;' PIT *kalu* 'liver.' (pNG **karli.pirri*).

3.237. pPN **kaa(r)lV* > WLP *kala.ny.pa* 'paralysed, still, immobile, lifeless, without energy, without force;' KAU *KADLI.ADLI* 'a deceased person; corpse; dead.' *KADLO-NDI, KADLO.RE-NDI* 'to be cast down, to look sad;' NYU *KALLA.R* 'deadly; mortal;' GUP *gali.mirntirrk* 'bitter (water);' UMP *kaalu* 'deaf, mad, crazy;' GYA *kalu.mpa* 'left-handed person;' BGU *kala.ri-* 'to vomit;' WOI *gala.man* 'empty;' DIY *karla* 'empty;' PIT *kali* 'I don't know.' (pCK **karla*, pP **kaalu* 'ear'). See (3.3) for a list of sets exhibiting relationships between 'negative' concepts. See also Evans (1992).
Residue: BAA *kalhi.la* 'sick.' Although a number of the languages in this set have a laminal lateral in their inventories, only an apical appears in the forms above.

3.238. pPN- **kArlV* > PNK *KALLU.RU* 'unripe, green;' YAN *arli.l* '... raw; unripe;

uncooked.'

3.239. pPN **kA(r)lV* > WLP *ngarla.rra* 'frog sp.;' BAA *walu.rru* 'small tree frog;' PIT *kala.marru* 'frog.'

3.240. pPN- **kA(r)lV* > WLP *karla.rla* 'ten o'clock' (K. Hale, p.c.); PIN *karla.rla* 'midday ... when the sun is overhead;' KAU *GADLA* 'fire, fuel, wood;' PNK *GADLĀIRA* 'hot ....' *GADLA* 'fire, wood, fuel.' *KALA.LTA* 'torch, dry bark lighted ....' *KALA.NBI* 'ashes, lime;' NYU *karl, karla* 'fire, firewood; country, homeland, camp.' *karla.rak* 'hot.' *karlang* 'hot.' *KALLĀ.K* 'hot; burning; fiery.' *KALLĀ.NG* 'warm, applied to water.' *KALLA* 'fire; ... an individual's district; a property in land; temporary resting place;' BAY *karla* 'fire, firewood, tree.' *karla.rri* 'ashes;' YAN *na-ala.nji* 'camp; home.' (pKAN **karla*). The relationship between 'camp' and 'fire' is discussed in detail by Evans (1992).

3.241. pPN- **kA(r)lV* > WLP *karlu.rnturrngu* '*Acacia validinervia*, wattle sp.; witchetty grub sp.;' PNK *KADLA.RTI* 'flesh fly, maggot;' NMA *karli.wana* 'curl grub ...;' PIT *kala.rrangkuyu* 'large grub.'

3.242. pPN- **kA(r)lV* > NYA-W *karli.mirta.yiji* 'male bush turkey;' PNK *WALLA* 'wild turkey;' NMA *karli.rna.ngka* 'tom turkey;' BAY *karlu.rn.ka-paja* 'fowl ...;' KLY *KALA.KALA* 'a fowl;' PIT *kala.thurra* 'scrub turkey.'

3.243. pPN **karna* > NYU *karna.ny* 'true, trustworthy,' *karni* 'It's true!,' *KARNA.YUL* 'it is true; it is a fact;' WMK *kan-kan.am* 'truly, really;' YIM *kanaa* 'alright, okay.'

3.244. pPN- **kArna* > GUP *gaarna* 'sp. mangrove;' YAN *ma-warna.mparra* 'Mangrove Tree (*Ceriops tagal* var. *Australis*).'

3.245. pPN- **kA(r)na* > PIN *karna* 'spear type ...;' PIT *kana.ngka-* 'spear, stab,

knit, weave.'

3.246. pPN- **kA(r)na* > PIN *karna.rnu* '... a place specially cleared of grass etc. ...:' NMA *kana* 'clear ground, scrubless country, clear - light :' BGU *kana.rta* 'clear (of ground or water).'

3.247. pPN- **kaRngka* > GUP *ngarngga* 'hole;' GYA *karrngka* 'a hole in something ....'

3.248. pPN- **kArni* > NYA-W *karna* 'female dog or dingo;' WLP *warna.pari* '... dingo, Native Australian dog, wild dog;' DYI *kani.parra* '(wild) dingo.'

3.249. pPN **kA(r)ni-* > NYA-W *kani-rni* 'to "yandy" ...:' PIN *karni-rnu* 'to winnow.' *karni.l-pa* 'wooden dish ...:' BAA *karni.yala* 'bark-dish, coolamon.' Residue: NYA-S *karnu* 'skin, bark of tree.' -W *karnu* 'skin; bark ....'

3.250. pNY **karnka* > NYA-S *karnka* 'small crow.' -W *kaarnka* 'crow;' WLP *kaarnka* '*Corvus orru, Corvus bennetti*, Crow, Torresian Crow, Little Crow;' PIN *kaarnka* 'crow ...:' PNK *WORNKA.RRA* 'crow.' The NYA forms may actually contain a long first vowel (K. Hale, p.c.).

3.251. pPN **kA(r)nka* > WLP *karnka* 'avoidance.' *karnka-karri-mi* 'avoid, keep distance from;' BAA *kanka* 'near, close by ....' An antonymic relationship between 'near' and 'far' is also seen in (3.208), (3.378) and (3.797).

3.252. pPN **kA(r)nka* > GUP *gan=gu.ri* 'sp. yam;' BAA *karnka* 'yam-stick.'

3.253. pPN- **kA(r)nku* > GUP *garn=gu.thu* 'baby, small child;' DIY *kanku* 'boy.' (pKAR **kanku*).

3.254. pPN **kA(r)npi(n)* > PIN *kanpa* 'no good; unwanted rubbish;' GYA *kanpan*

'mistakenly;' DYI *kanpi-l* 'do badly;' BAA *karnpa-* 'to tell lies.'

3.255. pNYY **karnta* > NMA *karnta* 'tear;' BAY *karnta* 'a tear (lachryma).' (pKAN **karntawirri-Y* 'cry').

3.256. pNYY **ka(r)nta* > NYA-S *karnta* 'gap, gorge.' -W *karnta* 'a gap between hills, a col; waist;' GUP *ganda.rr* 'waist, middle.'

3.257. pPN- **kArntarr* > WLP *kaarntarr.pa* '.... hiccup, belch, burp;' PNK *KANDARR.A* 'eructation, belching;' NYU *KĂNDA.NG* 'to vomit; to spew;' NMA *karntaarr.ma-ku* 'to belch;' GYA *kantarr* 'belch, burp;' YDN *kantarr* 'wind in lungs, burp.' Further work may show that this set is related to that in (3.271).

3.258. pNY (D) **kArntawarra* > NYA-W *karntawarra* 'bright yellow ochre;' WLP *karntawarra* 'yellow ochre; ten pound note; funeral battle.'

3.259. pPN **karnti* > NYA-S *karnti-(ny)* 'climb.' -W *karnti* 'the top, summit.' *karnti-nyi* '... to climb; to rise (e.g. of sun); to grow (of plants);' NMA *karnti* 'upper parts of tree, tip of tail;' DYI *wanta-l* 'hang up, scoop up;' BNJ *wanti-, wantee-* 'to climb, to go up;' GUM *waanti-* 'climb.' The link between 'climb' and 'hang' could be 'putting (oneself or something) up.' This relationship is also seen in (3.230), (5.191) and (5.260). This set may be ultimately related to that in (5.249).

3.260. PNY (D) **ka(r)nti* > NYA-S *karnti.lany* 'tree platform for burial,' -W *kanti.liny* 'tree platform for dead ...;' WLP *karnti.rirri, kanti.rirri* 'tree mortuary-platform, ..., burial tree.'

3.261. pNYY **ka(r)ntV* > NYA-W *kantu.l ya-na* 'to swing the hips while walking (past tense form),' *karnti* 'fibula;' WLP *kantu.mi, kantu.mu* 'hip;' KAU *KANTI* 'thigh; leg ...;' PNK *KANTI* 'thigh, shank;' GUP *ganda* 'hip or rump.' Residue: NYA-S *kanta.kanta* 'back bone,' -W *kanta.kanta* 'backbone.'

3.262. pPN- **kArntV* > WLP *karnti* '*Ipomea costata*, large yam, bush potato, tuber ...;' NMA *karntu.l* 'long-rooted potato sp. ...;' YDN *kanta* 'yamstick.'

3.263. pNYY **ka(r)nV* > NYA-S *kani.nyja* 'water;' GUP *garna.ngathala* 'small fresh water pool.'

3.264. pPN **ka(r)nVm* > NYA-S *kani.ny* 'down, below,' -W *kani.ny* 'down;' WLP *kani.nja-rni* 'inside and under, ... below, within,' *kanu.nju* 'inside, down, under, bottom, ...;' PIN *kani.nyjarra* 'inside, underneath ...;' YAN *arni.ntawa* 'lower down; ... towards the bottom; bottom of a river bank ...;' UMP *kani* 'up, shoreside;' YIM *kana* 'underside;' GYA *kana* 'inside;' YDN *kana.yirr* 'underneath,' *wana* 'tail;' BGU *kana.ny* 'on the bottom, underneath;' BNJ *kanim* 'hip;' BAA *warnu* 'bottom, behind.' (pP **kan(y)i*).
Residue: YAN *arntaa.rnta* 'inside; underneath; underground.' This YAN form has a medial stop where those above have a nasal.

3.265. pPN **ka(r)nV(y)* > GUP *gana.wuyma* 'sp. turtle;' YAN *a-karni.nja* 'Flat Backed Turtle, female (*Chelonia depressa*);' BNJ *kanaay.pang* 'long-necked turtle.'

3.266. pP **kArpu* > WMK *ngaarp* 'just a few, not much;' DYI *karpu* 'three; a good few.'

3.267. pPN **kArra* > NYA-S *warra.yi* 'fly,' -W *warra.yi* 'fly (n.);' BAY *warra.ri* 'fly;' WOI *garra.garra.k, garra.mba.rra* 'fly (noun).' (pKAN **warrari*).

3.268. pPN **kArra* > PNK *KARAI* 'dark, black;' NYU *karri.mpi* 'evening, dusk;' WEM *karrə.lkuk* 'tonight.'

3.269. pPN- **kArra* > PNK *KARA* 'spider, tarantula;' NYU *karr/kar, karra* 'spider,' *KARA* 'a spider;' BAY *karra.warla, kata.warla* 'spider;' GUP *gaarr'* 'spider;' YDN *karra* 'spider.'

3.270. pPN- **kArra* > PNK *KARRA.RA* 'down, prostrate;' YDN *karra-L* 'hold down.'

3.271. pPN- **kArra* > GUP *garra.lu-ma* 'belch;' UMP *ka'anta-nga* 'belch.' This set may be related to that in (3.257).

3.272. pPN **karra(m)* > WLP *kaarr.pa* 'annoyed, ... unnerved, upset ....' *karra.rda* 'shocked, frightened, ..., upset, ...; relieved, relief, ease;' PIN *karra.wurri-ngu* 'to become amazed;' PNK *KARA.NGARRI-TI* 'to quarrel;' NYU *karra.ng* 'wild, angry,' *GARRA.NG* 'anger; passion; rage;' BNJ *karam karam* 'fidgety, irritable,' *kare.ngki* 'angry,' *karee.nki* 'mad, insane.'

3.273. pPN **kArrang* > NYA-W *karra.l* 'gum, wax (from spinifex, ants' eggs, wild honey); also wax from ear;' WOI *garrang* 'resin, gum.'

3.274. pP **kArraway* > GYA *karraway* 'edible snail;' YDN *karraway* 'brown snail.' Borrowing may be a factor in this set.

3.275. pPN- **karri* > WLP *karra.wari* '*Eucalyptus microtheca*, Coolibah; witchetty grub sp.;' YDN *karra* 'louse eggs, nits;' DYI *karri* 'hairy mary grub.'

3.276. pNYY **karri* > PNK *KARRA* 'high, above;' BAY *karri-* 'above, up;' GUP *garra.mat* 'above, up top.'

3.277. pNY **karri-* > NYA-W *(-)karri-nyi* 'to be, to be in a state of, to grow (of plants);' WLP *karri-mi* 'stand ...; stay ...; stop ..., be, exist ...;' NMA *karri-ku* 'to stand; to hang - as clothes.' (pNG **karri-*).

3.278. pPN **kaarri* > NYA-W *karra.pirti* 'a sharpened stick; shin, shin-bone;' WLP *karra.rla.rla* 'shovelspear;' PIN *karri.rti* 'small sharp wooden instrument ...;' UMP *kaarri.ka* 'many-pronged fishing-spear;' WEM *karrə.k* 'spear-thrower;' WOI

garri.k-garri.k 'sharp;' BAA *karra.ngka* 'sharp, pointed.'

3.279. pPN- **kArri* > GUP *garri.wa* 'sp. turtle.' *garru.pu* 'turtle shell;' YAN *karru.pu* ' Hawksbill Turtle (*Eretmochelys imbricata*).'

3.280. pPN- **kArri* > KAU *NGARRI* 'string; rope;' GYA *karra. ngarra* 'rope, cord, string.'
Residue: NMA *karnta.rra* 'vein, tendon, sinew;' BAY *karnta.rra* 'root; sinew, string.'

3.281. pPN- **kArri* > WLP *karri* 'further and further, on and on,' *karri-karri* 'large amount of, much, many;' NYU *GARRO* 'again; then;' WEM *karri.nyuk* 'big, wide.' Regarding a relationship between 'big' and 'many,' note the sets in (3.110), (3.565) and (3.744) and the KAU form *WITTE* 'large; much; quick; very; ably.'

3.282. pNYY **karrika-* > PIN *karringka* 'a carrying position for spears, across the shoulders and behind the neck;' BAY *karrika-l-* 'lift, carry (as child).' This set may be related to that in (3.2).

3.283. pPN **kArri(n)* > WLP *kaarr-kaarr.pa* 'singeing, burning, searing, heating;' PIN *karra.nyalka-rnu* 'to shade eyes from sun;' PNK *KARRA-ARRA* 'noon, afternoon,' *KARRA.LLA* 'yellow,' *KARRA.RRA* 'hot season, summer;' NYU *karra.mak* 'afternoon, evening,' *GARRI.MBI* 'about sunset;' GUP *garra.w'-yu-n* 'to shine a light;' YDN *karran* 'yellow, brown, smokey colour;' DYI *karran* 'smoke,' *karri* 'sun,' *karri.mal* 'summer(time);' WOI *garri.miny* 'day, light,' *karra.lk* 'rays of setting sun.'

3.284. pPN **kArrka* > WOI *ngarrga* 'corroboree,' *ngarrga-* 'dance;' BAA *karrka-maarni* 'corroboree-dance,' *karrka.rrka-la-* 'to dance, to "shake a leg".'

3.285. pPN- **kArrka* > GUP *garrka.rr-yu-n* 'shake;' YAN *arrka-ma-ntharra* 'shivering; shaking ...;' KLY *GARGUI-MAI* 'shake, make to shake,' *GARGUI-MIZI-*

'shake, tremble.'

3.286. pPN (E) **kArrka* > BGU *karrka* 'hip;' BAA *karrka* 'upper thigh.'

3.287. pPN **kArrka-* > WEM *karrkə.rra-* 'to cry out (for help), to scream;' BAA *karrka-* 'to cry out, to scream;' DIY *karrka-* 'shout, call out;' PIT *karrhka-* 'shout.' (pKAR **karrka-*).

3.288. pPN **kArrkany* > GUP *garrka.ci* 'saw; tool;' WOI *garrginy* 'axe.'

3.289. pPN- **kArrkany* > KAU *KARKANY.A* 'a species of hawk;' PNK *KARKAN.TYA* 'a species of hawk;' NYU *KARGYN* '*Ieracidea Berigora*: lizard-eating hawk;' GUP *garrkany* 'chicken hawk;' BGU *karrkany* 'chicken hawk.'

3.290. pPN- **kArrku* > WLP *karrku* 'red ochre, pink ochre ...;' PIN *karrku* 'red ochre or red in colour;' KAU *KARKO* 'red ochre;' DIY *karrku* 'red ochre.' Residue: GYA *karrkil* 'red jumper ant.'

3.291. pPN **kArrku(n)* > YAN *a-karrka.nta* 'Gecko sp.' *karrka.lyi* 'Small Lizard (*Carlia sp*);' YDN *karrngkan* 'sand goanna;' BAA *karrku.mpirrayitija* 'Jacky Lizard (*Amphibolurus muricatus*).'

3.292. pPN- **kArrkV* > NYU *KARGY.L-YA* 'clean;' GUP *garrku.rlu.k* 'clean;' BGU *warrki-* 'to wash;' WOI *garrga.ling* 'wet.'

3.293. pPN- **kArrpa* > NYA-S *karrpa.rta* 'heavy spear,' -W *karrpa.rta* 'a small spear ...;' KLY *GORBO.TUT* 'a wooden club.'

3.294. pPN (E) **karrpu* > YIM *karrpu.n-thirr* 'happy, contented;' BNJ *karpa.laay* 'foolish, playful, mischievous.'

3.295. pNY **karrpu* > NYA-S *karrpu* 'day,' -W *karrpu* 'sun; day;' PIN *karrpu*

'midday ... when the sun is overhead ...;' NYU *karrpa.lak* 'afternoon, evening,' *GARBA.LA* 'the afternoon; the evening; towards sunset;' NMA *karrpa.rn* 'summer, wet season, hot season.' (pNG **karrpu*).

3.296. pNYY **karrpV* > WLP *karrpa* 'torso, ...: hind quarter, back leg; side, flank:' BAY *karrpi.rl.pi* 'flank.'

3.297. pPN **karrpV-* > NYA-S *karrpa.karrpa* 'fastened securely,' -W *karrpa.karrpa.wali-rni* 'to hold tightly;' PIN *karrpi-rnu* 'to tie up, wrap or fold;' PNK *KARPA-TA* 'to join, sew, build,' *KARPA.LLA* 'sewn, stitched;' BAY *karrpi-L-* 'tie, join;' GUP *garrpi-n* 'bandage, tie up;' YIM *karrpa-l* 'hold, grab;' GYA *karrpa-l* 'to catch, grab, touch, arrest;' YDN *karrpa-L* 'hold down with foot;' BAA *ngaarrpi-* 'to make, to put together,' *ngarrpa-* 'to build, to make, to establish, to create;' DIY *karrpa-* 'to sew.' (pKAR **karrpa-*).

3.298. pNY (D) **karru* > NYA-S *karru* 'river bed,' -W *karr* 'rushing water, whirlpools, etc.;' WLP *karru* 'sandy creek, sand, creek bed;' PIN *karru* 'creek: creek sand: sugar.'
Residue: BGU *karti.ya* 'sand.'

3.299. pPN- **kArru* > PNK *KARRA.NNA* 'frog;' YAN *karru.rt.ji* 'Green Tree Frog.'

3.300. pPN- **kArru* > NYA-S *karru.warlkan* 'kookaburra, kingfisher,' -W *karru.walkan* 'kookaburra:' NMA *karru.purlu* 'kookaburra;' GUP *garru.kal* 'kookaburra;' GYA *karra.mpil* 'king parrot.' (pNG **karru.palkan*).

3.301. pPN (E) **karrun* > WMK *karr karr* 'grind teeth;' BNJ *kantuun pa-* 'to gnash teeth; to munch noisily;' BAA *karrij-karrij-mala-* 'to grind one's teeth.'

3.302. pNY **karrV* > WLP *warra.ra* 'black ant sp.;' PNK *KARRU.LYU.RU* 'a species of ant;' NYU *karra.rt* 'ant.' Future work may suggest that this set is related

to the one in (3.318).

3.303. pPN **kArrV* > PIN *kantu-rnu* 'to walk on; to stamp upon or dance;' GUP *garra.rra'-yu-n* 'to dance,' *garra.rrak-thu-n* 'walk (pl);' GUM *karra.ji-* 'jump;' WOI *garra-* 'kick;' BAA *karra-karra-la-* 'to mess around, to play around in a silly fashion,' *karra.mparra* 'dance, 'shake a leg'.'
Residue: WEM *karta-* 'to kick.'

3.304. pPN- **kArrV* > GUP *garra.nungun* 'hammer head shark;' YAN *warri.yangalayawu* 'Hammerhead Shark (*Sphyrna lewini*).'
Residue: YAN *arri.parri* 'Port Jackson Shark (*Heterodontus galeatus*).' This form could be a reduplication of **parri.* with the loss of initial **p.*

3.305. pPN- **kArrV* > NYU *karr. karra.ly* 'crab.' *KARRI* 'a crab;' GYA *karru.ku* 'ghost crab, fiddler crab.'
Residue: YDN *karu.ki* 'sand crab.' The rhotic in YDN differs from that in the above forms.

3.306. pPN- **kArrV* > PNK *KARI* 'gradually, by and bye;' YDN *karru* 'by-and-by.'

3.307. pPN- **karta* > NYU *KADDA..NG* 'ignorant; not understanding;' UMP *kanta* 'angry, wild, savage ...;' BGU *karta* 'no, not, nothing.'

3.308. pNYY **karta* > PNK *KARTA* 'dirt, dung, resin, gum,' *KARTI.NTYE* 'blood, sap, juice;' NMA *karta.ngu* 'gum or sap ...;' BAY *kartu.kurlu* 'blood.'

3.309. pNYY **karta* > NYU *karte.rr* 'direction across ...;' NMA *karta.jarra* 'crossways, crossed;' BAY *karta.nti-Y-* 'go across (water).'

3.310. pNYY **ka(r)ta* > NYA-S *karta* 'asleep,' *karta.mirrarlja* 'midnight,' -W *karta, karta-ka(-rra)* '(noun) sleep,' *karta.mirrily* 'midnight;' NYU *kata.kata.k,*

kati.yak. kati.k 'evening, dusk,' *KATTI.K* 'night;' BAY *karta.kulha* 'night, middle of the night.'

3.311. pNYY **ka(r)ta* > NYU *kata.j-* 'hear, listen.' *KATTI.DJ* 'to know; to understand; to hear;' GUP *garda.man* 'clever, knowledgeable.'

3.312. pPN- **kArta* > PIN *karta.rru* 'the head piece of a spear;' NMA *karta-ka-lku* 'to poke, pierce, ... spear ...;' BAY *karta-L-* 'spear;' GUP *garda.nuk* 'gen name for spear;' KLY *GATO* 'name of an arrow;' WMK *et.angar* 'spear with stingray barbs ....' (pNG **karta-(L)-*).

3.313. pPN- **kA(r)ta* > WLP *karta.jara* 'spider sp.;' BAY *kanta.warla* 'spider;' GUP *gaarda.ny* '... spider;' WMK *ngaat* 'spider.'

3.314. pPN- **kA(r)ta* > WLP *karda.rr-karda.rr.pa* 'lined up, row, column;' YAN *kanta.kanta, arnta.kanta* 'in a line; lined up.'

3.315. pPN- **kArta(l)* > NYA-S *ngarta-(rn)* 'break off.' -W *ngarta-rna* 'to break, smash;' PIN *karta-rnu* 'to cut, break.' *karta.nta-rnu* 'to break or cause something to break; to shoot;' NYU *NGATTA.NG* 'to wound; to injure;' NMA *ngarnta.ly.ka* 'crack in ground.' *ngarnta.ly.ka.ka-lku* 'to crack it ;' YIM *kata-pa-l* 'break;' GYA *kata.pal* 'broken; without money.' *katil* 'sharp sound or crashing sound, as of an axe cutting wood ...;' DIY *karta* 'crack (noise).'

3.316. pPN- **karti* > NMA *karnti.marta.marta* 'coppertail snake;' UMP *kata.ngkayi* 'sea eel, or perhaps sea-snake;' PIT *karti.pijirri* 'snake sp..'

3.317. pPN- **kArti* > WLP *karnti.ya* 'junior brother-in-law, man's wife's brother, man's junior sister's husband; lover, ..., sweet-heart;' PIN *karnta.marri, karnti.ya* 'younger brother-in-law;' DIY *kardi* 'sister's husband.' (pCK **kardi*).

3.318. pPN- **kA(r)ti* > NYA-W *karta.ra* 'antbed (not anthill) ....' *karta.ra-karri.ngu* 'flying termites;' WLP *kardi.ly.ka* 'white ant, termite.' *karti.rli-karti.rli* 'black ant sp.;' NYU *KARDA.GUT* 'a species of ant;' PIT *kanti* 'antbed.' This set may ultimately be related to that in (3.302).

3.319. pPN **kA(r)ti-* > PIN *kati.ngu-* 'to bring, take or carry;' KAU *KATTE-NDI* 'to carry, to fetch;' PNK *KATTI-TI* 'to bring, fetch;' NYU *KATTE* 'to carry; to fetch;' GUP *garda.y-ma-n* 'fetch (a person) ...;' BAA *kaanta-* 'to attract, to fetch.' *kaanti-* 'to take away. .... to carry, to own something,' *kaanti-nya-* 'to have.' *kaanti-pa-* 'to send, to direct;' PIT *karnta-* 'go.' This set may be related to that in (3.2).

3.320. pPN- **kArti(l)* > NYU *KARDI.DI* 'thin, small;' YDN *kati.katiy* 'little things,' *katil* 'small.'

3.321. pNY **kartu* > NYA-S *karnta.marri* 'proper man who may become married.' -W *kanta.marri, kartu.pirirri* 'a man either married or eligible for marriage ...:' KAU *KARTO* 'wife;' PNK *KARTE.TI* 'wife;' NYU *kort, kartu, korta* 'spouse.' *KARDO* 'a married or betrothed person, ... husband or wife;' NMA *kartu* 'man, male - as of animal.'

3.322. pPN- **kArtu* > WLP *kardu, karta.ra* 'mother, maternal uncle;' YAN *arti.yarti* 'sister's daughter; sister's son; mother's eldest sister.' *karti.rti* 'mother's brother; male cousin's child; mother's eldest sister ....'

3.323. pPN- **kArtu* > NYA-S *karta.palkuranya* 'middle children,' -W *karta.pal* 'sibling other than first- and last-born;' NYU *karta.ng* 'younger brother.' *GĂRDA.NG* 'younger brother,' *KARDA.NG* 'younger brother; third son; also third finger,' *KARDI.JIT* 'a brother; neither the eldest nor the youngest;' GUP *garda.ku* 'male before circumcision;' YAN *artu* 'child; insulting term for an uncirmcumcised

adult male; uncirumcised boy;' BGU *kantu* 'child.'

3.324. pPN- **kA(r)tu* > BAY *kartu.karri* 'scavenger hawk;' DIY *kada.wara* 'eaglehawk.' (pKAN **kartukarri*).

3.325. pNY **kartV* > NYA-S *karti* 'lap, front of thighs.' -W *karti.ngi* 'lap ...:' KAU *KARTA* 'lap;' NMA *karti* 'lap.' It is possible that borrowing has taken place between NYA and NMA.

3.326. pPN- **kArtV-* > WLP *karda.l-luwa-rni* 'fall and hit. .... tumble down onto. ...:' PIT *karti.thawi-* 'knock over.'

3.327. pPN **kA(r)tV* > WLP *karda.ngarra* 'centipede, scorpion;' KAU *KARNDO.WORTI* 'a species of scorpion;' PNK *KATTA.RNA* 'scorpion;' BAA *kaanti-kuntarra* 'scorpion.'

3.328. pPN- **kA(r)tV* > NYA-W *kanti.yirti* 'a lizard,' *kartu* 'Racehorse Goanna's egg hatching burrow ...:' WLP *kardi.ji-nguyu* '*Varanus tristis*, Black goanna sp.:' PIN *kata.jilkarr-pa* 'jew lizard;' NYU *karta* 'black, race-horse goanna.' *karta.r* 'race-horse goanna.' *KADDA.R, KARDA.R* 'large black lizard.' *KATTA.NGIRANG* 'a small species of lizard;' BAY *karnta.njirrara* 'racehorse goanna;' DIY *karti.wadu* 'lizard type.'

3.329. pPN- **kA(r)tV* > WLP *kata.rl.pi* 'head-rest; pillow, cushion;' PIN *kata* 'head;' NYU *kaat, kata* 'head,' *kaat, kata* 'hill, mountain,' *KATTA* 'head; hill; top of anything;' PIT *karti* 'head.'

3.330. pPN- **kA(r)tV* > WLP *karta-karta.rn.ja* 'grass shelter, grass hut;' WMK *kee'* 'windbreak;' DIY *katu* 'windbreak.'

3.331. pPN **ka(r)tV(l)* > NYA-W *kartu.ngu, kartu.nku* 'upper arm ...;' PNK

KARTI 'stem of a tree, the thick branches of a tree,' *NGANDO* 'upper arm;' KLY *KADI.G* 'a bracer or arm guard;' BNJ *kantal* 'wing;' BAA *nganta.nya* 'branch, twig.' Evidence for a relationship between 'arm' and 'wing' is found in (5.115), which contains the BAA form *wanyi* 'upper arm near shoulder, wing.' Further examples of a link between 'arm' and 'branch' are seen in (4.209), which includes the PIN form *nguna.rn-pa* 'arm, branch of tree,' and in (5.39), which contains the GYA form *waku.mpa*, 'speading branches of tree; biceps or upper arm.'

3.332. pPN **karu* > GUP *garu.rr* 'noise;' BNJ *karaa.tha-* 'to be loud, to be noisy.'

3.333. pPN **karu(l)* > NYA-S *karu.pi-(rn)* 'vomit,' -W *karu-pi-ni*. *karu-pi-ni-...-rniny(i)* 'to vomit.' *karu-pul* '(noun) vomit;' PIN *karu.kurra* 'bad tasting liquid.' *karu.ny.pu-ngu* 'to become nauseated;' BAY *karu.tha-L-* 'smell;' BNJ *karul* 'rotten;' WOI *KORRA.MOONITH* 'vomit.'

3.334. pPN **kArV* > NYU *KORE.L* 'shells in general: sea-shells;' KLY *KARA.R* 'turtle-shell;' BAA *kaari.ka*, *kaaru.ka* 'shell.'

3.335. pPN **kArVm* > NYA-W *karu* 'a short, wooden barbed spear;' GUP *gara* 'spear (generic term);' WEM *karəm* 'spear-shield.'

3.336. pPN **kaRVny* > WLP *kardi.ny.pa* 'rush;' BNJ *karaa.yili-* 'to go quickly, to hurry,' *karaany* 'fast, speedy.' BNJ has only one rhotic, and my data contain examples of WLP *-rd-* corresponding to both *-r-* and *-rr-* in languages with two rhotics. It is therefore not clear which rhotic should be reconstructed.

3.337. pPN- **kAta* > WLP *kanta.l.kanta.l.pa* 'stiff, unsteady, swaying, awkward;' YAN *kata* 'stiff; tight.'

3.338. pPN- **kAta(l)* > PIN *kata.rti* 'small type of witchetty grub,' *kati.ly.ka* 'maggots;' GYA *kantal* 'maggot;' DIY *kata* 'louse;' PIT *kata* 'tick.' (pKAR **kata*).

3.339. pPN- (E) **kAta(n)* > KLY *GAD* 'a shell;' GYA *katan* 'shell of turtle.'

3.340. pPN (E) **kati-* > YIM *kataa-* 'come;' GYA *kata-y* 'come;' YDN *-ngata-Ṉ* 'coming,' *kata-Ṉ* 'come;' BNJ *kanti-* 'to come.'

3.341. pNYY **katu* > NYA-S *katu.ka-(rn)* 'get down from,' -W *kaTu.ku-rnu* 'to descend, get down (from a high place);' WLP *karda.l.pa* 'down onto;' NYU *ngarta* 'downwards, down,' *ṆGARDĂ.GĂṆ* 'below; within; beneath; low grounds;' NMA *karta.ngka* 'down, downwards,' *karta.tha-lku* 'to chop down, chop, fell;' BAY *ngarti.ju* 'down, inside.'

3.342. pNY (D) **katu* > NYA-W *kata* 'more;' WLP *-katu* 'more, better, best, good.'

3.343. pPN- **kAtu* > WLP *katu* 'high, up, ... top, outer ...;' PIN *katu* 'above; up; to be above another object;' KLY *KADA(I)* 'upward,' *kada.ka* 'up.'

3.344. pPN- **kAtu* > PIN *katu.pu-ngu* 'to cough;' PIT *katu.luka* 'cough.' Residue: PIT *karri.ngkarri* 'a cold.'

3.345. pP **kAtu(y)* > GYA *katuy* 'snail ...;' YDN *katu.kal* 'snail ....'

3.346. pPN- **KATV* > KAU *KANTO* 'bullfrog;' KLY *KAT(A)* '... a green frog,' *KATA.K* 'a frog.'

3.347. pPN **katVn* > PNK *KATTA.RRI* 'rain;' NMA *kantu.ngarra* 'rain coming from the sea ...;' KLY *ADA.BAD* 'salt water;' UMP *kati* 'spit, saliva;' WEM *katən* 'water.'

3.348. pPN **kawa* > NYA-S *kawa-(rn)* 'keep going;' WLP *kawu.ku* 'fast, quickly, ... immediately, ...,' *wawi* 'fast movement, rushing, ...;' PIN *ngawu.rlwarra-rnu* 'to

speedily depart ... of departing cars ...;' KAU *KAWAI* 'come;' NYU *KOWĂ.NYĂNG* 'to swim;' YAN *kawa* 'come!; move!;' BNJ *kawa.ri-* 'to blow .... to flow ...; to run .... go (of vehicles) ....'

3.349. pPN **kawa* > NYA-S *ngawu* 'deaf; mad ....' -W *ngawu* 'mad, crazy, stupid;' WLP *kawa.rr.pa* 'exhausted, ... weak, ...; lost, disoriented, confused, ...' *ngawu* 'bad, worthless, immoral, wrong, ...;' PIN *kawa.kawa* 'delirious, forgetful.' *kawa.rli-nu* 'to lose, forget, lose sight of,' *kawa.rli.rri-ngu* 'to be lost; euphemism meaning to die;' NMA *ngawa.rra.rri-ku* 'to forget it;' GUP *gawu.rl.gawu.rl.mirri* 'obscured, hazy (by mist or smoke);' YAN *kawi* 'skilled person; clever; intelligent;' KLY *kawa.ra (kawra?)* 'ear,' *kawra+gig* 'deaf;' WMK *aw!* 'Oh no!;' YDN *kawa.ntay* 'aura of dead person;' BNJ *kawa-* 'break (something) ...;' BAA *ngawa-la* 'to be in a bad state, to deteriorate.' The YAN form shows an antonymic shift in meaning.

3.350. pPN- (E) **kAwa* > KLY *GOWA* 'trench, ditch;' WMK *awa.r* 'hole in ground or sand ....: a grave.'

3.351. pPN- **kAwa(m)* > KAU *KAUWA* 'a precipice; steep,' *KAUWA.MALTA* 'the brim or edge of a precipice;' PNK *KAUA.LLU* 'steep, rocky;' YDN *kawam* 'broken-down bank.' The WEM form *nyiriing-wil* 'bank of a river' (literally "that which has steep edges") corroborates the association between 'bank' and 'steep' seen here.

3.352. pPN **kawang* > KAU *KAUWA.WA* 'uncle;' KLY *aw.dhe* 'uncle,' *AWA.DE* 'mother's brother, sister's child;' BNJ *kawang* 'mother's brother; mother's male cousin.' These items are not included in set (3.45) because KAU and KLY do not appear to weaken medial stops to glides.

3.353. pPN **kaawang* > KAU *KAUWE* 'water;' PNK *KAUO* 'water,' *KAUWI-TI* 'to

bring up, vomit;' NYU *kawu.n* 'wine,' *KOW-WI.N* 'water;' KLY *GAWA.T* 'a lagoon, a swamp;' WMK *kaaw-an* 'wash (e.g. canoe, ..., body, dirty clothes);' YDN *kawarr* 'blood;' BNJ *kaawang* 'lagoon, swamp;' GUM *kaawarr* 'over water;' WEM *kwa* 'fog;' PIT *kawa* 'vomit.'

3.354. pPN (E) **kAwang* > KLY *gawa.ga* 'hat;' WOI *gawang* 'head.'

3.355. pP **kawa(r)* > UMP *kawa* 'native bees;' GYA *kawar* 'honey bread of bees.'

3.356. pPN- **kaawa(y)* > BAY *kawa.ri* 'west;' YAN *awa.wawu* 'west ...;' UMP *kaaway* 'east;' WMK *kaaw* 'east.' (pKAN **kawari* 'west.' pP **kaaway* 'east').

3.357. pPN **kawi* > NYA-S *ngawi.rri.ngi* 'outside;' WLP *ngawi.ra* 'interior, inside;' BNJ *kawa.lung* 'outside.'

3.358. pPN- **kawi* > BAY *kawi.rri* 'sea shell;' UMP *kawi* 'bailer shell.'

3.359. pPN- **kAwi* > WLP *ngawi.ly.pa, ngawi.rr.pa* 'curve, bend, arch;' YDN *kawir.I* 'crescent-shaped.'

3.360. pPN **kawka-* > PNK *KAKKI.TI* 'in two;' BNJ *kawka-* 'to cut, to slice, to saw.'

3.361. pPN- **kAwu* > WLP *wawa.rda* 'blanket, ... covering; clothes;' YDN *kawuu* 'a large fig tree, ... the bark used for blankets; blanket.'

3.362. pPN- (E) **kAwu* > KLY *KAWA.KUIK, KAU.KUIK* 'a young man, a lad after initiation;' BGU *kawu.la* 'young man who has been through a certain grade of initiation.'

3.363. pNY **kawul* > WLP *kawul-kawul.pa* 'cracked earth, split earth;' PNK *KAUWAL.KA* 'open, apart.'

3.364. pPN **kaawun* > PIN *kawa.l-pa* 'goose;' NYU *ngaw* 'mallee fowl,' *NGOW-O* 'Colonial pheasant;' BAY *ngawu.ra.rra* 'duck;' UMP *aawu.ku* 'cinnamon quail-thrush;' YDN *wawun* 'scrub turkey;' BNJ *ngaawun* 'wood duck;' WOI *wawe.rt* 'chicken;' PIT *kawa* 'wood duck.'

3.365. pPN **kAwV* > WLP *wawi.rri* '*Macropus rufus*, Red Kangaroo, plains kangaroo;' PIN *wawi.rri* '... a very large, fully grown, mature hill and plain kangaroo or euro;' KAU *WAUWE* 'female kangaroo;' WEM *kauwa.nyet* 'black-faced mallee kangaroo, *Macropus major melanops*.'

3.366. pPN- **kAwV* > BAY *kawu.ngka* 'egg;' KLY *WAIWAI* 'the testicles.' (pKAN **kawungka*).

3.367. pPN- **kAwV* > WLP *kawu.rn.pa* 'ash;' PIN *kawu.rn-pa* 'fine powdery ash ...;' YAN *awi.rr* 'ashes.'
Residue: YDN *kapu* 'cold ashes.' If this form were included in the above set, and the reconstruction changed to **kApV*, then the set would contain the only examples of PIN and WLP weakening a medial stop to a glide.

3.368. pPN- **kAwV(l)* > GUP *gawa.w-yu-n* 'to call out Go! Go!;' YAN *ngawa.rl-ma-ntharra, ngawa.rn-ma-ntharra* 'barking of dogs; howling of dogs;' WMK *aw.al* 'voice;' GYA *kawal* 'a shout, cooee, not far away,' *ngawu.ngkal* 'a shout from a long ways away;' YDN *kawal* 'any call,' *kawal-jana-N* 'call out;' DIY *kawu.pa-* 'inform.'

3.369. pPN- **kaawV(y)* > PNK *KAUU.R.KAUU.R.KU* 'pregnant;' NYU *NGOWE.RIT* 'the navel;' BAY *kawa.jarr* 'umbilicus;' YDN *kawuy* 'small baby.' (pKAN **kawajarr*). Evidence for a relationship between 'umbilical cord' and 'baby' or 'child' is also found in (3.604), (4.205) and (5.160).

3.370. pPN **kaya* > NYA-W *kaya.rri.ya-na* 'to swim (past tense form);' NYU *waya.rri-* 'swim;' GUP *way-thu-n* 'swim;' BNJ *kayi-* 'to enter, to go through,' *kayi.nti-* 'to dive: soar, swim.'
Residue: UMP *kaya.na-* 'go out (on the sea).'

3.371. pPN **kAya* > NYA-S *kayi.ma-(rn)* 'call to;' WLP *kayi* 'loud call, shout, cry,' *kayi.rlirr.pa* '... ritual calling, collective roaring;' PIN *kayi.rlu.rru* 'a cry in unison by men who have completed a ceremony;' GUP *ngaya.rr.ka-ma-* 'ask,' *ngaya.wurk-thu-n* 'talk;' YDN *kaya.kay* 'whisper;' GUM *kayi-* 'speak, talk.'

3.372. pPN- **kAya* > BAY *kaya.l* 'light (in weight);' WMK *ey* 'light (in weight).'

3.373. pPN- **kAya* > BAY *kaya.parri-Y-*, *kaya.pati-Y-* 'hear;' YAN *ngaya.ngaya* 'clever: obedient: keen of hearing; intelligent;' WMK *ngeey-an* 'listen, understand, hear (and obey).' (pKAN **kayaparri-Y*).

3.374. pPN **kayja* > PIN *kaji.l.pu-ngu* 'to torture: to cause pain and suffering;' DYI *kaynyja-l* 'break;' BNJ *katha-* 'to hurt (something), to have an ache;' BAA *kaja.la-* 'to be hurt, to feel pain.'

3.375. pPN **kayka(l/n)* > PNK *KAKKA.NNA.RA* 'from the surface, on the top, above;' BAY *kaka.ka* 'up;' BNJ *waykal* 'surface,' *waykan* 'on top, upper side.'

3.376. pPN- **kAypi-* > GUP *gapi.lili-yu-n* 'twirl around;' YDN *waympa-L* 'roll (Vtr);' BGU *kampi.njarra-* 'to roll,' *kampi.rta-* 'to turn around, to go around, to circle.'

3.377. pPN (E) **kayu* > DYI *kaya.mpula* 'white cockatoo;' BNJ *wayi.laar* 'Yellow-tailed Black Cockatoo, *Calyptorhynchus funereus*,' *wayi.lany* 'Black Cockatoo, Glossy, *Calyptorhynchus lathami*?;' WOI *ngaya.rnong* 'black cockatoo,' *ngayu.k* 'white cockatoo.'

3.378. pPN **kAyu* > WLP *ngayi.ngayi* 'along side of, ..., near, by. ...., beside;' BAY *kayi.rri, kayi.ti* 'far;' KLY *GAI* 'close together,' *KAI* 'here, out of sight, behind;' BNJ *kaaya* 'that ....' *kaaye* 'there, distant ....' *kayaa* 'this ....' *kayu* 'this, close by ....' An antonymic relationship between 'near' and 'far' is also seen in (3.208). (3.251) and (3.797).

3.379. pPN- **kAyu* > PNK *KAYI-TI* 'to cover all over, to incubate, hatch;' YAN *ngayu.rra* 'underground; buried.'

3.380. pPN- **kayV* > KAU *KAYA* 'a spear;' PNK *KAYA* 'spear;' WMK *kaay* 'short stingray barb (or nail)...; spear type;' YIM *kayii-l* 'hook, snare;' GYA *kayi-l* 'to hook with a hook spear: ....'

3.381. pPN **kAyV* > PIN *wayi-rnu* 'to seep; used of water ...:' NYU *keya.p* 'water, wine;' BAY *kayu.lu* 'water:' GUP *waya.la* 'valley, a place that is boggy in the wet season and where water may be found by digging a small hole;' YAN *ngayu.lu* 'spring waters, permanent.' *waya.rri* 'rain-water.' *wayu.ru* 'spring water:' GUM *kayi.la-* 'pour.' (pKAN **kayulu*).

3.382. pPN- **kAyV* > GUP *gaya.bak* 'head;' KLY *GOI* 'the top of the head, vertex, summit of hill.'

3.383. pPN- **kAyV* > WLP *kayi.l.kayi.l.pa* 'wrinkled;' BGU *kaya.rra* 'old.'

3.384. pNY **kayVlV* > PIN *kayili* 'north;' PNK *KAYALLA* 'the north and north western country.'

3.385. pPN **kAyVn* > WLP *kayu.rru* 'hot westerly wind,' *ngayu.rru* 'heat, hot weather;' WMK *kay.aman* 'dry weather, very hot, dried up;' GUM *ngayan* 'sun.'

3.2 *ki-

3.386. pPN (E) **kija* > BNJ *kitha* 'this/that is the way it happened;' BAA *kithi* 'this one.'

3.387. pPN- (E) **kija* > KLY *GIZU* 'point, edge, sharpness,' *kiizu* 'sharp (blade);' UMP *kitha.rri* 'keen, of senses; sharp - as ax.'

3.388. pPN- **kiija* > KLY *KISA.I. KISU.RI* 'the moon; a month,' *kisa.y* 'moon;' YIM *kiitha* 'moon;' GYA *kija* 'moon.' The above reconstruction is labelled "pPN-" rather than "pPN- (E)" because a reflex of it is found in *kiji.rli* 'moon' from the Warburton Ranges dialect of Western Desert.

3.389. pPN (E) **kiija(m)* > YDN *kijam* 'ants, ringworm;' BNJ *kiiny* 'ant (generic);' GUM *kiiny* 'ant.'

3.390. pPN **kiijang* > WLP *kiji-tarra-(tarra)* 'water-bird sp.;' NYU *KIJJI.BRUN* 'a water-fowl: a species of Coot;' BNJ *kiiyang* 'water hen.'

3.391. pPN (E) **kija(R)* > WMK *iith.un* 'stomach;' BNJ *kithar* 'stomach.'

3.392. pPN **kijikiji* > WLP *kiji.kiji* 'arm-pit, underarm;' PIN *kiji.kiji* 'underarm hair,' *kiji.kiji-rnu* 'to tickle ...;' GUP *giji.giji-yu-n, gici.gici-yu-n* 'to tickle;' GYA *kiji-kiji.ya-l* 'tickle;' BNJ *kith kith* 'tickle.' See also (3.441).

3.393. pPN **kIju* > GUP *giicu* 'tobacco;' BAA *kithi.ka* 'tobacco, plug tobacco.'

3.394. pNY (D) **kijV* > NYA-S *wiju.nu* 'hills kangaroo,' -W *wiju.nu* 'male red kangaroo;' PIN *kiji.kiji* 'wallaby.'

3.395. pPN (E) **kIjV* > WMK *kij* 'paper bark, ti-tree ... bark (melaleuca);' BAA

kiija.la, kiiju.lu 'broom-bush (*Melaleuca uncinata*).'

3.396. pPN- (E) **kika* > YAN *kiki.julu* 'exclamation, used to conclude statements which ... have an element of shame or wrongful behaviour associated with them;' KLY *GEGE.AD, GEGE.T* 'soreness, smarting,' *gege.yadh* 'wrong;' UMP *wika.ma-* 'lie to, deceive;' YDN *kiki* 'no.'

3.397. pPN- **kIka* > WLP *wikin.pa ??* 'painful;' KAU *WIKA.NDI* 'a father whose child has died;' KLY *kiki.r* 'sick; sore, painful.' *KIKI.R(I)* 'disease, illness;' GYA *ngiki* 'a cold, or any sickness of the lungs ...;' YDN *wiki-L* '(food) makes sick;' WEM *wika-* 'to be hungry, to starve, to die.'

3.398. pPN (E) **kIka* > WMK *iik.anak* 'to here, to this place; for this reason; up to this time.' *ing* 'in or on here;' WEM *kingka, kinga* 'here;' BAA *kiiki* 'this.'

3.399. pPN- **kila* > KAU *WILLA.MPA* 'black cockatoo with white feathers in the tail;' GUP *ngili.lik* 'white cockatoo, with feather on head;' UMP *kila* 'black cockatoo, (great) palm cockatoo;' WMK *kil.am* 'Palm Cockatoo (*Probosciger aterrimus*).'

3.400. pPN (E) **kila* > WMK *il.angan* 'this one ...;' BNJ *kila* 'that (distant) visible;' WEM *kila* 'that one.'

3.401. pNY (D) **kili* > NYA-S *ngili* 'edge,' -W *ngili* 'sharp edge ...;' PIN *kili.rn.kili.rn-pa* 'edge of an object.'
Residue: PNK *WEDLI* 'corner.'

3.402. pPN **kIlku* > WLP *kilki.nji.na.rri* '*Elanus notatus*, Black-shouldered Kite;' WOI *WILGU.L* 'hawk.'

3.403. pPN (E) **kIlu* > DYI *kilu* 'later on today;' GUM *kiili* 'now, today;' WEM

kiloi.j 'today.'

3.404. pNYY **kilV* > PNK *WILLA.RA* 'bare, uncovered, naked;' GUP *gili.wuk-thu-n* 'to uncover ....'

3.405. pPN- **kIlya* > WLP *kilya.rl.pa* 'Black-breasted Buzzard, Eaglehawk;' PIN *kilya.ku* 'eagle type;' YAN *a-kilya.rr.kilya.rr* 'Wedge Tailed Eagle (*Aquila audax*).'

3.406. pNY (D) **kilyirr* > NYA-W *kilyirr* 'white ash;' WLP *kilyirr.pa* 'fire place, hot ash, burning coals, embers.'
Residue: WMK *key.elp* 'ashes, dust.' This is the only example in my data of WMK potentially changing **-ly-* to *-y-*.

3.407. pPN (E) **kimpa-* > BNJ *kimpa-* 'to throw water over something; to wash;' BAA *wimpi-wimpi-* 'to water plants, to pour out water.'

3.408. pPN (E) **kimV-* > KLY *ima-n, IMAI* 'see; saw;' WMK *iim-an* 'to peep at (someone) ....' *im.angal-an* 'look at;' BNJ *kimi.li-* 'to look around.' *kiwa-* 'to look.'

3.409. pPN (E) **kIna-* > WEM *wina.ka-* 'to leave off, to let go of something;' BAA *kina-* 'to stop, to leave off.'

3.410. pP **kInga* > GYA *kinga* 'caterpillar;' YDN *kingaa* 'hairy caterpillar.' Borrowing may have occurred in this set.

3.411. pPN- (E) **kIngka(n)* > GYA *kingkin-kingkin* 'amusing, cute, said of a baby ...;' DIY *kingka-* 'laugh.' (pCK **kingka-*).

3.412. pPN- (E) **kIni* > KLY *INI* 'penis;' YDN *kini* 'penis.'

3.413. pPN- **kInta(l)* > PIN *nginta.ka* 'lizard type, Perentie;' YDN *kintal.pa* 'lizard.'

3.414. pPN (E) **kInyja* > GUM *kinyja.kulay* 'wife;' PIT *kinyja* 'female.'

3.415. pPN **kinyV* > NYU *keny* 'one;' BNJ *-kiny* 'person;' WEM *kinya* 'this one;' BAA *kinha, inha* 'that,' *kinhi* 'this,' *kinhu* 'there, quite close.'

3.416. pPN- **kIpa-* > WLP *kipi-rni, kirrpi-rni* 'winnow; winnow away;' PIN *kipi-rnu* 'to winnow;' KLY *IBAI-* 'grind, scrape;' YDN *kipa-L* 'scrape, scratch;' DYI *kipa-l* 'scrape, scratch.'

3.417. pPN- (E) **kIpa(r)* > KLY *KEBEI* 'a tree (*Ficus pilosa*);' DYI *kipar* 'a fig tree.'
Residue: YDN *kimuy* 'figwood, slippery blue fig, *Ficus albipila*.' My data contain no further evidence of YDN weakening a medial stop to a nasal.

3.418. pPN (E) **kiipa(rr)* > WMK *kipp.iy* 'male;' BNJ *kiipar* 'fully-initiated man;' GUM *kiiparr* 'boy.'

3.419. pNY **kipi* > WLP *kipi.li* 'fatty meat, animal fat ...;' NYU *kipi.lya.ng* 'greasy, sweaty.'

3.420. pPN **kIpV* > PIN *kipa.ra* 'bush turkey;' BAA *kiipa.rra* 'wild turkey;' PIT *kipu.lyu* 'duck, whistler duck.'

3.421. pPN **kipVng* > WLP *kipi.ly.pa* 'soft (to touch), pliable, ... loose, ...' *kipi.rr-kipi.rr.pa, kipi-kipi.rr.pa* 'soft (as mud, soil, body fat, flat tyre), boggy;' YIM *kima* 'soft;' GYA *kima* 'soft; weak, sick;' BNJ *kiping* 'sick.'

3.422. pPN **kiri* > NYA-S *kiri.rr-pi-(n)* 'girls dancing;' GUP *giri.cirri-* 'dance, play, copulate;' KLY *GIRE.R* 'the movement in a dance;' YDN *kiri-N* 'shout in play;' BNJ *kiri.pal* 'one type of traditional song and corroboree.'

3.423. pPN **kirla* > NYA-S *wirli* 'feather;' YAN *ngirla.ngirla* 'feathers;' BNJ *kil kil* 'hair (on arms, legs, or body).'

3.424. pPN **ki(r)la* > WLP *kirli.l.kirli.l.pa* '*Cacatua roseicapilla*, Galah;' UMP *ili.nyu* 'galah;' WEM *wilə.k-wilə.k* 'galah;' BAA *kila.mpa* 'galah;' DIY *kila.n.kila* 'galah;' PIT *kila.nyji. kili.nyja* 'galah.' *ngili.nyja* 'galah.' (pKAR **kila*).
Residue: PIN *kilyu.ly.kilyu.ly-pa* 'pink or grey galah.' PIN is the only language here to show a laminal lateral, which may be the result of assimilation to the *ly* accretion.

3.425. pNYY **ki(r)la-* > PIN *kilu.rru-nu* 'to spear through.' *kirlu.ly.pu-ngu* 'to spear right through an animal;' GUP *wila'-yu-n* 'to stick in (spear).'

3.426. pPN- **kiirli* > PIN *kirli.lpi* 'small green parrot;' GUP *wirli.c wirli.c* 'green parrot;' UMP *iili.nyu.mu* 'red-cheeked parrot.'

3.427. pPN **kI(r)lka* > NYA-S *wirlki* 'turn, head off, bend.' -W *wirlki* 'curved; a turning; a curve.' *wirlki.n* 'a large boomerang;' WLP *wirlki* 'cheek, cheek-bone, jaw-bone ...; sharp bend, curve ...; ... number seven boomerang; seven;' YAN *kilka* 'twisted; crooked; rough, uneven ground;' WEM *wilka-* 'to turn round.' A relationship between 'crooked' and 'boomerang' is also seen in (3.220), which contains the PIN forms *karli* 'boomerang ...' and *karli-karli* 'crooked,' and in (5.208)

3.428. pPN (E) **kirra* > BNJ *kiree* 'Pink Box Tree;' BAA *kirra* 'box tree.'

3.429. pPN **kIrra* > WLP *kirri* 'permanent camp ...;' PIN *kirri.ji* 'single men's camp;' BAA *kiirra* 'country, place, ground.'

3.430. pPN- **kIrra* > NYA-W *Kirri.rti.yarra* 'the moon's camp (above);' WLP *kirri.rn.ji* 'half-moon;' DIY *kirra* 'boomerang.' (pKAR **kirra*). A relationship between 'boomerang' and 'moon' is also seen in (3.220).

3.431. pPN (E) **kIrri(ny)* > DYI *kirriny.kirriny* 'sharp scream;' BAA *kirri-(k)irri-la-* 'to scream, to yell out.'

3.432. pNYY **kirrki* > NYA-S *kirrki.rr* 'brown falcon,' -W *kirrki.rr* 'a species of chickenhawk ...;' WLP *kirrka.rla.nji, kirrki.rla.nji, kirrki.rla.rdi* '*Falco berigora*, Brown Falcon;' PIN *kirrki.n-pa* 'a hawk ...;' BAY *kirrki.nyja* 'Black Kite.' (pKAN **kirrkinyja*).
Residue: WEM *kerrə-kerrə.k* 'brown hawk, *Falco berigora*.' WEM does not have the medial stop seen above.

3.433. pPN **kirrkum* > GUP *ngirrk.ngirrk-thu-n* 'to be sore, irritated (of throat):' KLY *KERKE.T(I)* 'smart of pain; anger, rage;' BNJ *kirkuum* 'husky (of throat).'

3.434. pPN (E) **kirrpam* > BNJ *kirpaam* 'scrub kangaroo,' *kirpam* 'species of Paddymelon (wallaby);' BAA *kirrpa.ja* 'black kangaroo, i.e. the Western grey.'

3.435. pPN- **kIrru* > WLP *ngirri.ly.pa* 'close to, level with, near, abreast of, ... beside;' PNK *WIRRU.WIRRU* 'in a heap, close together;' YAN *kirri-ma-ntharra* 'dugongs surfacing together, side-by-side.'

3.436. pPN (E) **kIrru* > KLY *GERU* 'sugar-cane;' WOI *girri.ngan, girri.ng.girri.m* 'sweet.'

3.437. pPN **kIrrV* > NYA-S *wirri.wirri* 'hot;' WEM *kirri.ja-* 'to cook on coals;' BAA *wirra.p-wirra.p-mala-* 'to sparkle (fire),' *wirru.pi* 'fine spear-grass used for lighting fires.'
Residue: PIN *wita-rnu* 'to scorch or singe the hair of an animal cooking.'

3.438. pPN **kIrtany* > WLP *kirnta.ngi* 'moon; month;' YDN *kinta.nU* 'moon, month;' GUM *kiitany* 'moon, month.'
Residue: WLP *kirda* 'father, paternal uncle ...; father's mother's and father's

cousin's patricouple; own patrimoiety; male genitals ....' A semantic relationship between 'father' and 'moon' would be parallel to that between 'mother' and 'sun' seen in NYU *ngank*.

3.439. pNY (D) **kirti* > NYA-S *kirti.rr* 'small grass seed: small greenswift:' WLP *kirti.wara* 'grass sp.; seeds sp..'

3.440. pPN- **kIrti* > NYA-S *kirti.rr.ma-(rn)* 'to make something run (blood, water);' NYU *kert-kert* 'fast, quick,' *kirt kurl-* 'run, go fast, go strongly (*kurl* 'go').' *GET.GET* 'quickly; speedily:' WMK *et.ar* 'going fast, quickly,' *ngeet-an* 'hurry, walk quickly.'

3.441. pPN- **kI(r)ti* > NYA-S *kiti.kiti* 'giggling from tickling,' -W *kirti.kirti* 'the act of tickling;' WLP *kiti.kiti* 'arm-pit, underarm;' PIN *kiti.kiti-rnu* 'to tickle ...:' KAU *KITTE.KITTE-NDI* 'to tickle:' BAY *kirti.ka-L-*, *kirti.kirti-L-* 'tickle;' GUP *git.kit* 'laughter;' DYI *kiti.mpa-l* 'tickle.' (pKAN **kirti-L*). See also (3.392).

3.442. pPN **kiru* > PIN *wiru.ly-pa* 'slippery, smooth:' BNJ *kiru.r* 'smooth, slippery.'

3.443. pPN- (E) **kIru* > KLY *KERA.I* 'green fat (of turtle):' GYA *kiru* 'brains; grease, marrow, drippings from animal fat;' YDN *ngiru.ngay* 'fat on sorcerer's line.'

3.444. pNY (D) **kita* > NYA-S *ngita* 'goanna hole that is covered over;' WLP *kiti.ki* 'aborted burrow, partially dug burrow.'

3.445. pPN- **kIta(l)* > NYA-W *wita.rra* 'thin, underfed;' WLP *wita* 'small, ...; baby, ..., young;' NYU *WI-DI.NG* 'thin, bony;' YDN *kitil* 'small.'

3.446. pPN- **kIti* > NYA-S *witi-karri-(ny)* 'play,' -W *witi* 'play; card playing,' *witi.kiti* 'playful;' PNK *WII-TI* 'to laugh, rejoice;' NYU *keti.ning-*, *keta.rting-* 'sing;'

WMK *kee'-an* 'dance, play,' *keent-an* 'play.'

3.447. pPN **kIwa* > WLP *kiwa.yi* 'last time, most recently, first time, now, afterwards, before, ...:' WEM *kiwa* 'right now.'

3.448. pPN- **kIwi* > NYA-W *kiwi.nyi.wi.nyi* 'mosquito:' WLP *kiwi.nyi. kiwi.nyi.wi.nyi* 'mosquito:' PIN *kiwi.nyi* 'mosquito:' KLY *IWI* 'mosquito, gnat.'

3.449. pPN- **kIwV* > WLP *kiwi.rr.pa* 'rude gesture, rude talk:' YAN *kiwu-ma-ntharra* 'insulting, being; abusing; cursing;' YDN *kiwa-N* 'be stirred up.' *kiwar* 'frightened, cowardly.'

3.450. pPN **kIya-* > GUP *giyi-n* 'to call out special words ...:' WEM *kia-* 'to say.'

3.451. pP **kIyaRa* > YDN *kiyarA* 'shiny-leaf stinging tree, *Dendrocnide photinophylla*;' DYI *kiyarra* 'big softwood stinging tree.'

3.3 *ku-

3.452. pPN **kuja* > BAY *kuju.ru* 'language, story;' BNJ *kutha-, kitha-* 'to tell.' (pKAN **kujuru*).

3.453. pPN **kuja* > NMA *kuntha.ru* 'sugar;' WMK *kuy.an* 'really sweet variety of sugar bag;' BNJ *kuthe* 'honey;' WEM *wuja* 'sap.' *wuja-wuja* 'sweet.'

3.454. pNY **kuja* > NYA-S *kunyja* 'bone,' -W *kunja* 'bone;' NYU *kwej, kweja. kuji* 'bone,' *kweja.larr* 'thin;' NMA *kuji* 'bone, shin bone.'

3.455. pPN **kUja* > GUP *guca.miny* 'fighting stick;' YAN *kuya.marra* 'spear thrower with tassle;' BAA *kuju.rru* 'waddy: ... a long throwing stick.'

3.456. pPN- **kUja* > BAY *kuthu.wa-rri-ma-ya* 'ripe;' KLY *USI.MAI-* 'extinguish, put out fire;' WMK *konj-an* 'curse someone (e.g. so that he will get sick, or die ...),' *uth* 'dead,' *uth.am-an* 'die; heal (when speaking of a sore),' *uth.ath-an* 'extinguish, put out; heal (a sore ...):' PIT *kunhtha* 'corpse.'

3.457. pPN- **kUja* > KLY *usa.y, USA.I* 'rotten;' YDN *kuji-L* 'emit smell;' PIT *kuja* 'rotten.'

3.458. pPN- **kUja* > GUP *wutha.ngi.ny* 'wind;' YDN *kuju.nU* 'light wind.'

3.459. pPN- **kUja* > NYU *GUDJE.LĂN* 'a species of hawk;' NMA *kuji.kuji* 'sky hawk, large, with forked tail ...;' YDN *kuya.lA* 'wedge-tail eagle;' BGU *kutha.la* 'eaglehawk.'

3.460. pPN- (E) **kUja* > KLY *USA.R* 'the kangaroo; wallaby;' WMK *kuuj* 'small rock wallaby ....'

3.461. pPN- (E) **kUja* > YAN *nta-kuja.nyi* 'teeth/molars, your;' WMK *koonh* 'teeth.'

3.462. pPN- (E) **kUja* > KLY *KUSA* '"white fish";' WMK *kooth* '... generic name for the species ... locally called white fish.'

3.463. pPN- **kUja-* > NMA *kutha.ny.ka-lku* 'to hit and crush it;' YDN *kunyji-N* 'break;' BGU *kuja-* 'to hit by throwing.'

3.464. pPN **kUja(l/rr)* > BAY *kunyja.n, kunja.n* 'sister;' GUP *gutha* 'older or younger brother;' WMK *kuunj* 'brothers and sisters (generic term), siblings,' *kuuth* 'real cousin;' BGU *kunjul* 'mate, friend;' GUM *kuujarr* 'young woman, sister.'

3.465. pPN **kujan* > BAY *kuja* 'stone, hill; money; cave; hard;' BNJ *kuthan*

'stone.' (pKAN **kuja*).

3.466. pPN- **kUja(n)* > NYA-S *kuji.n.pi.rirri* 'sheets of rain,' *kuju.ngurru* 'sea.' *nguja.ly* 'wet.' -W *kuju.ngurru* 'sea, ocean;' YDN *kujan* 'wet.' *kuju.kuju* 'rainbow.'

3.467. pPN- **kUja(n)* > PIN *kuja-rnu* 'to ignite, light a fire;' BAY *kuju.wa-L-* 'light (a fire),' *kuthu.wa-L-* 'burn, cook, dazzle (as sun);' GUP *gudha.rl'-yu-n* 'cook.' *guutha-n* 'cook in water, roast in ant bed,' *guya.rl'-yu-n* 'cook;' GYA *kunjin* 'fire.' (pKAN **kuthuwa-L*).

3.468. pPN- **kUja(n)* > BAY *wuju.la-rri-ya* 'tired;' WMK *koonj.an* 'feel really tired ... or lazy;' GYA *kujan* 'slow;' BGU *kunju* 'slow.'

3.469. pPN (E) **kujany* > YDN *kunyja.l* 'possum sp.;' BNJ *kuyaany* 'Grey Possum.' An alternative analysis for this set would be to posit **kuyany*, with prenasalization of **- y-* resulting in YDN *-nyj-*.

3.470. pPN- **kujarra* > NYA-S *kujarra* 'two.' -W *kujarra* 'two;' PIN *kujarra* 'two.' *kujarra-rnu* 'to make, or cause to become two;' PNK *KUTTARA* 'two;' NYU *kuja.l* 'two;' NMA *kutharra* 'two.' *kutharra-ka-lku* 'to cut it in two;' BAY *kunyji-L-* 'cut.' *kutharra* 'two;' KLY *kosar, ukasar* 'two;' WMK *kuj.am* 'two;' YIM *kuthiirra* 'two.' (pNG **kutha.rra*, pKAN **kutharra*, pP **kuuji(-ma)*). Note also the WLP reduced form *-jarra* 'two, pair (of), both' (K. Hale, p.c.)

3.471. pPN- **kUji-* > GUP *wudhu.p-thu-n* 'go away forever, disappear in water, quicksand, etc.,' *wuuthi.rri, wunya'-yu-n* 'stray, get lost, disappear;' DIY *kuthi-* 'hide, disappear.'

3.472. pPN- **kuju* > NYA-W *kuju.L* 'alone, lonely, apart;' PIN *kuju* 'one; only,' *kuju.pa* 'another;' PNK *KUTYU* 'another;' NMA *kunji.rri* 'one, the other one,' *kunyji.mu* 'one, a single;' UMP *kuthu* 'some;' WMK *kunj* 'one's own.' (pNG

**kunyji*). Further evidence for a relationship between 'one' and 'some' is found in (3.144).

3.473. pPN- **kUju* > WLP *kunju.ru* 'smoke, haze;' PIT *kuthu* 'smoke (n).'

3.474. pPN- (E) **kUju* > BGU *kuju, kuju-kuju* 'short;' PIT *kuju.kuju* 'pup.'

3.475. pPN- **kujV* > GUP *gunyju.rlu* 'spotted gecko lizard;' UMP *kuji.la* 'lizard sp.;' WMK *koj* 'lizard ....'

3.476. pNYY **kujV* > WLP *kuju.kuju* '... father's father, father's father's brother, father's father's sister;' GUP *gutha.rra* 'a woman's daughter's child and man's sister's daughter's child.'

3.477. pPN- **kUjV* > GUP *nguca.ca* 'fish;' YAN *wuthi.rri* 'Box Jellyfish (*Chironex fleckeri*);' KLY *KUS* 'jelly fish, Medusa;' UMP *kuju.kuju* 'box-fish;' YIM *kuuju* 'fish.'

3.478. pPN- **kUjV* > PIN *kunyju.nyu* 'straight; used mainly of spears;' WMK *kooj.an, koy* 'straight (in body), or to go straight to a place, or a "straight" person i.e. honest ....'

3.479. pPN- **kUjV* > GUP *guthi.r.ka* 'pied oyster catcher;' YAN *a-kutha.yi.kutha.yi* '... Oyster Catcher (*Haematophus ostralegus*).'
Residue: YDN *kuju* 'oyster.'

3.480. pPN (E) **kujV(n)* > YDN *kujin* 'bull ant;' BNJ *kutha.lany* 'species of ant.'

3.481. pPN- **kUjV(n)* > WLP *kuju.rntu* 'yam sp. ;' BAY *kunthu.wa* 'wild potato;' YDN *kunyjan.karra* 'beach yam.' (pKAN **kunthuwa*).

3.482. pPN- (E) **kUjV(n)* > KLY *USA.L* 'the Pleiades;' YDN *kujun.kuru* 'seven

sisters.'

3.483. pNY **kuka* > NYA-S *kuku.rnjari* 'sheep,' -W *kuku.rnjayi, kuku.rnjari* 'sheep;' WLP *kuka.rnparu* 'big meat-eater, full of meat ;' PIN *kuka* 'meat, generic;' NYU *kuku.njari* 'meat; sheep;' NMA *kuku.rnjayi* 'sheep.'

3.484. pPN (E) **kUka* > YAN *kuku* 'mother's mother's brother.' *kuku.rti* 'mother's mother,' *wuku.ku* 'sister's daughter's child; daughter's child;' BGU *kuku.njila* 'daughter's son,' *kuku.nyantila* 'daughter's daughter;' WEM *kuka* 'grandmother (both maternal and paternal), ... grandchild;' WOI *gugu.njalik, gugung* 'grandmother.'

3.485. pPN (E) **kUka* > YAN *na-wuku.n* 'bark shelter ...;' WMK *kok* 'dry bark ....' *ngook* 'material, ... bark and wallaby skins ...;' YDN *kuka* 'skin leather; bark; bark canoe;' DYI *kuka* 'skin;' BGU *kuka* 'bark from elbow of tree.'

3.486. pPN (E) **kUka* > DYI *kungka.ka* 'kookaburra;' BAA *kuuka.kaka* 'kookaburra.'
Residue: WMK *konk.an* 'Laughing Kookaburra ....' This form is not included in the above set because of the presence of a medial *n*.

3.487. pPN (E) **kUka* > KLY *GUGA.BI* 'ring, circle.' *guga.bidh-nga* 'round;' GUM *kukaa.rri-* 'surround.'

3.488. pPN- **kuuka(l)* > YAN *wuka* 'word; language; story; speech;' UMP *kuuki-* 'speak, talk,' *kuuku* 'language;' YIM *kuuku* 'talk, language, word;' GYA *kuku* 'news; the talk or language of a place;' YDN *kuku* 'purposeful noise;' DYI *kuwal* 'everyday language style; voice.' (pP **kuuku*). Walmajarri, a western language, has *kuka* 'news of a death,' thereby indicating that this reconstruction need not be labelled "(E)."

3.489. pPN- **kUka(l)* > NYA-W *wungka.l.ka* 'fire-drill;' WLP *kungka.la* 'fire-drill;'

KLY *GOIGOI, GUIGUI* '... firesticks;' YDN *kukal* 'firedrill ....' This form has been widely borrowed. See, for example, *kungkel* in Lardil, a non-Pama- Nyungan language (K. Hale, p.c.).

3.490. pPN **kuka(r)* > WLP *kuku.rnu* '.... younger brother, younger cousin ...:' YAN *wuku.thu, wuku.lku.thu* 'short;' BNJ *kukar* 'baby, young;' WOI *gugai* 'cousin.'

3.491. pPN **kuuka(y)* > NMA *kuka.y* 'come here!;' UMP *kuuku.'u* 'from here;' BGU *wuku* 'to here, this way;' BNJ *kuway* 'come here!.' (pNG **kuka.yi*).

3.492. pPN **kuki-* > WLP *kuku* 'try, attempt, might, could;' BNJ *kungki-* 'to try.'

3.493. pPN (E) **kUkin* > KLY *KUKI* 'the north-west monsoon ....' *kuki* 'west;' UMP *kuki.ya* 'northwest wind;' BNJ *kuukin* 'east.'

3.494. pPN **kuku* > BAY *kuku.lara* 'diamond dove;' GUP *guku.k* 'pigeon;' UMP *kuku* 'dove;' WMK *kukk.uw* 'Diamond Dove (*Geopelia cuneata*);' DYI *kuku.wuny* 'brown pigeon;' BAA *kuuku.nya* 'dove.' (pKAN **kukulara*).

3.495. pNY **kuku* > PIN *nguku.rta* 'testes;' NMA *kuku.ly* 'testes.'

3.496. pNY **kuku* > NYA-W *kuku.jarri (ngarrany)* 'unborn; still in pre-existent spirit form;' PIN *kuku.rr-pa* 'harmful evil spirit;' NYU *KWOGGYN* 'soul; spirit.'

3.497. pPN **kUku* > NYU *kungk, kungka, kungku* 'back, backbone;' GUP *guugu* 'later, afterwards;' YAN *nta-wuku* 'back, your;' BAA *kuku* 'end;' PIT *kuku* 'back.' *kuku.ina* 'behind.' (pKAR **kuku*).

3.498. pPN- **kUku* > PIN *kuku.ly-pa* 'a shaving from a spear after the point sharpening process,' *kuku.ny.pi-nu* 'to pull a spear through a wound ...;' KAU *KOKA-NDI* 'to dig; to scrape; scratch;' KLY *KOGWOI* 'a throwing-stick,' *KUKU.SAI*

'pole for awning of canoe;' WMK *ooyk.am* 'spear type,' *uuk-an* 'scratch, scrape;' GYA *kuku.ni* '... big spear ...;' DIY *kuku.ru* 'stick type;' PIT *kuku.ru* 'digging stick.'
Residue: YDN *kuku.lu* 'men's singing style; song stick.'

3.499. pPN **kuuku(m/R)* > KAU *NGUKO* 'a species of owl;' NYU *GUGU.MIT* 'a small brown owl ...;' KLY *gugu* 'owl;' WMK *nguk* 'all owls;' DYI *kuku* 'mopoke owl;' BNJ *kuungkur* 'Boobook Owl ...;' WEM *wuk.wuk* 'boobook owl, *Ninox boobook*;' WOI *gugum* 'boobook owl.'

3.500. pPN- **kŪku(r)* > WLP *kuku.ju* 'smiling, pleased ,' *kuku.ly(.ku)* 'light-hearted, gay :' DYI *kukur.kay* 'good job.'

3.501. pPN **kŪkV* > WLP *kukurl.pa* 'nauseating, sickening ;' KAU *KOKO* 'sore; ill; illness; disease;' NYU *KOKĀNWIN* 'festering;' BGU *kuka-* 'to be lame;' BAA *nguuki-* 'to feel pain;' DIY *kungka-* 'limp,' *kungku* 'lame.' (pCK **kungka-*).

3.502. pPN- (E) **kŪkV* > KLY *UGAI-* 'wait, wait for;' DYI *kuku.wuy* '"wait there".'

3.503. pPN- (E) **kŪkV* > YAN *na-wungka.la* 'flying fox camp ...;' WMK *wuk* 'flying fox;' YDN *kuki.nyU* 'flying fox.'

3.504. pPN- (E) **kukV(l)* > KLY *UKA* 'two;' UMP *kukul.thi* 'three.'

3.505. pPN (E) **kukV(l/y)* > GYA *ngungul-ngungul* 'dark;' BNJ *ngukuy* 'night;' BAA *kuki.rri.ka* 'black, also a dark-coloured coin.' See also (4.228).

3.506. pPN (E) **kuukV(r)* > GUP *gunga.lung* 'blue tongued lizard;' UMP *wuuku.npila* 'lizard, big, with stripes on sides;' YDN *kukar* 'black goanna;' DYI *kukar* 'black guana;' BAA *kuuka.rra* 'tree goanna.'

3.507. pPN- **kUkV(y)* > WLP *kukuly.pa* 'bundle, mass, amassed, band, group ;' WMK *ok.an thee'-an* 'put in a heap;' DYI *kukay.ngkukay* 'host of teenage boys.'

3.508. pPN (E) **kula* > YAN *kula.npa-yarra* 'lowering; tired, being; lazy; sitting down;' BNJ *kula.war* 'lazy.'

3.509. pPN **kUla* > WLP *kuula* 'seed, core, insides of (fruit);' PNK *KULI.LYA.LA* 'the seed vessel of the casuarina;' WOI *GULLA.GOTHOON* 'inside.' This set may be related to that in (3.789).

3.510. pPN- **kUla* > WLP *kula.nja* 'feather cockade in headress ...;' YDN *kula.lV* 'yellow cockatoo feathers.'

3.511. pPN- **kUla* > NYU *kula.ng* 'sergeant ant,' *KWALA.K* 'a species of ant;' YDN *wulu* 'ant sp..'

3.512. pPN- **kUla* > GUP *gula.ka* 'yam (collective term);' YAN *ma-kula.wartama* 'Yam species.'

3.513. pP **kUla* > WMK *kul* 'handle (e.g. of bag);' YDN *wula* 'handle of dilly-bag.'

3.514. pPN **kUla-* > NYA-S *kula* 'later, hang on!,' -W *kula!, kula-kula!* 'just a moment! hold on! wait a bit!;' GUP *gul-yu-n* 'stop, come to a halt;' WOI *gulu.k-djabik* 'hold, grab.'

3.515. pPN **kUla(ny)* > NYU *kula.manti, kula.mpiti* 'young man,' *GULA.MBIDDI* 'a young man ...;' WOI *guliny* 'man.' This set may be related to that in (3.664) through antonymy.
Residue: PIN *kulyarri* 'young man without a wife ....' A laminal lateral is not expected here.

3.516. pNYY **kulha* > NMA *kulha.kulha.ra* 'grub-like animal in sea ...;' BAY *kulhi.ny* 'maggot.' (pKAN **kulhiny*).

3.517. pPN **kuli* > WLP *kulu.rn-ka-nyi* 'see many in distance;' PNK *KULI.NDI* 'round, surrounding;' UMP *kuli-* 'all;' BNJ *kulu.mu* 'everywhere, all around here;' WEM *kuli* 'crowd, mob.'

3.518. pPN- **kUli* > GUP *guuli* 'rudder;' KLY *KULI* 'the tiller, steering board of a canoe.'

3.519. pPM **kUli* > WMK *ngul.akam* 'for a very long time, forever;' BGU *kuli* '... a long time ago, for a long time.'

3.520. pPN **kuli(l)* > PIN *kuli-rnu* 'to hear, understand or to think;' BAY *kuli.ya* 'ear;' BNJ *kuliil* 'smart, clever; helpful person.'

3.521. pP **kUljan* > GYA *kuljan* 'sound made from drumming water;' YDN *kuljin* 'sound of slapping water.'

3.522. pPN- **kUlka* > PNK *KULKA* 'kangaroo rat;' GYA *kulngu* 'bandicoot.'

3.523. pPN (E) **kUlka* > YAN *wulku* ' Native Hibiscus (*Hibiscus tiliaceus*);' BAA *kulka* 'rosebush (Hibiscus Farragei).'

3.524. pP **kUlka* > GYA *kulka* 'short;' YDN *kulka* 'short, short pieces.' One of these languages may have borrowed its form from the other.

3.525. pPN- (E) **kulka(l)* > YAN *na-kulka.rra* 'bark dish,' *na-wulka* 'bark canoe (generic);' UMP *kulkul* 'bark - of tree,' *kulkul.u* 'skin.'

3.526. pPN (E) **kulkan* > UMP *ulngku.yu* 'path, road;' BNJ *kulkan* 'road, spoor, track.'

3.527. pPN- **kUlki* > PIN *kulku* 'fine ashes;' GUP *guulku* 'tobacco, ash ...;' YDN *kulki* 'sand, sugar.'

3.528. pPN **KULLA* > PNK *KULLA.RNU* 'still, yet;' WOI *KULLE.RBROOK* 'now.'

3.529. pNY (D) **kulpa-* > NYA-S *kulpa-(ny)* 'return.' -W *kulpi-nyi* 'to go back, return;' WLP *kulpa-mi* 'go, come, ... return, go away ....'

3.530. pPN- **kUlpa* > NYA-W *kulpa.ny* 'briefly, for a short time;' KLY *kulbi.za* 'for a long time.'

3.531. pPN- **kUlpa* > NYU *kulpa.rti* 'magpie;' BGU *kulpu* 'magpie, butcher bird.'

3.532. pPN- **kUlpa-* > NYA-W *kulpa.ma-rna* 'to prevent, stop;' GUP *gulmara-ma* 'stop, halt (trans); create, procreate;' DYI *kulpa-l* 'block, shut.'

3.533. pPN- (E) **kUlpaRi* > BGU *kulpari, kulpayi* 'emu;' PIT *kulparri* 'emu.'

3.534. pPN- **kUlpV* > NYA-S *kulpi.na.puru* 'ghecko.' -W *kulpi.ni.puru* 'Barking Gecko;' GYA *kulmpa-kulmpa* 'gecko ....'

3.535. pPN (E) **kulu* > UMP *kul'a.kunyji* 'small yellow hornet;' YDN *kulu.mpu.ru* 'hornet;' BNJ *ngulu.ngkir* 'small species of wasp.'

3.536. pNYY **kulu* > NYA-S *kulu.lu* 'dust.' -W *kulu.lu* 'dusty; noise as of bomb;' KAU *KULLU.RU* 'noise;' BAY *kulu.rarnu* 'dirty (as face);' GUP *gulu.rdum-dhu-n* 'make a deafening noise.'

3.537. pPN **kUlu* > NYA-W *kulu.rr* 'Black-shouldered Kite;' BAA *kulu.ngkala* 'kite, probably the black-shouldered kite.'

3.538. pPN- (E) **kUlu* > YAN *a-wulu.wangku* 'Conch Shell (*Syrinx aruanas*);'

WMK *kul.al* 'boom shell, conch shell.'

3.539. pPN- **kUlV* > KAU *KUDLO* 'louse;' PNK *KUDLU* 'louse;' NYU *kuul, kulu, kula* 'louse;' NMA *kulu* 'louse, flea;' BAY *kulu* 'lice, fleas;' YDN *kuli* 'louse.' (pNG **kulu*, pKAN **kulu*).

3.540. pPN- **kUlV* > PNK *NGULU* 'knee joint,' *NGURDLI* 'crooked;' KLY *kuulu, KULU* 'knee, kneecap;' WMK *kul.al* 'crooked ...,' *ul.iy* 'knee.' Although my data contain no further examples of a link between 'knee' and 'crooked,' a number of sets in my data provide evidence for a relationship between 'elbow' and 'crooked.' See set (3.220) for a list of these sets.

3.541. pPN- (E) **kUlV* > KLY *kula.y* 'already, formerly;' BGU *wuli* 'already.'

3.542. pPN **kulV(l)* > YAN *a-kuli.ka* 'bereaved mother,' *kuli.ka* 'bereaved man whose niece/nephew has died;' GYA *kulal* 'a mother who loses a child through death;' BNJ *kuluu.n.kan* 'widow.'

3.543. pPN **kulVn* > WLP *ngula* 'that, there;' KAU *NGURLO* 'that; yon; the agent;' NMA *ngula* 'there, by that one;' BNJ *wulun* 'out there;' GUM *kuluu* 'over there ....'

3.544. pPN- **kUlya* > YAN *kulha.lhi* 'new green foliage ...; good hair;' DIY *kulya.kulya* 'green, yellow.'
Residue: WLP *kulya* 'body hair, pubic hair, armpit hair;' WMK *kul* 'grass type.' This is the sole example of WMK changing **-ly-* to *-l-* in my data.

3.545. pPN **kulya(R)* > WLP *ngulya* 'burrow, hole, depression ...;' BAY *kulya.rn* 'hole (as in the ground);' BNJ *kuthaar* 'hole.'

3.546. pPN- **kUlya(r)* > NYU *KUL-YI.R* 'mist; fog;' BAY *wulyi* 'fog, dew;' YDN

wujar 'fog, mist, frost.'

3.547. pPN (E) **kUlyi* > GUP *guyi.ngarr* 'cold;' WMK *kuj-an* 'cool down (in body).' *kuj.ar* 'cold:' BAA *kuulyi, kuulyi-kuulyi, kulyu.rru* 'winter, cold season.' This is the only evidence in my data suggesting that GUP changes **-ly-* to *-y-*, but see O'Grady and Fitzgerald (1997:345-346).

3.548. pPN **kulyi(n/ng)* > BAY *kulhu.wiyi* 'red;' BGU *kuthi.kuthi* 'red,' *kuthi.rri* 'red or yellow;' BNJ *kuthiin* 'red, orange-red.' *kuthing* 'red clay, red ochre.' (pKAN **kulhuwi*).

3.549. pNYY **kulyu* > NMA *kulyu* 'large potato sp. ...;' BAY *kulyu* 'wild potato.' Borrowing may have occurred between these two languages.

3.550. pPN **kulyVm* > WLP *wulyu.wulyu* 'small rat sp., mouse sp.;' YDN *kuji.la* 'short-nose bandicoot:' BGU *wuja.la* 'bandicoot;' BNJ *kuthaam* 'rat.'

3.551. pPN- **kUma* > NYA-W *kuma.lyi* 'motherless:' PIN *kuma.nyjayi* '... term of address referring to a person whose name has become taboo;' NMA *kuma.kuma* 'bereaved father, bereaved uncle of girl;' KLY *UM(A)* 'death; dead.' *umi.zi-* 'die;' WMK *kum.anh* 'word used for articles left by a dead person.' *ngum.al-an* 'die.'

3.552. pPN- **kUma(n)* > PIN *wumu.ngka-nu* 'to bring objects together in one place;' KAU *KUMA* 'one: another; also; too,' *KUMA.NGKA* 'together;' PNK *KUBMA.NNA* 'one, alone, sole.' *KUMA* 'one, alone;' NMA *kuma* 'together;' GUP *gumu.rr'-yu-n* 'meet;' KLY *KOMA.KOMA* 'one by one;' YDN *kuman* 'one, another, alone.'

3.553. pPN (E) **kuma(R)* > YDN *kuma.ri* 'red water;' BGU *kuma* 'blood;' BNJ *kumar* 'blood;' WEM *kuma* 'raw meat;' DIY *kuma.di* 'blood.' (pWK **kumarrhi*). Residue: KLY *koba.ris* 'in *kobaris maadhu* 'raw meat'.' KLY is the only one in a

group of widespead languages to have a medial stop here.

3.554. pYUR **KUMBU* > KAU *KUMBU.LYA* 'a species of large black ant;' PNK *KUMBU.RU.NYE* 'a species of ant.'

3.555. pPN- (E) **kumi* > KLY *GUMI* 'secretly, secret,' *GUMI-MAI-* 'hide;' UMP *kumi* 'lose it.'

3.556. pPN- **kUmi* > BAY *kumi* 'lightning;' YDN *kumi* 'lightning.'

3.557. pPN- **kUmi* > NMA *kumi.n* 'mosquito;' GYA *kumu* 'mosquito.' (pNG **kumirn*).

3.558. pPN (E) **kUmi(n)* > WMK *kom* '... fig;' GYA *kumin* 'species of fig tree...;' WOI *KUM-ME-REE* 'fig.'

3.559. pPN- **kumpa* > NYA-S *kumpu* 'urine,' -W *kumpu* 'urine;' PIN *kumpu* 'urine;' KAU *KUMBO* 'urine;' PNK *KUMBU* 'urine;' NYU *kuump. kumpu* 'urine.' *GUMBU* 'the bladder;' NMA *kumpu* 'urine;' BAY *kumpu* 'urine;' KLY *ubaa.lu. UBA.L* 'bladder;' UMP *kumpu* 'bladder, urine;' WMK *kump* 'urine;' GYA *kumpu* 'urine.' (pNG **kumpu*, pKAN **kumpu*, pP **kumpu*).
Residue: WLP *kumpa.kumpa* 'froth, foam, scum; soapy water, used water, ...' Although a relationship between 'water' and 'urine' is well-attested, the WLP form is the only potential member of this set to have the former meaning, while forms from a very widespread group of languages have the latter.

3.560. pPN- **kUmpa(l)* > NYA-W *kumpa.ra* 'young woman (?);' YDN *kumpa* 'prepubescent girl;' DYI *kumpul* 'woman.'
Residue: WMK *koman* 'unmarried girl at the age of puberty and onwards;' GYA *kurmpa* 'a woman who has very recently given birth ....' My data contain no further evidence of a correspondence between a medial nasal in WMK and a nasal-stop

cluster in other languages. Although the GYA form with *-rmp-* could be related to those in the above set, GYA and DYI, which both allow triconsonantal sequences, disagree regarding the presence of *-r-*.

3.561. pPN- **kUmpa(r)* > NYA-S *ngumpa* 'face; section; skin group.' -W *ngumpa* 'face;' NMA *kumpa* 'face;' YDN *ngumpar* 'face;' DYI *wumpu* 'head.' (pNG **kumpa*).

3.562. pPN- **kUmpu* > WLP *wumpu.rra.rni* 'black, dark ...;' NYU *KUMBÃ.RDÃ.NG* 'night;' BAY *kumpu.tharri.warra* 'midnight;' GYA *ngumpu* 'black, charcoal.'

3.563. pPN- **kUmpu* > BAY *kumpu.kumpu.ra* 'cockroach;' YAN *a-kumpu.lu.kumpu.lu* 'Cockroach ....' (pKAN **kumpukumpura*).

3.564. pP **kUmpu* > YDN *kumpu* 'mother's mother;' DYI *kumpu* 'mother's mother (and reciprocal).' Borrowing may have occurred among these geographically close languages.

3.565. pPN **kumpV* > NYU *kumpa.r, kumpa* 'big, large, great, many.' *GUMBA.R* 'big; heavy;' BNJ *kumpi* 'many, all,' *kumpi, kumpi.pu* 'all.' *kumpii* 'many, all, much;' BAA *kumpa.ja* 'big, large.' Evidence for a relationship between 'big' and 'many' is seen in (3.110), (3.281), (3.744) and in the KAU form *WITTE* 'large; much; quick; very; ably.'
Residue: YDN *kumpu.kumpu* 'every time.'

3.566. pPN (E) **kumu(l)* > BNJ *kumuul* 'burial ground, grave;' WOI *KOOMO.NEIT* 'bury.'

3.567. pPN **kUmV* > WLP *kuma.rri* 'present ..., now, ..., fresh, new;' WOI *gumi* 'now;' DIY *kuma* 'news.'

3.568. pPN **kUna* > NYU *nguna.n, nguna.na* 'black duck,' *NGWONA.NA* '*Anas Novae Hollandiae*; the grey duck;' WMK *koon* 'Burdekin Duck or Radjah Shelduck (*Tadorna radjah*) ...:' WOI *guna.bil* 'duck:' BAA *kuna.rli* 'wood duck.'

3.569. pPN **kUna* > GUP *guna.pipi* 'fertility ceremony;' BGU *kuna.partuny* 'pregnant:' WOI *KOONOO..NG-WARREN* 'pregnant.' This set may be related to that in (3.575).

3.570. pPN **kUna* > KAU *KUDNA* '... inclination to retain a thing ... once possessed:' NYU *GUNI.NG* 'stingy; unwilling to give;' WOI *guna-* 'take.'

3.571. pPN **KUNA* > PNK *KUDNA.NNA* 'large weed, tobacco;' WOI *KUN-A..NG-NER-RO-MEN* 'tobacco.'

3.572. pPN- **kUna* > NYU *WUNNA.RA* 'a species of Tea-tree ...:' WMK *kon.ant* 'ti-tree (*Melaleuca leucadendron*).'

3.573. pPN- **kUna* > PNK *KUNNA.RI* 'fat, suet;' GYA *kunu.kunu* 'fat in food or fatty meat.'

3.574. pPN (E) **kUna* > UMP *kuuna.lu, kuuna.n* 'there,' *kuuna.ma* 'here;' BNJ *kunaa* 'this, invisible (formerly present),' *kunu* 'here, this;' WOI *kunne* 'here,' *kunui* 'that.'

3.575. pPN **kunang* > WLP *kuna* '..., anus: .... tail, butt; excrement .... guts, ...:' PIN *kuna* 'excreta; ... anus;' KAU *KUDNA* 'excrementa; bowels;' PNK *KUDNA* 'bowel, excrements, coitus;' NYU *kuni.ny* 'defecating,' *kwan, kuna, kwona* 'faeces;' BAY *kuna, kuna.nyja* 'excrement;' YAN *nta-wuna* 'buttocks, your; anus, your;' KLY *KUN(A)* 'hinder part of a thing; stern of a canoe;' UMP *kuna* 'excrement;' WMK *kun* 'faeces;' YDN *kuna* 'abdomen, bowels;' DYI *kuna* 'faeces;' BGU *kuna* 'stomach, faeces;' BNJ *kunang* 'faeces, shit;' GUM *kuuna* 'faeces;' WEM *kuna.kal*

'underneath,' *kuni.nyuk* '(his) excrement;' WOI *guin* 'bowels,' *gurnang* 'bowels, faeces;' BAA *kuna* 'faeces, bowel;' DIY *kuna* 'faeces;' PIT *kuna* 'faeces; defecate.' (pKAN **kuna*, pP **kuna*, pKAR **kuna*). See also the set in (3.569).
Residue: NYU *kuniny* 'little, young; a crawling child.'

3.576. pNY **kunartu* > WLP *kunarntu.ru* '*Acacia coriacea*: Dogwood;' NYU *KUNART, KWONNĂT* 'a species of acacia ....'

3.577. pP **kUngka* > WMK *wungka.r* 'red ochre;' DYI *kungku* 'red clay.'

3.578. pP **kungka(rr)* > UMP *kungkay* 'north;' WMK *kungk* 'north;' YIM *kungka-* 'north;' GYA *kungkarr* 'north along the coast;' YDN *kungkar.I/i* 'north;' DYI *kungkar.i* 'north.' (pP **kungkarr*). A change from **-rr* to *y* is regular in UMP (see O'Grady 1976).
Residue: DYI *kuyngkurr.u* 'south.' This form differs from those above in its meaning and in the presence of a medial *y*.

3.579. pPN **kUngku* > KAU *KUNGGU.RLA* 'crawfish;' PNK *KUNGGU.LLU* 'craw fish, sea crab;' GUP *guungi.ya* 'hermit crab that lives in water;' WMK *uungk.iypathan* 'female crab ...;' BAA *kungku.lu* 'crayfish (*Cherax* species).'

3.580. pPN (E) **kungku(n)* > WMK *ngoongk.athiy* 'really big carpet snake;' GYA *kungkun* 'brown tree snake;' BNJ *kungku.yay* 'black snake.'

3.581. pP **kUngu(n)* > WMK *kung* 'sides of the body just near and below the ribs, corner;' YDN *kungun* 'corner.'

3.582. pPN (E) **kuungV-* > UMP *kuungi-* 'hide, secrete self;' BAA *kunga-* 'to conceal.'
Residue: NYA-S *kuku-jarri-(ny)* 'so as not to be seen, hide,' -W *kuki* 'secret,' *kuku* 'hidden.' If these forms were included in the above set, with a protoform with medial

*-*k*-, this would be the only example of UMP weakening a medial stop to a nasal.

3.583. pPN- **kUnja* > GUP *gunja.lk* 'pandanus growing in fresh water;' WMK *kunj.an* 'screw palm (*Pandanus spiralis*);' GYA *kunja.rri* 'species of palm tree.'

3.584. pPN- **kUnja* > BAY *kuntha.rti* 'tail;' WMK *kunj* 'penis.'

3.585. pPN **kUnta* > NYU *KUNDĂ.M* 'a dream;' BAA *kunta-la-* 'to dream.'

3.586. pPN- **kUnta(rr/y)* > NYU *kwont. kunta, kwanta* 'black snake.' *KWONDA* 'a very deadly species of snake;' GUP *gundu.rru* 'sp. snake;' WMK *wunt* 'whip snake;' GYA *kunturr* 'death adder;' YDN *kuntaya* 'carpet snake,' *kuntuy* 'black snake;' PIT *kunta.ra* 'snake sp.' Note that the GUP form in (3.697) is identical to the one above. The GUP dictionary combines the two forms in one entry. Further work will establish whether there is a relationship between the two meanings.

3.587. pPN **kuunti* > KAU *KUNTI.PAITYA* 'moscheto;' PNK *KUNTI* 'horse fly;' NMA *kunti.ri* 'small water bug sp.;' UMP *kuuntu* 'mosquito;' BAA *kunti* 'mosquito.'

3.588. pPN- (E) **kUnti* > BGU *kunti* 'house;' PIT *kunti* 'house.'

3.589. pPN- **kUntu* > NYA-W *kuntu.ra.ngu* 'mangrove, *Ceriops Tagal*;' WMK *kuunt* 'Looking glass mangrove tree (*Heritiera Littoralis*) ....'

3.590. pPN- **kUntu* > NYA-S *kuntu.rl* 'cough,' -W *kuntu.L* 'a cough;' WLP *kuntu.l.pa, kurntu.rl.pa* '(head) cold, catarrh, influenza, bronchitis;' DIY *kundu.kundu* 'cough, cold.'

3.591. pPN **kuntV* > KAU *NGUNTA* 'there;' PNK *NGUDI.TYE* 'yon, yonder;' BGU *kuntu* 'away, from here;' BNJ *kuntee* 'that, distant; there (distant).'

3.592. pPN **kUnV* > GUP *wuna.kina* 'fire;' BAA *kuni.ka* 'fire, fire-wood.'

3.593. pPN- **kUnV* > PIN *kuna.kulu* 'an idiom for a dead person or animal;' NYU *GUNA.L-YĂTA* 'successful in killing game.' *GUNA.M* 'an expert marksman;' GYA *kuni-l* 'to hit: to kill;' BGU *kuni-* 'to hit, to kill.'

3.594. pYUR **KUNV* > KAU *KUDNA.TO* 'the name of the third child, if a female.' *KUDNUI.TYA* 'name of the third child, if a son;' PNK *KUN.TA* 'name of the third child, if a female.' *KUNNI* 'name of the third child of a mother if a male.'

3.595. pNYY **kunya* > NYA-S *kunya.yi* 'mosquito,' -W *kunya.yi* 'mosquito;' GUP *gunya.many* 'mosquito.'

3.596. pPN (E) **kUnyang* > YDN *kunya.rr* 'cough(ing);' GUM *kunyung* 'cold (coryza).'

3.597. pPN **kuunyja(R)* > WLP *kuuny.pa* 'sucking :' PIN *kuunyja-nu* 'to suck ...;' DYI *kunyja-l* 'drink;' BNJ *kuunyjar* 'drunk.' (pP **kunyja-*).

3.598. pP **kUnyji-* > YDN *kunyji-L* 'expose, open out;' DYI *kunyji-l* 'take skin, clothes off.' It is possible that one of these forms is borrowed.

3.599. pNY (D) **kunyu* > NYA-W *kuny-ma-rna* 'to tie, bind;' WLP *kunyu-kunyu* 'tying, securing.'

3.600. pPN- **kUnyu* > KAU *KUINYO* 'dead person, skeleton, death ...;' PNK *KUNYU* 'dead;' WMK *oony* 'ghost, spirit, ... dead man's spirit.'

3.601. pPN **kUnyV* > PIN *kuunyi* 'poor fellow; an expression of pity;' WEM *ngunya.ma-* 'to inspire pity.'

3.602. pPN- **kUnyV* > GUP *gunhu* 'father;' YAN *wunya.tha* 'father; father's

brother.'

3.603. pPN **kUpa-* > BAY *kupu.tha-L-* 'lick;' WEM *kupa-* 'to drink;' WOI *nguba-* 'drink.'

3.604. pPN- **kupa(n)* > NMA *kupi.jarri* 'bits;' BAY *kupu.ju* 'child, baby: small;' KLY *kupa.y, KUPA.I, KUPA.R* 'navel, umbilicus;' UMP *kupan* 'short;' WMK *kuup.an* '... used by grandparents to call their own grandchildren (son's children);' DIY *kupa* 'child,' *kupa.du* 'young of animal.' (pKAN **kupuju*, pP **kupan*). Evidence for a relationship between 'umbilical cord' and 'baby' or 'child' is also found in (3.369), (4.205) and (5.160). Note that this set is similar to that in (5.419); however, each set contains widespread forms with identical initial consonants. Given this and the fact that UMP appears in both sets, they are kept separate.

3.605. pPN- **kupa(n)* > GUP *gupa* 'nape of neck, back of head;' UMP *kupun* 'nape.'

3.606. pPN- **kUpa(n)* > WLP *kumpa.rri* 'lightning, thunder;' GYA *kupun-kupun* 'rumbling noise of thunder ....'

3.607. pPM **kUpa(n)* > YDN *kupan.kupan* 'grey hair; grey;' BGU *kupa, kupa-kupa* 'grey.'

3.608. pPN- **kUpa(r)* > KAU *KUPE* 'a grub in the red gum tree;' KLY *kupar* 'maggot.' *KUPAR* 'a worm;' YDN *kumpa.lA* 'grub stage;' BNJ *kumur* 'species of grub.'

3.609. pNY **kupi* > WLP *kupa.warnu* '*Macropus robustus (erubescens)*; Euro, Hill Kangaroo, Rock Wallaby;' PNK *KUPI.RRI* '... white kangaroo;' NYU *KUBI.T* 'the male kangaroo.'

3.610. pPN- (E) **kuupi-* > KLY *UBI-* 'wish, want, desire; greed;' UMP *kuupi* 'like, want.'

3.611. pPN **kupi(l)* > NYU *kupe.r* 'funny, comical;' WMK *kuup.am-an* 'to feel glad;' BNJ *kupil* 'strange, cute, funny.'

3.612. pPN- **kUpu* > KAU *KOPU.RLO* 'sea water; spirits; intoxicating drinks;' DIY *kupu.la* 'alcohol, wine, bottle.'

3.613. pPN- **kUpu* > NYA-S *kupu.lyu.pu.lyu* 'tadpole,' -W *kupu.lyu.pu.lyu. kapu.lyu.pu.lyu* 'tadpole ...;' NYU *GOBU.L* 'a frog whilst in a tadpole stage;' KLY *GOBU.LU* 'tadpole (?);' UMP *kupu.mpuy(u)* 'bullfrog;' GYA *kupu-kupu* 'tadpole;' YDN *kuwi(y)* 'frog sp..' *kuwu.kuwu* 'tadpole.'

3.614. pPN (E) **kUpu* > BGU *kupu* 'bent;' BAA *kupu* 'elbow.' See set (3.220) for a discussion of the relationship between 'elbow' and 'bent.'

3.615. pP **kUpu* > YDN *kupu* 'leaf; paper money;' DYI *kupu* 'leaf.' It is possible that one of these languages has borrowed its form from the other.

3.616. pPN **kUpu(rr)* > NYA-S *kumpu.rr.ji* 'sacred;' GUP *guumbu.rr* 'possessions of a dead person;' DYI *kupu.parra* 'a spirit;' GUM *kumpurr* 'spirit, devil, ghost.'

3.617. pPN- **kupu(y)* > WLP *kupu.jititi* 'tied tight, fastened, bound;' GUP *guwa.l* 'string, rope;' UMP *kupuy, kupuyu* 'rope, hemp string.'

3.618. pNY **kupV* > PIN *kumpi-rnu* 'to hide;' KAU *KOPAE-NDI* 'to leave secretly,' *KUMBA-NDI* 'to leave; to disappear;' NYU *KOPI.N* 'secretly - as in *KOPI.NI.JOW* 'to hide; to place secretly'.'

3.619. pPN **kUpV* > WLP *kupa.ly.pa* 'flock, flocking, swarm, swarming ;' NYU

kupa.ng 'friend;' KLY *KOPU.KOPU.DAN* 'one by one;' WEM *kepin* 'one;' WOI *gup-dun* 'one.'

3.620. pPN- **kUpV* > NYU *kop* 'black,' *kopa. kop* 'coals.' *KUP* 'charcoal:' BAY *kupa* 'ground charcoal;' KLY *KUBI* 'charcoal; darkness,' *kubi.l. KUBI.L* 'night.'

3.621. pPN- **kUpV* > NYA-S *kupi.lya* 'dew. fog,' -W *kupi.lya* 'dew:' NMA *kupi.lya* 'fog, dew:' GYA *kupu* 'smoke:' DYI *kumpu.rru* 'mountain mist.' (pNG **kupi.la*). Residue: GUM *kuuwa* 'fog. snow.' This is the only evidence in my data of GUM changing a medial stop to a glide.

3.622. pPN- **kUpV* > PIN *kupi.kupi* 'small whirlwind;' PNK *KUMBU.KUMBU* 'wave. billow:' KLY *guuba. GUB(A)* 'wind;' GYA *kumpa.mu* 'trade wind, fair wind.'

3.623. pPN **kUpV-* > NYA-S *kupa.lya-jarri-(ny)* 'fall asleep. have a rest:' NYU *KOPI.L* 'sleep;' KLY *KAUBA-ASI-* 'become tired. do slowly through fatigue:' WEM *kumpa-* 'to lie down. to sleep.'

3.624. pPN **kura* > WLP *kuru.rru.ngu, kuru.rru.ngku* '*Onychogalea unguifera*: Northern Nailtail Wallaby:' NYU *kwaar/kwer. kura/kwura, kwera* 'brush kangaroo.' *GURH-RA* '*Macropus caeruleus*; the brush kangaroo;' BNJ *kura.ngkar* 'Grey Kangaroo doe,' *kuru.man* 'Grey Kangaroo buck.'

3.625. pPN **kura* > NYA-W *kura.n.kura.n* 'a prickly type of spinifex ...;' NMA *kura.n.kura.n* 'porcupine spinifex ...:' BNJ *kura.pil* 'Coorobil "blady grass".'

3.626. pPN (E) **kura* > YAN *kura.j.pa* 'sound of hitting; ... slapping/clapping; ... hammering/pounding;' BNJ *kur-kur pa-* 'to make a noise, stamping around.'

3.627. pNYY **kura* > WLP *kuru.rr.pa* 'cuddling, embrassing ;' KAU *KURO.KARRE-NDI* 'to be ashamed; shy; to blush;' GUP *guura* 'be shy, ashamed.'

3.628. pNY **kura* > WLP *kura.n.pa* 'ear;' PIN *kura.n-pa* 'ear;' PNK *KURI.L.BI* 'grass seed, ear.'

3.629. pNY (D) **kura* > NYA-S *kura.mirnti* 'feed for a young initiate.' -W *kura.mirti* 'food for the initiate ...:' WLP *kura.paka* 'food gifts, ceremonial food, ...:' PIN *kura.paka* 'a ceremonial food gift ....'

3.630. pNY (D) **kura-* > NYA-S *kura-(rn)* 'rub, grind, chafe,' -W *kura-rna* 'to rub; to squash (e.g. a fly); to chafe;' WLP *kura* 'sexual intercourse, copulation, sex .'

3.631. pPN- **kUra* > NYA-W *kuru.warri* 'rainbow;' WLP *kura.ngarra* 'rain Dreaming ;' KAU *KURA.NYE* 'rainbow;' PNK *KURA.NYA* 'rainbow,' *KURE.LLI* 'rainy season, winter;' KLY *kuru.way, KURU.AI* 'rainbow.'

3.632. pPN- (E) **kURa-* > KLY *URA.TI-* 'fall down;' PIT *kurrha-* 'fall,' *kurrha.la-* 'drop.' (pKAR **kurrha-*).

3.633. pPN- **kUra(l)* > PNK *KURA. KURA.NGA* 'behind, after;' KLY *guru.ridh* 'back, spine;' YDN *kurul* 'hump on back.'

3.634. pPN (E) **kUra(l)* > KLY *UR* 'salt-water; sea;' GYA *kural* 'under water;' WOI *GORRO.NG-KI* 'wash.' *KURRE.BULLY* 'clean.'

3.635. pPN **kurim* > NYU *GURI* 'milk from a woman's breast;' UMP *ku'u-ku'un-ji* 'women, erg.;' BNJ *kuruum, kuruum.pil* 'breast, milk.'
Residue: GYA *kuray.kuray* 'milk tree.'

3.636. pYUR **KURKA* > KAU *KURKA* 'kangaroo rat;' PNK *KURKU.LLU* 'bandicoot.'

3.637. pPN **kUrka-* > KAU *KURKE-NDI* 'to swallow;' WEM *ngurka-* 'to swallow.'

3.638. pPN- **kUrku(n)* > KAU *KURKU.RRA* 'boy; lad; youth;' YDN *wurkun* 'pubescent boy.'

3.639. pPN- **kurla* > NYA-W *kurli.ri* 'kneecap, sharpening stone, oilstone;' KLY *kula, KULA* 'stone;' UMP *kul'a* 'money, stone;' WMK *kul'* 'money.'

3.640. pNYY **kurla* > WLP *kurla.ny.pa* 'head-tie, head-string, ...;' BAY *kurli.rr.pi* 'forehead band.'

3.641. pNY **kurla* > PIN *kurlu.ny-pa* 'young person or animal;' KAU *KURLA.KURLA-NDO* 'the youngest child of a family ...;' NYU *kurla.ng(a)* 'child,' *GULA.NG* 'a child of either sex;' NMA *kurlu.kurlu* 'small, little, a small amount, child.' This set may be related to that in (3.648) by the association between 'child' and 'bad' discussed by Evans (1992).
Residue: YAN *kulha.kulha* 'son; sister's son; daughter; sister's daughter.' We would expect YAN to have an apical lateral corresponding to those above.

3.642. pPN **ku(r)la* > WLP *kulu.warri* '*Onychogalea lunata*: Crescent Nailtail Wallaby;' KAU *KURLO* 'the female of a large species of kangaroo;' PNK *KURDLU* 'an animal of the marsupian species;' GUP *gulu.rirri* 'male wallaby;' YAN *ngurlu.ku* 'Nail Tailed Wallaby;' UMP *ula.ku* 'small plain kangaroo or small wallaby;' WMK *ul.ak* 'female wallaby (with child);' BAA *kurlu* 'red kangaroo;' PIT *kuli.pila* 'kangaroo.'

3.643. pNY **ku(r)la* > WLP *kula* 'fast movement, ...;' KAU *KURLAI.TYO* 'quickly; make haste.'

3.644. pPN- **kUrla* > KAU *KURLA* 'afterwards;' KLY *KUL* 'first,' *KULA.I* 'front,' *kula.y* 'ahead (of), abreast (?).' See also (4.196).

3.645. pPN- **kUrla-* > NYA-S *kurlu.rlu* 'ice crack;' PNK *KULA-RRI-TI* 'to crack,

break,' *KULA-TA* 'to sever, cut, break, tear;' GYA *kulu* 'short broken off pipe;' YDN *kula-L* 'break, smash, tear.'

3.646. pPN- **kU(r)la* > NYA-W *kulu.marta* 'two people :' NMA *kurlu.kurlu maru* 'four, several (but low number):' YAN *kularr.kularr* 'few;' GYA *kulur* 'three.'

3.647. pPN- **kU(r)la* > GUP *gurlu.rl'-yu-n* 'to eat a diet of vegetable ... but no meat;' YAN *wula.ji* 'mixture of non-meat food.'

3.648. pPN- **kU(r)la(n)* > NYA-S *kurlu* 'bad, no good, lost,' *kurlu-pi-(n)* 'make a mistake,' -W *kulu-pi-ni* 'to lose,' *kurlu.jartiny* 'bad, useless, worthless:' WLP *kula* 'not, no :' GUP *guli.ny.buma* 'condemn, say something is no good;' GYA *kulun* 'selfish.' See (3.3) for a list of sets exhibiting relationships between 'negative' concepts. This set may be related to that in (3.641) by the association between 'child' and 'bad' discussed by Evans (1992).

3.649. pNY **kurli* > PIN *kurli.ly.purru* 'pine tree type;' PNK *KULLI.NDI* 'stunted sheoak,' *KURDLI* 'sheoak, casuarina;' NYU *kwel* 'sheoak,' *kwela* 'sheoak,' *GULLI* 'a species of Casuarina ... the she-oak.' *KWELA* 'a species of casuarina;' NMA *kurli.pirn* 'ti-tree sp..'

3.650. pPN **ku(r)li* > NYA-S *kuli* 'fighting person,' *kuli.kata* 'poisonous snake (gen.): cheeky person, animal,' -W *kuli* 'a fight; an argument;' WLP *kuli.ny.pa* '... dangerous, belligerant, angry, skillful fighter, ... cheeky, wild,' *kulu, kuli* '... angry, cheeky, ..., fighting, trouble, aggression, ... dangerous;' PIN *kurla.yi* 'snake ...;' YAN *a-kulu.lu* 'Green or Golden Tree Snake (*Dendrelaphis punctulatus*);' WMK *kul* 'angry, wild;' YIM *kuli* 'anger, hatred, angry;' GYA *kuli* 'anger; poison; trouble;' YDN *kuli* 'angry, wild;' WOI *gulu.nung* 'snake;' BAA *kurli.ka* 'angry, wild (with someone).' (pP **kuli*).

3.651. pPN **kUrli* > WLP *kurla.rda* 'spear ;' PIN *kurla.rta* 'generic for the spear thrower type spears;' WOI *wuli.p* 'spear.'

3.652. pPN- **kU(r)li* > PIN *kurli* 'hot ...:' NMA *kurlu* 'hot, warm;' YAN *na-kula.kaya* 'light; flame; lamp.' (pNG **kurlu*). See also (5.399).

3.653. pYUR **KU(R)LI-* > KAU *KURLE-NDI* 'to rub;' PNK *KUDLI-TI* 'to rub, hurt?.'

3.654. pPN **ku(r)li(l)* > WLP *kurlu-(kurlu)* 'good, alright, well, fixed, ...' *kurlu.rr-kurlu.rr.pa* 'lively, healthy, well ;' YAN *kulu.lu* 'true;' YDN *kuli.piti* 'pleasing;' BNJ *kulil* 'lively, active.'

3.655. pPN- **kurlka* > GUP *gurlku* 'lots;' UMP *kulka* 'many, very.'

3.656. pNY **kUrlka* > NYA-S *kurlka* 'ear,' -W *kurlka* 'ear;' WLP *kurlka.rl.ka, kulka.rl.ka* 'cheek, jaw-bone, side of face ...:' PNK *NGULKO* 'cheek;' NMA *kurlka* 'ear.' (pNG **kurlka*).

3.657. pNY **kUrlku* > NYA-S *kurlku.ra* 'hair; bale (of wool),' -W *kurlku.ra* 'wool, fur ...:' NMA *kurlku.ra* '(head) hair, wool ..., fur ....' (pNG **kurlku.ra*).
Residue: WMK *olk* 'head decoration of white cockatoo feathers.'

3.658. pPN- **kurlpa* > PNK *KULBA.RRI* 'three, several;' GUP *gurlpu.rr* 'three;' YIM *kulpu* 'together, in a mass.'

3.659. pNY **kurlpu* > PIN *kurlpu-rnu* 'to follow;' NYU *kurlpu.rli* 'behind, beyond.'

3.660. pPN **ku(r)lu* > NYA-S *kurlu.kuku* 'bronzewing dove,' *kurlu.ru.kiny* 'peaceful dove,' -W *kulu.kuku* 'Diamond-dove or Turtle-dove;' WLP *kurlu.kuku* '*Geopelia cuneata*; Diamond Dove,' *kurlu.raku.raku* '*Phaps chalcoptera*; Common

Bronzewing pigeon,' *kurlu.rnkurru* '... dove sp.; probably the Peaceful Dove;' YAN *a-wulu.marntaya* 'Torres Strait Pigeon (*Deula spilorrhoa*),' *kula.kuku* 'Diamond Dove (*Geopelia cuneata*);' WMK *kol.at* 'Peaceful Dove (*Geopelia placida*);' GYA *kulu.tu* 'dove, small grey;' YDN *kulu.tu* 'peaceful dove;' BGU *kulu.pula, kulu.pulu* 'species of pigeon;' BNJ *wulu.luny* 'wonga pigeon;' BAA *kurla.mpi* 'grey pigeon.'

3.661. pPN- **kUrlu* > NMA *kurlu.kurlu kurntikurnti* 'handsaw;' GYA *kulu.rrin* 'handsaw.' The NMA data available to me do not contain a gloss for *kurntikurnti.*

3.662. pPN- **kUrlu* > BAY *ngurlu.lha.rr* 'frog;' GUP *gurlu.ngkurlkiya* 'tadpole;' WMK *ol.onp* 'frog.'

3.663. pPN- (E) **kUrlu* > YDN *kulu* 'face,' *ngulu* 'face;' PIT *ngurlu* 'forehead.' (pKAR **ngurlu*).

3.664. pPN **kU(r)lu* > NYA-S *kurlu.mapu* 'old people.' -W *kurlu* 'old man or old woman;' YAN *wulu.ngu* 'old;' KLY *kulu.ba-nga* 'old;' BGU *kuli.kiny* 'old;' GUM *kulu.ngkiny* 'old man.' See also (3.515).
Residue: PNK *KULYA* 'old.' PNK apparently has a laminal lateral corresponding to the apicals found in the languages above.

3.665. pPN- **kU(r)lu* > NMA *wulu* 'round stone used for pounding seeds;' GUP *gul'-yu-n* 'pound cycads ...;' YAN *wurlu.rlu* 'sacred stone,' *wurlu.wurlu* 'grinding stone, upper;' WMK *ool* 'stick used for pounding food ....'

3.666. pPN- **kU(r)lu* > NYA-S *kulu-(rn)* 'join together,' -W *kuli-rni* 'to gather together, to sweep into a heap,' *kurlu-rnu* 'to fasten, ... to join together ..., to close ...;' WLP *kuurl.pa* 'constricted, hemmed in, squeezed in ;' KAU *KUDLA* 'alone; separate; one's self;' NYU *WU-LA.NG-ITCH* 'to fasten;' NMA *kulu-ma-lku* 'to join;' YAN *kulu.yurru-ma-ntharra* 'kneading together; mixing together.'

3.667. pPN **ku(r)lu(n/y)* > NYA-S *kulu.wa* 'winter rain,' -W *kulu.wa* 'cloud (with or without rain) ...;' WLP *wulu.rarri-wulu.rarri* 'long thin clouds, streaky clouds ;' PIN *kulu.wa* 'term for an extended period of rain;' KAU *KUDLE-NDI* 'to wash: clean.' *KUDLI.LLA* 'rainy season: winter;' PNK *KUDLA* 'well [water].' *KULA.LYE* 'wet.' *KULA.RRA* 'sweat, perspiration;' GUP *gula.ng* 'blood,' *gurlu.n'.kurlu.n* 'puddles, swampy area;' KLY *kulu.ka* 'blood.' *ula.y-nga. ULA.I* 'wet;' WMK *kol kol kol* 'sloshing around (e.g. of water or another liquid being jiggled in a cup),' *ngul (thanan)* 'white storm clouds ...;' YDN *kuli.yuru(l)* 'medicine water;' BNJ *kuluuy* 'beer.' *kuluy* 'grog;' GUM *kuluun* 'rain.' *kuluy* 'alcohol;' WEM *kulai.a-* 'to be wet;' BAA *kurlu.rru* 'wave (in river);' DIY *kurli.kidi* 'clean.' (pCK **kurlirrka-*).

3.668. pPN **ku(r)lV* > NYA-W *kulu.para* 'a rockhole;' BAY *kurla* 'hollow tree;' UMP *ulu.lu* 'hollow - of tree;' WMK *ol.ot* 'hollow log;' YDN *wula* 'mouth of snake;' BNJ *kulii, kuluny* 'hole.' *kulu.y* 'hole in ground;' BAA *kula* 'hollow (tree).' *wuli* 'hole.' A relationship between 'hole' and 'mouth' is also found in (3.140) and in (3.785), which contains the polysemous KLY form *GUD(A)* 'an opening, hole, mouth, doorway ....'

3.669. pNYY **ku(r)lV* > NYA-W *kurlu.rr* 'testicles;' WLP *kurlu.rr.pa, ngurlu.rr.pa* 'testicle, testes ...;' PIN *kurlu.rr-pa* 'testes;' BAY *kuli* 'penis.'

3.670. pPN (E) **kuu(r)lV* > YAN *ngurli.ngurli* 'emaciated; bony; poor, of ground;' UMP *uulu* 'in *muji uulu* 'backbone' and *tali uulu* 'shin';' WMK *ngul* 'bottom tip of breastbone;' GUM *kuluu.rra* 'bone.'
Residue: YAN *nta-ngulya.nta* 'bone, your.' This form has a laminal lateral, while the YAN form above has an apical one. There is no evidence that UMP *-l-* is an intervocalic reflex of **-ly-*; hence, this YAN form is classified as residue.

3.671. pPN- **kUrlV* > NYU *kurl-* 'go,' *kurli.ny* 'to travel, to go/come;' KLY *ULAI-* 'go along.'

3.672. pPN- **kUrlV* > PNK *KULLI.LLI* '... a variety of eatable grubs;' YAN *kurlu.l* '... Wichetty Grub.'

3.673. pPN **kU(r)lV* > PIN *kulu.ngka* 'afraid,' *kulu.warr-pa* 'avoidance ... one who is in avoidance relationship ...:' KAU *KUDLA.YURLO* 'quiet; peaceable:' PNK *KUDLI.RIT-TI* 'to be silent, sullen:' NYU *GULU.MBURIN* 'being shy or timid:' YAN *kurlu.kurlu* 'tamed; subdued; pensive;' WEM *kuli.ngula-* 'to feel shy,' *kuli.nya-* 'to dislike someone;' WOI *wula.nin* 'ashamed, shy.'

3.674. pPN- **kU(r)lV* > NYA-W *kula.ra* 'southwest;' WLP *kurla-rni* 'south ...:' NMA *wulu.ju* 'south;' DYI *kuli.ny* 'east.' (pNG **wurlu.ju*). Changes in meaning for compass directions are discussed in Breen (1993).

3.675. pPN- **kU(r)lV* > NYA-S *kurla.ki.ki* 'central knob-tailed ghecko,' *kurla.manu* 'frilled lizard,' -W *kula.kiki* 'a small harmless lizard ...,' *kula.marnu* 'Frilled Lizard;' WLP *kurlu.parri* '*Ctenophorus isolepis*: Military Dragon;' NYU *KULI.NDA* 'the young of the ... long-tailed tree Iguana;' BAY *kuli.parra, kuli.pata* 'small lizard sp..' *kurli.parra* 'lizard;' YAN *a-kula.ngku.nya* 'Blue Tongue Lizard (*Tiliqua scinoides*).' (pKAN **kuliparra*).

3.676. pPN- **kU(r)lV(y)* > WLP *kurla.kurla* 'mating behaviour, chasing after for sex ;' PIN *kurla.kurla* 'a promiscuous male ...:' YAN *kuli.kuli* 'person desirerous for sexual companionship; indivudual who makes themselves sexually desirerous; sexy;' GYA *kulay* 'one who commits adultery.'

3.677. pPN (E) **kUrna* > WMK *kon* 'ear;' WOI *KURNA.GAR* 'earlobe.'

3.678. pPN **kU(r)na* > NYA-S *kuna.rri* 'eel;' PIN *kuna.tawun-pa* 'type of snake,' *kuni.ya* 'a large black snake;' GUP *gunu.ngu'* 'large snake ...,' *gurni.ny.miya* 'yellow, white and black carpet snake;' WEM *kurn.wil* 'black snake; also snake in general.'

3.679. pPN- **kU(r)na* > PNK *KUNNU.RRU* 'of dark colour, brown;' NMA *kurna* 'charcoal (used as a pigment), burnt country ;' BAY *kurna.ngu* 'dark-skinned, dark fellow;' GUP *gurna.ng'* 'night time or early in the morning while still dark;' GYA *kuna.rangkal* 'middle of the night;' PIT *kuni.yipa* 'shade.'

3.680. PPN- **kU(r)na* > WLP *ngurn.ngurn.pa* '*Onychogalea unguifera*: Northern Nailtail Wallaby;' PNK *KUNNA* 'a species of kangaroo;' YAN *wuna.la* 'terrestial mammal (generic); kangaroo (generic); wallaby (generic) ....'

3.681. pPN **kU(r)nang* > NYA-W *kuna.rl.kuna* 'wet;' PNK *KUNNU.RRI-TI* 'to be wet;' WOI *gurnung* 'river, creek.'

3.682. pPN- **ku(r)ni* > NYA-S *kurni* 'from the south,' -W *kurni* 'from the south;' DIY *kuna.n.ka.rri* 'south.'

3.683. pPN- **kUrni* > NYU *KURNI* 'a species of frog;' YDN *kuna.mpa* 'tadpole.'

3.684. pPN- **kU(r)ni* > WLP *ngurnu.rru* 'hairstring, string, ties;' PNK *KURNI* 'hair, fur;' PIT *kuni.ri* 'hair.'

3.685. pPN- **kU(r)ni* > NYA-W *kurnu* 'curled up; clenched (of fist);' PNK *KURNU.NNU* 'elbow;' NMA *kurni* 'bent, doubled, coiled - as snake;' YAN *kunu.ntuwaru* 'bent; stooped.' See set (3.220) for a discussion of the relationship between 'elbow' and 'bent.' This set may be related to that in (3.699).

3.686. pPN- **kUrnka* > NYU *kurnka.rr* 'perspiration;' BAA *kurnku* 'wet.'

3.687. pPN- **kU(r)nka* > NYA-S *kunka* 'raw meat ...,' -W *kunka* 'raw, uncooked; unripe, ...;' PIN *kurnka* 'not cooked, not ripe, raw;' YDN *kunka* 'raw, uncooked, alive;' DYI *kunka* 'raw, alive;' BGU *kunka* 'raw, unripe, green.'

3.688. pPN **kU(r)nku* > NYA-S *kunku.rr* 'phlegm,' -W *kunku.rr* 'influenza, "cold-sick;" phlegm;' WLP *kuurnku* 'throb, pain, ache ;' BAA *kunku-* 'to cough,' *kunku.ku* 'cold, 'flu'.'

3.689. pPN- **kUrnma-* > NYA-S *wurnma-(ny)* 'break;' YAN *wurnma-ntharra* 'bursting open of a boil; exploding of a bullet; unfolding of a flower; ...;' BGU *kunma-* 'to break, to hurt.'

3.690. pNY (D) **ku(r)npu* > NYA-S *kurnpu.nga* 'red of dawn.' -W *kunpu.lu* 'blood;' WLP *kunpu.rlu* 'congealed blood, ...'
Residue: PIN *kunpa.raji, kurnpa.raji* 'fire, heat, firewood.'

3.691. pNY **ku(r)nta* > NYA-S *kurnta.ny* 'shy,' *kurnta.ny-ji-* 'embarrass,' -W *kurnta.ny* 'shy, embarrassed, ashamed; shameful;' WLP *kurnta* 'shame, ... shyness, embarrassment ...;' PIN *kunta* 'shy, respectful;' NYU *kurnta.ny* 'shy, bashful;' NMA *kurnta-ku* 'to be ashamed.'

3.692. pPN- **kUrnta* > GUP *gurnda* 'rock, stone, money;' WMK *kunt.ow* 'stone, rock.'

3.693. pPN **kU(r)nta* > NYU *KUNDA.RNANGUR* 'to thunder; to rend the clouds;' GUP *gundu.r-yu-n* 'growl, grumble;' WOI *ngurnda.bil* 'thunder.'

3.694. pPN- **ku(r)nti(l)* > NYA-W *kuntu.nu* 'yolk of egg;' WLP *kuntu* 'core, inner core, ...' *kuntu.ru* 'egg yoke, core, marrow;' KAU *KUNTO-NDI* 'to wash.' *KUNTO.RO* 'rain;' NMA *kurntu* 'brain.' *kurntu.ly.kurntu.ly* 'stirred up, agitated - of water;' YIM *kuntil* 'egg;' PIT *kunti.ya* 'damp ground.'
Residue: GYA *kurnta-l* 'sink in mud or water.'

3.695. pPN **kuurntin* > WLP *kurnti.rr.pa, kurntu.rr.pa* 'hair of dead person;' BNJ *kuuntun* 'hair of head.'

3.696. pPN **kurnti(R)* > NYU *kwernt, kurnti, kwernta* 'southern brown bandicoot;' BNJ *kuntur* 'rodent; rat; mouse.'

3.697. pNYY **ku(r)nturru* > WLP *kurnturru* 'sky, heavens;' GUP *gundurru* 'sky.' See also (3.586).

3.698. pPN **kU(r)ntV* > NYA-S *kurnta.l* 'daughter.' -W *kunta.l-kunta.l* 'daughters (?) (sons ?);' NMA *kurnta.l* 'daughter;' BAY *kurnta.l* 'daughter;' WOI *gundi.lang* 'son.' (pNG **kurntal*, pKAN **kurntal*).

3.699. pPN- (E) **kUrnu* > KLY *kunu.ma-n* 'tie, join (string),' *KUNU.MI* 'tie up;' GYA *kuna-* 'to be joined;' DIY *kurnu* 'one.' (pCK **kurnu*). This set may be related to that in (3.685).
Residue: WLP *kurnju.kurnju* 'twisted around, entwined, tied .'

3.700. pPN- **kUrnV* > WLP *ngurnu.rr-ngurnu.rr.pa* 'solid, firm, hard;' YAN *nta-kurni.ngarr* 'breast bone, your; collar bone, your;' KLY *KUNA.KAN* 'strong, hard.' *kuna.kan-nga* 'hard;' WMK *koon.anth* 'bone.'

3.701. pPN **kU(r)nV* > NYA-S *kurna-(ny)* 'swallow,' *kurni-(rn)* 'choke.' -W *kuna.n.kuna.n* 'throat.' *kurni-nyi* 'to choke (intr.); to swallow;' NYU *GUNI.DI* 'the swallow, or passage of the throat;' WEM *kurn* 'throat;' WOI *gurn* 'neck front.' See (3.130) and (4.194) for further evidence of a relationship between 'throat' or 'neck' and 'swallow.'

3.702. pP **kUrpa* > GYA *kurmpa-kurmpa* 'slippery lizard ...;' YDN *kurpa.pa* 'lizard sp..'

3.703. pPN- **kurra* > WLP *kurdu* 'child, baby, young, ...;' GUP *gurri.ri* 'short,' *gurru.rlk* 'baby (12-18 months);' YDN *kurran* 'long.' This set may be related to that in (3.756) by the association between 'child' and 'bad' discussed by Evans (1992).

Residue: NYU *GORA.D* 'short; stunted.' The quality of the WJK rhotic is not clear.

3.704. pNY **kurra* > PIN *kurru.kutu.rri-ngu* 'to become visible to other eyes;' PNK *KURA. KURA.LYE* 'visible, in sight.'

3.705. pNY **kurra* > PIN *kurra.ngara-ngu* 'to prohibit the performance of a corroboree;' KAU *KURE.TI* 'no song; don't sing; be silent.'

3.706. pPN **kUrra* > NYA-W *kurra.la.kurra.la* 'a black-and-white bird (may be Butcher bird);' KAU *KURRA.KA* 'native magpie;' PNK *KURRA* 'magpie;' GUP *gurru.martci* 'magpie geese;' WMK *ko'.an* 'Magpie or Pied Goose (*Anseranas semipalmata*);' WEM *kurru.luk* 'black-backed magpie.'

3.707. pPN **kUrra* > NYA-W *kurru.ngka.rli* '"buck" spinifex .... *Triodia*;' WLP *kurra.ly.pa* '.... green grass, green growth;' PNK *KURA.KKA* 'young, green;' WOI *KORRAN.GORRAN.GEET* 'green.'

3.708. pPN **kUrra* > NYA-S *kurri.ny* 'quickly;' WLP *wurru.rru* 'quick(ly), ... fast, vigorous(ly), ...;' PIN *kurra.ny.ku* 'fast; quickly;' GUM *kurru.pi, kurru.pi.li* 'quickly.'

3.709. pPN- **kUrra* > WLP *kurru.ru* 'giddy, dizzy, ...;' PNK *KURRU.KKU-TU* 'to be giddy, stupid;' PIT *kurrha.tingakana-* 'be giddy.'

3.710. pPN- **kUrra* > GUP *guurra.ng* 'few, little, not much, not many;' WMK *ko'.alam* 'three, few.'

3.711. pPN- (E) **kUrra* > YAN *nta-kurru.rru* 'backbone, your; spine, your;' BGU *kurra* 'back, behind.'

3.712. pPN **kUrra-* > WLP *wurra, wirra* 'still, nevertheless, continue,

momentarily, hold on, wait, not yet;' PIN *wurra* 'wait a minute;' WMK *ko'.ang-an* 'wait;' WOI *gurra.gu-* 'stop, wait.'

3.713. pPN- **kUrra-* > WLP *ngurru.ny.pa* 'language, story, news, speech, word, message, talk, conversation;' UMP *kuu'a.la-* 'say;' YIM *kurra-l* 'say, tell, CAUS;' YDN *kurru.nU/a* 'language, news.'

3.714. pPN **kUrra(n)* > GUP *gurr.kurr* 'sinews, veins, physical strength;' KLY *URU* 'rope; lashing,' *uru* 'rope;' GYA *ngurran* 'rope, also dilly bag made from rope;' YDN *wurra* 'tendon, sinew, gristle;' BAA *kuurra.nya* 'muscles.'

3.715. pPN- **kUrra(n)* > NYU *KURRA.NG* 'the grub of the ... *Acacia Greyana*;' GYA *kurran* 'kind of grub.'

3.716. pPN **kUrri* > WLP *kurru.njuru* 'red ochre;' WOI *wurra.p* 'red ochre;' PIT *kurrhi* 'red ochre.'

3.717. pPN- **kUrri* > NYA-S *kurri* 'young woman who has not yet had children;' NYU *kurri* 'unmarried woman, girl;' NMA *kurri* 'adolescent girl ...;' YAN *a-wurru.mparra* 'girl, adolescent.'
Residue: NYA-W *kuri* 'young woman, unmarried.' We would expect to find *-rr-* in this form.

3.718. pP **kUrri(l)-kurri(l)* > GYA *kurri-kurri* 'storm bird; giant mythical bird ...;' DYI *kurril.ngurril* 'a storm bird.'

3.719. pPN (E) **kurrin* > KLY *KURU. KOR(U)* 'angle, corner, ...;' GYA *kurru-kurru* 'crooked, wrong;' BNJ *kurin* 'elbow;' GUM *kurrii* 'elbow;' WOI *gurrun* 'elbow.'
See set (3.220) for a discussion of the relationship between 'elbow' and 'crooked.'

3.720. pNYY **kurrjarta* > NMA *kurrjarta* 'spear, spear shaft;' BAY *kurrja.rta*

'spear.' (pNG **kurrja.rta*, pKAN **kurrjarta*). Borrowing may be a factor in this set.

3.721. pNY (D) **kurrka-* > NYA-S *kurrka.nga-(ny)* 'wait for fire to die down:' PIN *kurrka.l-pa* 'dry firewood.' *kurrka.lju-nu* 'to build and prepare a fire.'

3.722. pPN **kUrrka* > PIN *ngurrka* 'blood;' PNK *NGURKO* 'sap;' WEM *kurrk* 'blood:' WOI *gurrk* 'blood.'

3.723. pPN- **kUrrka* > BAY *wurrka.l* 'throat;' YDN *kurrka* 'neck;' BGU *kurrka* 'neck.'

3.724. pPN- **kUrrka* > NYA-S *wurrka.rn* 'skink lizard,' -W *wurrka.rn* 'a lizard ...;' WLP *kurrka.rdi* '*Varanus gouldii*; Gould's Monitor, goanna;' PIN *kurrka.rti* 'Sand goanna;' YDN *kurrku.tay* 'water goanna.'

3.725. pPN (E) **kUrrka* > GYA *kurrka-juri* 'a fight between two men over a woman;' WEM *-kurrk* 'woman.'

3.726. pPN- **kUrrkurr* > NYA-S *kurrkurr* 'boobook owl.' -W *kurrkurr* 'Rufous Owl;' WLP *kuurrkuu.rr.pa* '*Ninox novaeseelandiae*; Southern Boobook;' PNK *KURKO* 'a species of owl;' NYU *GURGU.RDA* '... little brown or cuckoo owl:' NMA *kurrku.marlu* 'mopoke; call: mupuk;' YAN *kurrkurr* 'Barn Owl (*Tyto alba*);' GYA *ngurrku* 'mopoke, owl ...;' BGU *kurrkurr* 'mopoke ....'

3.727. pNYY **kurrpa* > NYA-S *kurrpa.rn.ji* 'black-backed magpie.' *kurrpa.rtu.tu* 'black-throated butcher bird,' -W *kurrpa.ru, kurrpa.rtu.rtu* 'Butcher Bird;' WLP *kurrpa.ru, kurrpu.rla.rdi, kurrpu.rla.rdu, ngurrpu.rlu.ngurrpu.rlu* '*Gymnorhina tibicen*; Australian Magpie;' NYU *GURBI.T.GURBI.T* '*Flacunculus leucogaster*; Thick-billed butcher-bird;' NMA *kurrpa.ru* 'butcher bird;' BAY *kurrpa.ka.ru* 'magpie,' *kurrpa.ru* 'butcher bird.' (pKAN **kurrpangkaru*).
Residue: YAN *a-kurrpa.rn.ku* 'Little Black Comorant (*Phalacrocorax sulcirostris*).'

3.728. pPN- **kUrrpa-* > WLP *kurrpa-rni* 'interrupt, talk over, confuse, drown out :' DYI *wurrpa-y* 'say, speak, talk.'

3.729. pP **kUrrpal* > GYA *kurrpal* 'plain turkey ...:' YDN *kurrpul* 'turkey.'

3.730. pPN (E) **kurrpang* > GYA *ngurrpan* 'cloud:' BNJ *kurpuung, kurpung* 'cloud.'

3.731. pPN- **kUrrpa(rr)* > BAY *kurrpa.rtu, kutpa.rtu* 'bone:' DYI *wurrmpurr* 'bone.' (pKAN **kurrpartu*).

3.732. pNY **kurrpi-* > PIN *kurrpi-rnu* 'to sprinkle with water ...:' PNK *KURPA-TA* 'to sprinkle with water.'

3.733. pPN **kurru* > KAU *WORRA* 'sand:' BAY *kurru.lyu* 'gravel:' YAN *wurru* 'sand; beach:' UMP *wurru.n.pi* 'white sandhill on coast;' WEM *kurrə.k* 'sand.'

3.734. pNYY **kurru* > PIN *kurru.nta.ju-nu* 'to ceremonially touch men's chests with a bunch of emu feathers:' BAY *kurru* 'emu feather.'

3.735. pNYY **kurru* > NYA-W *kurru* 'quill of porcupine;' BAY *kurri.ya* 'quill of porcupine.'

3.736. pNY **kurru* > WLP *kuurr.pa* 'on top of ;' KAU *KURO* 'the crown of the head; vertex;' PNK *KURRO.ALLA* 'crown of the head, vertex.'
Residue: UMP *uu'u* 'forehead.'

3.737. pNY **kurru* > PIN *kurru.mpa.ri* 'ground tunnel; rabbit burrow ...;' GUP *gurru.rlurlnyin* 'hole in ground, rectum,' *gurru.wulupulu* 'valley, area with many valleys.'

3.738. pNY **kurru* > WLP *kurru.rdu-kurru.rdu* 'shaking, nodding, jerking;' NMA

kurru.ly.kurru.ly.ma-lku 'to shake it on - as salt.'

3.739. pPN **kUrru* > NYA-S *kurru.n* 'bad smell,' -W *kurru.n* 'scent (e.g. of body); smell (not unpleasant);' YAN *wurru.ngka-yarra* 'smell, giving of: scent, having a: odour, having an:' WEM *wurrə.ja-* 'to sniff, to scent.' *wurrə.juk* 'the smell of (his) perspiration.'
Residue: GUM *kuru.pa-* 'smell.' GUM has a different rhotic than the languages above.

3.740. pPN- **kUrru* > WLP *kurru.rru* 'angry, fuming, in a rage, smoldering;' GUP *gurru.rtu.miriw* 'selfish:' YAN *ngurru.ngurr-ma-ntharra* 'angry, becoming ...;' GYA *kurru-jintal* 'complain.'

3.741. pPN- **kUrru* > WLP *kurru* 'spirit ;' PIN *kurru.n-pa* 'a person's spirit.' *kurru.wal-pa* 'an evil spirit ...;' YAN *a-kurri.nya* 'female spirit.'

3.742. pPN- **kUrru* > PNK *KURRU* 'stick, poker, tube, flute;' YDN *wurru* 'stick.'

3.743. pPN **kUrru-* > GUP *gurru.pa-n* 'give:' WOI *GO-RO-NET* 'give.'

3.744. pPN **kurrV* > NYA-S *wurru.karra* 'everything;' WLP *wurru.junjarnirri ?* '.... many, lot;' PIN *kurra.rl.ka* 'long time back,' *kurra.rl.ka.janu* 'from long ago, or old person;' NYU *GURA.GOR* 'old; aged;' BAY *wurra.yi* 'many; four;' GUP *wuurru.ngu* 'old;' YAN *wurra.ma* 'influential person; authority, of ceremony/food/animals/objects,' *wurri.rri* 'big; great; important; adult; mature:' UMP *wu'u.mathim* 'all sorts of,' *wurru.nthi* 'over a long period;' WOI *wurr-wurr* 'big,' *wurr.diyalyal* 'many.' (pKAN **wurrayi*). Corroboration for a relationship between 'big' and 'many' is found in (3.110), (3.281), (3.565) and in the KAU form *WITTE* 'large; much; quick; very; ably.'
Residue: WMK *wuut* 'male, old man.'

3.745. pPN (E) **kurrV* > UMP *ku'i* 'fat, grease;' WEM *kurra.juk* '(his) fat (other than kidney fat).'

3.746. pPN **kUrrV* > WLP *kurru.ly.pa* 'cover, hide .' *wurru* 'hidden, concealed, stealth ;' YAN *kurra-ma-ntharra* 'burying; covering with earth ...;' KLY *URA.DAI-* 'cover over, hide;' BAA *kuurri-pa-* 'to hide (an object), to conceal something;' DIY *kurru.kurru* 'secret.' (pCK **kurrukurru*).
Residue: PIN *kuti.ju-nu* 'to conceal.'

3.747. pPN **kUrrV* > PIN *kurra.ri* 'a younger wife's mother's brother's son;' WEM *kurri* 'cousin (male or female).'

3.748. pPN- **kUrrV* > NYA-W *kurri.ri.kurri.ri* 'a long-billed seabird;' GYA *kurra.ntay* 'seagull.'
Residue: GUP *gurdi.rdi* 'sp. small sea bird.'

3.749. pPN- **kUrrV* > GUP *gurru.cucu* 'hawk;' DYI *kurri.jala* 'eagle-hawk.' *kurru.ngkul* 'meat hawk;' PIT *kurrhi.thala* 'eaglehawk.'

3.750. pPN- **kUrrV* > WLP *wurru.mpu.ru* 'lance, stabbing spear;' PIN *wurru.mpu.ru* 'spear type;' BAY *kurra.patha-L-* 'spear;' GYA *kurra.jan* 'a spear point ....'
Residue: NYU *kurti.jiny* 'spearing, throwing.'

3.751. pPN- **kUrrV* > PNK *KURRU.NNU* 'all;' NMA *ngurra.warnturala* 'everywhere, all over;' BGU *kurru* 'all, completely.'

3.752. pPN- **kUrrV* > NYA-W *kurri.kurri* 'Pleiades ("Seven Sisters");' NMA *kurri.kurri* 'Seven Sisters;' GYA *kurru.pijal* 'morning star.' (pNG **kurri.kurri*).

3.753. pPN (E) **kUrrV* > YDN *kurri.liy* 'black-nosed wallaby;' WEM *kurrə* 'grey

kangaroo.'

3.754. pPN **KUR(R)V* > PNK *KURA-TA* 'to bore, dig a well in the sand ....' *KURA.LLA* 'a well dug in sand or gravel;' NYU *NGURA* 'a small lake or basin of water: a native well;' WOI *KOR-RUM-DIN-IN* 'well.'

3.755. pPN (E) **kUrrV(l/y)* > YDN *kurril* '*Stenocarpus reticulatus* or *S. sinuatus*. silky oak;' DYI *kurray* 'red oak;' GUM *wurruu.ngaka* 'salt water oak tree.'

3.756. pPN **kurrV(m/r)* > WLP *kuurr.pa* 'aching, paining ;' PIN *kurra* 'bad. wrong, broken, no good ....' *kurra.nyma-nu* 'to malign;' GUP *gurru.purungu* 'poor thing;' BNJ *kuriir* 'bad news;' GUM *kurraam* 'poor, miserable, unfortunate;' WOI *wurra.ngrrangga* 'poor fellow.' See (3.3) for a list of sets exhibiting relationships between 'negative' concepts. This set may be related to that in (3.703) by the association between 'child' and 'bad' discussed by Evans (1992).

3.757. pPN **kUrrV(n/ny)* > KAU *KURRO-NDI* 'to blow; applied to wind;' GUP *gurra.wart-thu-n* 'sweep, kick up dust when walking;' YAN *kurru.mpirripirri* 'dust storm ...;' GUM *kurriin* 'wind:' WOI *gurriny* 'wind;' BAA *kuurra.purtu* 'whirlwind.'
Residue: BAY *kurta.ngara* 'whirlwind.'

3.758. pPN- **kUrrV(ny)* > KAU *KURRU.TTA* 'sneezing;' BAY *kurri.nka-Y-* 'to sneeze;' YDN *kurruny* 'nasal mucus, snot.'

3.759. pPN- **kurta* > NYA-W *kurtu.rtu* 'puppy (of dogs or dingoes);' UMP *ku'a.ka* 'dog;' WMK *ku'* 'dog;' YIM *kutaa* 'dog;' YDN *kuta.ka* 'tame dingo, dog;' DYI *kuta* 'dog.' (pP **kuta(ka)*).

3.760. pNYY **kurta-* > NYA-S *kurta-(rn)* 'come here; fly away;' BAY *kurta.yi-L-*. *kurta.ya-L-* 'fly; take flight.'

3.761. pNYY **ku(r)ta* > NYA-S *kurta.n* 'bag,' *kurti.ny* 'sheet of bark,' -W *kurta.n* 'bag, sacking,' *kurti.ny* 'bark carry-all;' WLP *kurta* 'skin, ..., shell .... bark ..., peel ...:' NYU *kut, kutu, kuta* 'skin bag,' *GOTO* 'bag,' *GUNDI.R* 'a bag of kangaroo skin ...:' NMA *kurta.rn* 'bag-like net ...:' BAY *kurntu.ra* 'skin.' *kurta.n* 'dilly bag.' (pKAN **kurnturu*).

3.762. pNY **ku(r)ta* > PIN *kutu.ngurlu* 'workers ... also used of young kangaroos:' KAU *KUNDA* 'brush kangaroo,' *KURTA.KKA* 'a young kangaroo.'

3.763. pPN- **kUrta* > NYA-S *kurti.nyurra* 'very dark turbulent rain clouds.' -W *kurti.nyurra* 'a line squall cloud ...:' NMA *kurti.nyirri* 'a bank of large storm clouds:' YDN *nguta* 'cloud.'

3.764. pPN- **kUrta* > PNK *KUTTA* 'not, no;' BAY *kurta* 'not, don't; no;' YAN *kurta.rti* 'no; not; none; nothing; not any more.' (pKAN **kurta*).

3.765. pPN **kU(r)ta* > NYA-S *kurta.rarra* 'two brothers;' PIN *kurta* 'older brother ... also ... one's uncle's children;' NYU *ngunt, ngunta.n, ngunta* '(elder) brother;' BAY *kurta* 'older brother;' WOI *wurndu.lung* 'older brother;' BAA *ngunta.ja* 'brother-in-law.'

3.766. pPN- **kU(r)ta* > PIN *kuntu.rru* 'eagle type ...:' NYU *kuta.p* 'little eagle.' *GUDA.P* '... short tailed brown eagle;' DIY *kurda.kurda* 'night hawk.'

3.767. pPN- **kU(r)ta* > PIN *kutu.n-pa* 'sleep;' YAN *kurta.kurta* 'asleep, soundly;' KLY *UTUI-* 'sleep.'

3.768. pPN- **kUrtarr* > NYA-S *kurturr* 'brolga,' -W *kurturr* 'brolga or native companion;' GUP *gurdurr.ku* 'brolga;' YAN *kurtarr.ku* 'Brolga (*Grus rubicunda*).'

3.769. pPN **kUrti* > WLP *kurtu.rdu.rru* 'heart;' PIN *kurtu.rtu* 'heart;' NYU *kurt,*

kurtu 'heart,' *GURDĂ.K* 'of or belonging to the heart; anxious for; desirous of,' *GURDU* 'the heart;' NMA *kurtu.rn.kurtu.rn.marri-ku* 'to pant, beat hard - of heart;' GUM *kuti* 'sweetheart ... spouse, sweetheart, marriageable girl.'

3.770. pPN- **kU(r)ti* > WLP *kutu.kutu* 'without family, ... alone, ... friendless:' BGU *kurtu.ny* 'alone, on one's own.'
Residue: BAY *kurri.ka* 'one, alone, only.'

3.771. pPN **ku(r)ti(y)* > NMA *kunti-ku* 'to reject, ..., to refuse, to quit, ... leave:' GUP *gurt.kurt* 'angry; signal for trouble;' BNJ *kuntuuy* 'spiteful, disagreeable;' WEM *kurtə.ma-* 'to scold, to complain.'

3.772. pPN **kUrtu* > KAU *KUNDO* 'chest; breast;' NYU *ngornt, ngurnta, ngurntu* 'chest,' *ngurnt* 'chest (part of the body),' *KUNDU* 'the chest;' NMA *kurntu* 'milk;' BAY *kurntu* 'breast; milk (human or cow's);' GUM *ngutuum* 'breast, breastmilk.' (pNG **kurntu*, pKAN **kurntu*).

3.773. pPN **kUrtu* > WLP *kurdu* 'inside, into, under;' GUP *guurdu* 'the inside of something, ...;' WOI *kundu.i* 'under.'

3.774. pPN **kurtV* > YAN *nta-kurta.ntiya* 'erect penis, your;' KLY *KUT(A)* 'the end, extremity of anything ...;' UMP *kuti* 'stern of canoe;' BAA *kunta.rra* 'tail (of animal), also penis.' *kuti* 'the butt of the tail;' PIT *kurta.rrha* 'male (of animals).'

3.775. pNY **kurtV* > NYA-W *kurta.rr.kurta.rr* 'tattered, torn;' KAU *KURTU.RE-NDI* 'to be or look sad, sorry, dejected;' NMA *kurta.mpa.ra* 'sour, old, off color - of meat .'

3.776. pPN **kurtV-* > GUP *gurda.ny.gu-ma* 'try very hard and persist;' BNJ *kunti-* 'to try (for some obvious reason).'

3.777. pPN **ku(r)tV* > NYA-S *kurta-pi-(n)* 'chop into small pieces,' -W *kurta-pi-ni* 'to sever; to cut ...;' PIN *kunta-rnu* 'to cut with an instrument;' KAU *KUNDA-NDI* 'to strike; beat; fight; kill; to cut;' PNK *KUNDA-TA* 'to strike, beat, kill;' BAY *kurnti* 'cut;' GUP *gurt-thu-n* 'chop;' YIM *kunta-l* 'hit, kill;' YDN *kunta-L* 'cut;' WEM *kuta.iəla-* 'to shear.'
Residue: PIT *kurri-* 'cut.'

3.778. pPN- (E) **kuurtV* > UMP *nguuti.ntha* 'umbilical cord;' WMK *kuut.an* 'umbilical cord;' PIT *kurtu* 'umbilical cord.'

3.779. pPN- **kUrtV* > NYA-S *kurti.paka-(rn)* 'look back;' WLP *kurnti.ly.pa ?* 'back, around;' KAU *WORTA* 'that which is behind,' *WORTA.RA* 'behind; after;' PNK *KURTA* 'posterior;' GYA *kuta.muntu* 'behind, last.'

3.780. pPN- **kUrtV* > NYA-W *kurntu.rr* 'dust, powder; muddiness (in water) ...;' WLP *kurda.ly.pa* 'pile of dirt;' NMA *kurntu.rr* 'dust;' BAY *wurtu.rra* 'dust;' KLY *UDU.MA* 'dirt.' (pKAN **wurtura*).

3.781. pPN- **kUrtV* > NMA *kurta* 'knowing, wise, ...;' YAN *kurti.rringu* 'individual of high intelligence ...;' KLY *KUTI.N* 'a pencil; wisdom.'

3.782. pPN **kU(r)tV* > WLP *kuta.ngi, kurta.ngi, kuta.ngka, kuta.ngu* '*Rattus villosissimus*?; Long-haired Rat;' NYU *KUDI* 'a species of marsupial rat ... Bandicoot;' NMA *kurti* 'reddish mouse ...;' YAN *kuti.ngi* 'Bandicoot species (*Isoodon sp*);' WMK *kut* 'bandicoot;' YDN *kutu.pur* 'stinking rat;' BAA *kurti* 'red raddle, bilby, rabbit-eared bandicoot.'

3.783. pPN- **kU(r)tV* > NYA-S *kutu* 'dead,' -W *kutu* '"the deceased;" a term necessarily used to refer to a dead person ...;' WLP *kurntu* 'inner ... part of tree, ...; core, ...; life-force, spirit, soul;' PIN *kuurti* 'spirit;' NYU *GWARDO* 'to throw; to

cast; to fall; to die;' NMA *kurtu* 'spirit;' YAN *kurta.n* 'dead,' *nta-wurtu.lu* 'life spirit, your; heart beat, your; pulse, your.'

3.784. pPN- **kU(r)tV* > WLP *kutu.ru* 'club, nulla-nulla, fighting stick;' PIN *kurnti* 'short nulla nulla or hitting stick ...;' PNK *KUNDI* 'throwing stick;' NYU *kunti* 'hitting stick, magic stick;' YAN *kunta.rurru* 'long stick; mast; sail,' *wurnta* 'tree (generic); wood; stick; splinter.'

3.785. pPN- **kU(r)tV* > NYU *kont, konta* 'cave;' KLY *GUD(A)* 'an opening, hole, mouth, doorway ...,' *guuda* 'mouth;' BGU *kurti.pakal, kurti.pala* 'deep;' DIY *kurdu* 'hole in ground.'

3.786. pPN- **kUru* > WLP *kuru* 'in one place ;' KLY *ura.pun, URA.PUN* 'one;' DIY *nguru* 'one day beyond;' PIT *nguru.irri* 'different,' *nguru.ru* 'one.'

3.787. pPN (E) **kUru* > KLY *KURU.P* 'the rock cod (*Serramus crapao*);' WEM *kuru.merruk* 'a very big Murray cod.'

3.788. pPN (E) **kUru* > KLY *kuru.thu.ma-n* 'scratch,' *kuru.thu.mi* 'itch;' YDN *kuru.ngka* 'scrub-itch;' WEM *kurə.ma-* 'to scratch slowly so as to relieve an itch.'

3.789. pPN- **kuru(n)* > NYA-S *kuru.rr* 'pupil of eye; food,' -W *kuru.rr* 'pupil of eye;' WLP *kurlu* 'pupil, iris ;' PIN *kuru* 'eye;' NMA *kuru* 'grass seeds ..., spinifex seeds,' *kuru.rr* 'eyeball;' BAY *kuru* 'eye;' UMP *ku'un* 'eye.' (pNG **kuru*, pKAN **kuru*, pP **kuru ~ *kurun*). This set may be related to that in (3.509).

3.790. pP **kUrunkal* > GYA *kurunkal* 'species of mangrove ...;' YDN *kurunkal* 'prob. *Xylocarpus granatum*, cannonball mangrove.' Borrowing may have occurred in this set.

3.791. pPN (E) **kUrurr* > WMK *kor'* 'Brolga (*Grus rubicundus*);' DYI *kururr*

'brolga;' WOI *gurrurr.k* 'brolga.'

3.792. pPN **kUrV* > WLP *kura.ngarra-warnu* 'brother-in-law :' PIN *kura.ngarrawarnu* '... close relationship ... with any of male ego's male relatives except father. brother and son:' WOI *GURI.TCH* 'sister's husband.' *KOOREI.T* 'brother-in-law.'

3.793. pPN **kUrV* > GUP *gura.rrku-ma* 'grow. bring up;' WOI *KORI.N KORI.NE* 'grow.'

3.794. pPN- **kUrV* > PNK *KURI.NYARRA* 'a pillar of dust produced by a whirlwind:' WMK *oor* 'dust.'

3.795. pPN- **kUrV* > PNK *KURA.NNA* 'thunder;' YDN *kuru.marra* 'lightning.'

3.796. pPN **kUrVng* > NYU *kura.ka/kura.k. kwara.parnt* 'mountain duck.' *GURA.GA* 'Tadorma, the mountain-duck;' YAN *a-kuru.purru* 'Grey Teal Duck (*Anas gibberifrons*);' WOI *KOR-RUNG-UN-UN* 'water fowl.'

3.797. pPN **kurV(R)* > KAU *KURA* 'near; not far off;' PNK *KURA.ILTYE* 'not far. or for a long time,' *KURI.NTI* 'distance;' NYU *kura* 'previously. long ago. before. ....' *kura.rt/kwera.rt. kura.rta* 'short. straight;' BNJ *kuraa.na* 'tall.' *kuraar* 'tall. long ... straight.' *kurii.pu. kuru.pu* 'long time ago;' WEM *kuru.mpit* 'big, tall.' An antonymic relationship between 'near' and 'far' is also seen in (3.208), (3.251) and (3.378).

3.798. pPN **kurV(R)* > NYA-W *Kurá.ngarra* 'mythical snake ...:' WLP *kura.njuru* 'snake sp.;' YAN *kura.rlpungku* 'Olive Python (*Liasis olivaceus*),' *kuru.n* 'Black Whip Snake (*Demasia sp*);' BGU *kuri.ti* 'tiger snake;' BNJ *kuraar* 'snake (generic);' PIT *kuri.marra* 'snake sp..'

3.799. pPN- **kuta-* > NYA-S *kuta.ny-pi-(n)* 'cross;' DYI *kuta.ympa-l* 'pass by.'

3.800. pPN- **kUta* > NYA-S *kurtu.rtu* 'baby ....' *kuta* 'short ...:' WLP *kutapi* 'accompanied by many children, with many young :' KAU *KURTA.ÛNYO* 'the little finger:' NMA *kuta* 'short:' WMK *ot.ang* 'short:' WEM *kut.ninyuk* '(his) younger brother.' *kute.nyuk* '(his) younger sister.' (pNG **kuta*).

3.801. pPN- **kUta* > PIN *kutu* 'continually ... continuing action;' WMK *ngoont.an* 'keep on and on;' DIY *nguda* 'continuous.'

3.802. pPN- **kUta* > NYU *GURDA.R* 'a pair; a couple;' UMP *kuntu* 'two;' YIM *kuuntuu* 'three.'

3.803. pPN (E) **kUta* > BGU *kutu.ru* 'maggot, blowfly;' BAA *kuta.rti* 'maggots.'

3.804. pPN- (E) **kUta-* > DYI *kunta-l* 'put in;' DIY *kuda-* 'put in or on.'

3.805. pPN- **kutu* > WLP *wutu* 'together, in company of, with ;' UMP *kutu.tha-* 'unite, join.'

3.806. pPN- **kUtu* > NYA-W *kutu.l* 'country burnt out at least a year ago, and now covered with new green spinifex;' WLP *kunta.ra* 'fresh grass after burning off ....' *kuntu.kuntu* 'fresh growth, ..., patch of green grass;' YDN *kuntu.lu* 'blue/green.'

3.807. pPN- **kUtV* > WLP *kutu.kari* 'night, night-time, evening;' PIN *kutu.watirni* 'deep night ... around midnight;' YAN *wuntu.rurr* '... night time;' WMK *ngot.an* 'black,' *ngut.ang* 'night;' BGU *kunta* 'dark, nighttime.'
Residue: WLP *kurntu.rru-ngarna* 'aeroplane; ...., dark blue, green, navy, dark grey.'

3.808. pP **kUtV(l)* > GYA *kuti* 'barramundi;' YDN *kuntal* 'barramundi.'

3.809. pPN **kutVn* > NYU *GURDI.N* 'crooked; curled;' YAN *kuntu.kuku.*

kuntu.waru 'bent; stooped; crooked back;' KLY *kudu, KUDU* 'elbow;' BNJ *kuntan* 'bent, crooked;' DIY *kurndi* 'bent;' PIT *kurnti.kurnti* 'curved throwing stick toy, crooked.' (pKAR **kurntikurnti*). See set (3.220) for a discussion of the relationship between 'elbow' and 'bent.'

3.810. pP **kuwa* > WMK *kuuw* 'west;' YIM *kuwa* 'west;' GYA *kuwa* 'north and inland from the coast, north-west;' YDN *kuwa* 'west.'

3.811. pPN **kUwa* > BAY *wuwa.rta* 'firestick, torch, flashlight;' YAN *kuwa.ka* 'sacred fire;' BAA *nguuwa-* 'to cook.' *nguuwa.la-nguuwa.la* 'star, morning star.'

3.812. pPN- **kUwa* > GUP *guwa.rr.mu, kuwa.rr.mung* 'small edible crab;' BGU *kuwa.rtu* 'crab.'

3.813. pNY (D) **kuwarri* > NYA-S *kuwarri* 'today, now,' -W *kuwarri* '... nowadays, now, ... today, ...;' PIN *kuwarri* 'now, today, at this time, a short time ago.' Borrowing may have taken place in this set.

3.814. pPM **kUwu* > DYI *kuwu* 'nose;' BGU *kuwu* 'nose, face.'

3.815. pNYY **kUwV* > PIN *kuwi.r-pa* 'tiredness and stiffness in the neck muscles from carrying a load on the head;' BAY *nguwa.n.nguli-Y-* 'get tired.'

3.816. pPN- **kUwV(y)* > NYA-W *kuwa.ly* 'white man;' WLP *nguwa* '..., magical thing, magical power;' PIN *nguwa* 'evil spirit which lives in trees ...;' YAN *a-Kuway.kuway.k* 'spirit being; sorcery ...,' *wuwa.rr* '... spirit of recently deceased person;' GYA *kuwi.n.kan* 'ghost/spirit;' DYI *kuwuy* 'spirit of a dead man.'

3.817. pNYY **kuya* > PNK *KUYA.NNA* 'the male grub of the mita ant ...;' GUP *guy.kuy* 'ants.'

3.818. pPN- **kUya* > WLP *kuya.kuya* 'knowledgeable, expert, specialist ;' PIN *kuya* 'bad, wrong, broken, no good,' *kuya.kuya* 'common, not sacred ... not important: very bad ... rejected by society;' KAU *KUIYO* 'ill, sick;' WMK *kuuy* 'murderer by sorcery:' YDN *kuya-L* 'break in controlled manner.'

3.819. pPN- **KUYA* > PNK *KUYU.R.KURU* 'Dragon fly, hornet;' NYU *GU-YĂ.MGU-YĂM* 'a species of fly.' *GU-YA.LLA* 'a species of gadfly;' KLY *KUIO.P* 'the dragon-fly.'

3.820. pPM **kUya* > YDN *kuyu.kan* 'wife;' BGU *kuya.rti.yila* 'wife, sister-in-law.'

3.821. pPN (E) **kUyam* > YAN *a-nguya.rr.nguya.rr.ngu* 'Hill Kangaroo, female (*Macropus robustus*);' WOI *kuyim* 'kangaroo.'

3.822. pPN **kUyan* > GUP *guya.rra'* 'type [of] spear;' GYA *kuyan* 'war spear with quartz head;' WOI *guyun* 'fighting spear.'

3.823. pPN **kuyang* > NYA-S *kuyi* 'meat (edible),' -W *kuyi* 'meat (generic term) ...: animal, creature (not necessarily edible);' WLP *kuyu, kuyi* 'animal, ... game, creature: meat. ...;' KAU *KUYA* 'a fish generally;' PNK *KUYA* 'fish;' GUP *guya* 'gen. term for fish ...;' GYA *kuyu* 'fish [generic];' DYI *kuya* 'fish (generic);' BGU *kuyu* 'fish;' BNJ *kuyang* 'species of mullet.' Corroboration for a link between 'meat' and 'fish' is found in (5.28) and in WMK *nhengk* 'edible animal; meat, fish and other protein food.' and is discussed in McConvell (1997b).

3.824. pPN **kUyang* > WLP *nguyu* 'crushed charcoal, soot, ...: blackening;' NYU *NGU-YU.BĂRRA, NGU-YUP* 'blue;' YAN *ma-wuyu* 'crushed charcoal mixed with oil/fat ...;' WOI *kuyang* 'black, blue.'

3.825. pPN- **kUyi* > KAU *KUYE-NDI* 'to tie round; to gird;' WMK *kuuy* 'vine, string or rope ...; vein.'

3.826. pP **kUyi(r)* > GYA *kuyir* 'bush curlew;' DYI *kuyi.parra* 'curlew.'

3.827. pPN- **kUyka* > PIN *kuku.rr-pa* 'fast:' YDN *kuyka* 'fast.'

3.828. pPN- (E) **kuuyka(l/m)* > UMP *kuukul* 'morning, next day:' YDN *kuyka.kuykam* 'afternoon, evening,' *kuykam* 'yesterday.'

3.829. pPN- **kUyka(l/r)* > GUP *nguki.ny.garra* 'rat;' GYA *kukur* 'rat;' YDN *kuykal* 'long-nosed bandicoot;' DIY *kuku.la* 'stick nest rat.'

3.830. pPN (E) **kuykV(rr)* > WMK *wuk.ar* 'hole (in ground), dimple:' YDN *wuku* 'very deep;' BNJ *kuykaar* 'hollow; hole;' GUM *kuykarr* 'hole:' BAA *kuki* 'depth, bottom;' DIY *kuku* 'hollow.'

3.831. pPM **kUyngka* > WMK *oyngk* 'vomit:' BGU *kungka.ri-* 'to vomit.'

3.832. pPN **kUyngkV(n)* > PIN *kungka* '... young woman before ... puberty:' NYU *KUNNG-GU.R* 'a young woman who has attained ... puberty:' YDN *kungka.ka* 'female dance-style;' DYI *kuyngkun* 'spirit of dead woman;' WEM *kuingku.rrin, kwingku.rrin* '(your) mother.'

3.833. pPN **ku(y)pa* > PNK *KUPA* 'dead;' YDN *kupa-N* 'burn;' BGU *kupa* 'to burn,' *kupa.la* 'ripe;' BNJ *kuypa-* 'to cook, burn.'

3.834. pPN- (E) **kuuypi* > KLY *UPI.US* 'a whistle:' UMP *kuuypi* 'whistling, whistle;' GYA *kuwi.mpur* 'whistle;' YDN *kuypil* 'whistle.'

3.835. pPN- **kuyu* > WLP *kuyu.rna* 'daughter, niece, little girl;' PIN *kuyu.ny-pa* 'girl ... before she has reached puberty;' YAN *kuyu.kuyu* 'mother's brother's child; father's sister's child.'

3.836. pPN (E) **kUyu* > WMK *kuy.am* 'younger brother or sister;' GUM *kuyu*

'brother.'

3.837. pPN- **kUyV* > NYU *KWOY-A.LANG* 'soul; spirit:' YAN *kuya.rra* 'spirit ....' *kuyu.warna* 'dead person ...:' DYI *kuyi* 'dead (of persons only).'

3.838. pPN- (E) **kUyV* > KLY *GUIE.R. GWIA.R* 'a stingray:' WMK *kuuy* 'Long-tailed ray (*Himantura uarnaln*), locally called spotted stingray.'

Chapter 4

*ng-Initial Etyma

4.1 *nga-

4.1. pPN **nga-* > NYA-S *nga.ni.nga.ni-(ny)* 'feeding around,' *nga.nu.ngu* 'food,' -W *nga-rna* 'to eat;' WLP *nga-rni* 'ingest, eat (of solid), drink (of liquid); chew on, gnaw on; eat away; sniff (out), smell (out),' *nga.nyu.ku* 'satisfied, ... relieved, stuffed (after eating), ...;' PIN *nga.la-ngu* 'to eat,' *nga.lku-rnu* 'to eat;' KAU *NGA.RKO-NDI* 'to eat; drink; enjoy;' PNK *NGA.LGU-TU* 'to eat;' NYU *ngani.ny* 'drinking, eating, sucking,' *ngarn-* 'eat, drink,' *NGA.NO-W* 'to eat;' BAY *nga.nu.nguli* 'hungry;' GUP *nga.na.k* 'flesh, meat;' BAA *nga.nyu-* 'to eat.' This verb is reconstructed by both O'Grady (1966:111) and Dixon (1980:405). Many of the languages have reanalysed the monosyllabic root and an inflectional morpheme as a disyllabic root; this is a common tendency among Pama-Nyungan languages (Dixon 1980:415). Fused morphemes include a past tense marker **-na*, the purposive marker **-lku*, the imperative **-la* and perhaps a past tense marker **-nyu*. See Alpher (1990) for more details on verbal inflection in pPN.

4.2. pPN (E) **ngaa* > BNJ *ngee* 'yes, and (conj.);' BAA *nga* 'and.'

4.3. pPN- **ngaja* > NMA *ngaja.la* 'daughter's husband;' UMP *ngaja.mu* 'husband's mother, husband's father, son's wife, son-in- law,' *ngaja.mu.ngu* 'daughter's husband (man or woman speaking).'
Residue: GUM *ngajii* 'brother-in-law.'

4.4. pPN **ngAja* > BAY *ngaja.rri* 'daughter:' WMK *ngeej.am* 'first-born:' WEM *wathi.p* 'son;' DIY *ngatha.muda* 'offspring of opposite moiety,' *ngatha.ni* 'offspring of same moiety,' *ngatha.ta* 'younger sibling;' PIT *ngatha* 'little boy,' *ngatha.piyaka* 'offspring (man speaking),' *ngatha.ri(ka)* 'offspring (woman speaking).' (pKAR **ngatha*).
Residue: BAY *kaja* 'older brother.'

4.5. pPN- **ngAja* > NYA-S *ngaja.rri* 'stranger.' -W *ngaja.rri* 'a stranger:' WLP *ngaja.rri* 'visitor, stranger, new-comer, foreigner; shy, reticent;' YAN *nganji* 'stranger: foreigner If prefixed with a pronoun the term comes to mean my relations, my family.'

4.6. pPN- **ngAja* > NYA-W *ngaji-Ni* 'to excrete, to lay (an egg);' WLP *ngaja-rni* 'defecate, urinate, give birth to, lay (eggs);' BGU *ngaja-* 'to throw (a liquid).' *ngantha-* 'to give birth, ... to lay (an egg);' BAA *nganji-* 'to leave, to abandon.'
Residue: NMA *ngayi-lku* 'to give birth to, to throw (away) .' This is the only evidence in this data for the weakening of a medial stop to a glide in NMA.

4.7. pPN- **ngAja* > BAY *ngaja.ru* '(vegetable) food;' GUP *ngadha.ngay'* 'vegetable food,' *ngatha* 'vegetable food,' *ngay.a.ngay'* 'food;' DIY *nganhthi* 'meat, edible animal.' (pWK **nganthi*).

4.8. pPN **ngajang* > GUP *ngathi* 'mother's father;' UMP *ngaji.ju* 'son's son, daughter's son, daughter's daughter,' *ngaji.mu* 'mother's father;' WMK *ngej.anjin* '... grandmother (father's mother) and ... grandfather (mother's father),' *ngej.iyang*

'grandchild;' GYA *ngaji* 'mother's father;' YDN *ngajim* 'mother's father;' BGU *ngathi. ngathi.njila* 'mother's father, daughter's son;' BNJ *ngathang* 'grandfather, grandson;' PIT *ngatha.nha* 'father's mother.' (pP **ngaji*).

4.9. pPN- **ngAjarra* > WLP *ngajarra* 'we two, us two, he and I, she and I;' YAN *ngatharra* 'we (dual, exclusive hearer).'

4.10. pPN **ngaaji* > WLP *ngaji* '... beggar, begging,' *nganju.lu* 'crying, wailing, keening;' PIN *ngaji* 'beggar: ... a person who continually asks ...;' NMA *ngaji-ku* 'to cry;' GUP *ngaathi* 'cry;' UMP *ngaaji-* 'laugh;' BAA *ngaanja-, nganyi-* 'to ask for something, to beg.'
Residue: NYU *ngay-ngaya.nginy* 'crying continuously, grizzling (as a child).' This is the sole example in my data of NYU potentially weakening a medial stop to a glide.

4.11. pP **ngAju* > UMP *aju* 'perhaps, maybe;' YDN *ngaja* 'might be.'

4.12. pPN- **ngajV* > NYA-S *ngaju* 'I (first person singular),' -W *ngaju* 'I, me;' WLP *ngaju, ngaji, ngaju.lu* 'me;' NYU *ngej* '1st pers sing subj usually trans.' *NGAD-JO* 'I;' NMA *ngaju* 'me.' *ngaju.tharntu* 'my;' BAY *ngatha* 'I;' YAN *ngatha* 'mine; my;' KLY *ngath* 'I (trans.);' UMP *ngatha-* 'I, oblique;' WMK *ngath.aram* 'mine, from me, because of me;' YDN *ngaju-, ngaji-* 'root of first person singular pronoun;' BGU *ngaju* 'my.' (pKAN **ngatha*, pP **ngaju-* ~ **ngaja-*). See Dixon (1980:327-377) and Blake (1988, 1990) for discussion of Pama-Nyungan pronouns.

4.13. pPN (E) **ngajV* > UMP *ngatha-* 'marry her;' BNJ *ngathi.ngkir (?)* 'husband,' *ngathi.ngkir.kan (?)* 'wife.'

4.14. pPN- **ngAjV* > GUP *ngaci.rriny'-cu-n* 'sneeze;' KLY *ASA.R* 'sneeze.'

4.15. pPN (E) **ngAjV* > DYI *ngaji-l* 'lose, take absolutely no notice of, ignore;' BAA *ngaatha* 'no, nothing.'

4.16. pPN- **ngAka* > WLP *ngaka* 'later, after, ...;' KLY *wagel* 'behind - as of walking,' *WAGEL* 'after;' WMK *ak-thaa'* 'repeat after (in speech or singing), follow after ....'

4.17. pPN- **ngaka-* > NYA-S *ngaka-(rn)* 'send.' -W *ngaka-rna* 'to send, despatch; .... chase away;' NYU *NGAGĂ.DJA MURRIJO* 'to proceed as the messenger, or herald of news ...:' BAY *ngangka-Y-* 'brush away (flies):' UMP *ngangka-* 'give, try:' WMK *wak-an* 'chase, follow hard after ...:. be alike, follow each other in looks, or voice, etc..'

4.18. pPN- **ngAka* > GUP *ngaaka.nyu* 'sp. shellfish;' YAN *ngaka.rla* 'Nautilus Shell (*Nautilus pompilius*).'

4.19. pPN (E) **ngakam* > UMP *ngaka.mu* 'dingo;' WMK *ngek.anam* 'dingo;' BNJ *ngakam* 'dog, tame dog.' This set may be ultimately related to that in (5.31).

4.20. pPN **ngaki-* > NYU *NGAGY.L-YA* 'to steal.' *NGAGY.L-YA-NG* 'a thief;' GUP *ngaaki.rri* 'cover;' WMK *ngeek.an* 'greedy person who finishes up all the food.' *ngeek.an.ang* 'grab something quickly;' GYA *ngaki-l* 'hide; steal;' BNJ *ngaki-* 'to disappear.'

4.21. pPN **ngaku* > NYA-W *ngaku* 'charcoal;' BNJ *ngaku* 'dark, black; night;' WEM *ngak* 'shade, shadow.'

4.22. pPN- **ngAku* > GUP *waku.tu* 'water;' YAN *aka.rn* 'tidal currents.' *ngaka.n* 'tide; high tide;' WMK *ngak* 'water;' DYI *waku.li* 'blood.'

4.23. pPN **ngAku-* > NYA-S *ngangkurl-ji-(n)* 'cry,' -W *ngangkulu-ji-ni* 'to cry;' BAA *ngaka* 'tears.'

4.24. pPN **ngaaku(l)* > WLP *ngaku.ly.ka* 'arm-pit, underarm;' KAU *NGOKU.RRA*

'the joint of the shoulder;' KLY *ngaga*. *NGAKA* 'wing;' YIM *ngaakuul* 'arm,' *ngaku* 'shoulder;' WOI *ngangge.rr* 'shoulder.'

4.25. pPN (E) **ngAkV* > DYI *ngaki(.nyja)* 'mother's father (and reciprocal);' WOI *ngaga.p* 'father's father.'

4.26. pPN **ngali* > NYA-S *ngali* 'you and me,' *ngala.ya* 'me and him,' -W *ngali* 'we-two (dual incl.),' *ngala.ya, ngala.yi* 'we two (excl.);' WLP *ngali(jarra)* 'we two, ... you and I ....' *ngali.pa* 'we, us, you and us;' PIN *ngali* 'first person dual subject pronoun;' KAU *NGADLI* 'we two,' *NGADLU* 'we;' PNK *NGADLA.GA* 'we two,' *NGADLI* 'dual, we two;' NYU *ngarl-* 'pers prn st, 1st pers dual and pl,' *NGALA* 'we two; parent and child; uncle and nephew,' *NGALA.TA* 'we; any number more than two,' *NGALLI* 'we two; brother and sister; or two friends;' NMA *ngali* 'we dual inclusive,' *ngali.kuru* 'we plural inclusive,' *ngali.ya* 'we dual exclusive;' BAY *ngali* 'we two (incl. or excl.);' GUP *ngali* 'we (dual incl),' *ngali.murru* 'we pl. incl.' *ngali.nyu* 'we dual excl;' YAN *ngali* 'we (dual, inclusive hearer);' UMP *ngali* 'we du incl.;' WMK *ngal* 'you and I, we (two);' YIM *ngali* '1 du;' GYA *ngali* 'we two inclusive,' *ngali.n* 'we two exclusive;' YDN *ngali* 'first person dual pronoun;' BGU *ngali* 'we two;' WEM *ngali.uk* 'belonging to both of us;' BAA *ngali* 'we two.' (pNG **ngali.ya*, pKAN **ngali*, pP **ngali*). See also (4.30). Dixon (1980:327-377) and Blake (1988, 1990) discuss Pama-Nyungan pronouns.

4.27. pPN- (E) **ngalka(l)* > KLY *NGALKAI-* 'suck smoke ...;' YIM *ngalkal* 'smoke, tobacco.'
Residue: GYA *ngalku* 'bush fire.'

4.28. pPN- (E) **ngAlku* > WMK *ngalk-ngalk.an* 'excited about food and really wanting it;' DIY *ngalku* 'desire.'

4.29. pPN- **ngAlkV* > NYA-W *ngalku.ngalku* 'cheek;' BGU *ngalki* 'cheek.'

4.30. pPN- **ngAlpa* > WLP *-ngalpa* 'us, to us;' KLY *ngalpa, NGALPA* 'we pl. incl.,' *ngalpa.y, NGALBAI, NGALBE* 'we du. excl..' O'Grady (1981a:165) analyses this pronoun as a fusing of **ngali* (see (4.26)) and a particle **pa* 'and.'

4.31. pP **ngAlpa* > GYA *ngalpa* 'a term you can call a person when you can't say that person's name ...;' YDN *ngalpa.juwa* 'legendary being.'

4.32. pPN- **ngAlpa-* > NYA-S *ngalpa-(ny)* 'enter, go down, go in.' *ngalpa-ji-(n)* 'put in to something,' -W *ngalpa-ji-ni* 'to put underneath; put in; put through, ...; to tie up with.' *ngalpi-nyi* 'to enter, to go down or underneath; ...; sink; to set (of sun moon, etc.);' KAU *NGATPA-NDI* 'to go down; walk in; sink; to put into;' PNK *NGALBA-TA* 'to enter, go down;' YAN *ngalpa-ntharra* 'entering; going in.'

4.33. pNY **ngalpVrV* > PIN *ngarlpiri* 'shoulder;' NYU *ngalpar* 'clavicle, collarbone.'

4.34. pPN **ngAltV* > PIN *ngaltu.rr-pa* 'stiff; used of hands and feet becoming stiff with cold ...;' BAA *ngalta-* 'to be sore.'

4.35. pPN (E) **ngAlu* > YAN *ngali.rri.ngki* 'skillful;' GYA *ngalu-ngalu* 'refreshed, ... healthy, lively, happy, glad, mentally alert;' GUM *ngaluu.ngkirr* 'clever person, witch doctor.'

4.36. pPN **ngalu(n)* > NYU *NGALLA.NANG* 'evening; twilight;' YAN *arla.na-ntharra* 'dawn; daylight, becoming (stem: *arlanu*),' *arla.na.ntha* 'all night;' YIM *ngalan* 'sun, day;' YDN *ngalan* 'light before dawn;' BNJ *ngalu* 'night,' *ngaluu* 'darkness, night.'
Residue: NYA-W *kalu.rru* 'black.' NYA has an initial stop where the widespread languages above all have a nasal.

4.37. pPN **ngaalu(n)* > NYA-W *ngala.la* 'current, running water;' GUP *ngaal*

'spittal, white of egg, fluid which lubricates joint;' YAN *a-ngala.wurr* 'salt water creek inlet,' *na-ngalu.lu* 'waves on fresh water ...;' UMP *ngaalun* 'waves, swell;' GUM *ngaalu* 'water, river, creek.'

4.38. pPN **ngAlV* > WLP *ngali.rri* 'on side, sideways;' GUM *ngaala* 'side.'

4.39. pPN- **ngAlya* > WLP *ngalya* 'forehead, brow;' PIN *ngalya* 'forehead, also directive "toward the speaker";' PIT *ngalya* 'cheek.'

4.40. pNY **ngalyi* > NYA-S *ngalyi* 'neck.' -W *ngalyi* 'neck;' NMA *ngalyi* 'neck, throat.' (pNG **ngalyi*).

4.41. pPN (E) **ngAlyja* > BAA *ngalja* 'spit, phlegm;' DIY *ngalyja* 'saliva;' PIT *ngalyja* 'saliva.' (pKAR **ngalja*).

4.42. pPN- **ngAlyja-* > PIN *ngalyja.pu-ngu* 'to choose from a number; to divide a number of objects ...;' YDN *walnja-L* 'pick out, choose.'

4.43. pPN **ngAlypi* > NYA-S *ngalypa* 'good.' -W *ngalypa* 'well, good, pleasant (mostly of people);' WOI *ngalbi.na* 'right.'

4.44. pPN- **ngAlyu* > WLP *ngalya.lki* 'big fire, huge flames; smoking wood.' *ngalya.nu* 'tongue;' KAU *NGADLE-NDI* 'to be burned, or to burn;' GUP *ngala.p-thu-n, ngala.p.mara-ma* 'shine, burn brightly, flame;' GYA *ngala-ngala* 'red.' *ngalu.ri* 'flames.'

4.45. pPN- **ngama* > NYA-S *ngama.rla* 'comfortable;' GUP *ngama.kuli, ngama.kurru* 'good;' UMP *ngam* 'alright.'

4.46. pNY **ngamarri* > PIN *ngamirri* 'marks on a spear,' *ngamirri.ju-nu* 'to cut decorative marks around the shaft of a spear;' NYU *NGAMAR* 'tattooing; the marks

of tattooing.'

4.47. pPN (E) **ngama(y)* > YAN *ngamala* 'south;' BNJ *ngaway* 'north.'

4.48. pPN- **ngami-* > GUP *ngaama-* 'hear, listen;' UMP *ngami-* 'hear; be born.' (pP **ngami-*).

4.49. pPN **ngampa* > NYA-W *ngampa.pi-ni* 'to block, obstruct;' WLP *ngampa.rri* 'angry, sulky, dislike, aloof;' GUP *ngamu-ma* 'not recognise;' UMP *ngampa* 'no, not;' YIM *ngampa* 'heedless, unaware;' BAA *ngampa-* 'to finish, to stop.'

4.50. pPN- (E) **ngampu* > YAN *ngampa.la* 'we (plural, inclusive hearer);' KLY *ngaba, .NGABA* 'we du. incl.;' UMP *ngampu.la* 'we pl. incl.;' WMK *ngamp* 'we (plural inclusive).' (pP **ngampul(a)*).

4.51. PNY (D) **ngampu* > NYA-S *ngampu* 'egg,' -W *ngampu* 'testicle;' PIN *ngampu* 'eggs, also oblique reference to testes.'

4.52. pPN **ngAmpV* > KAU *.NGAMPA* 'a kind of native vegetable;' PNK *.NGAMPA* 'an edible species of root;' YAN *ma-ngampi.rl.ngampi.rl* 'long carrot-like yam;' BAA *ngampa.la* 'bulbine lily tuber.'

4.53. pPN- **ngAmpV(n)* > NYA-S *ngampa.rl.ngampa.rl* 'sleeping face down at full length;' WLP *ngampa.rl.pa* 'leaning on, ..., rubbing against ...;' YAN *nta-ngampa.ny* 'umbilicus, your; navel, your;' YDN *ngampin* 'belly down;' PIT *ngampa* 'belly (external).'

4.54. pPN- **ngAmu* > WLP *ngami.rl.ji* 'in arms, ... embrace, ...,' *ngamu.rlu* 'against chest, to the chest;' PIN *ngamu* 'close; to be close;' KLY *ama.dhan, AMA.DAN* 'near, soon.'

4.55. pPN- **ngAmu* > NMA *ngamu.n* 'fast, rapidly - of eating;' KLY *WAME.N* 'quick, fast,' *wame.nal* 'in *wamenal yaday+nga* 'talk fast' and in *wamenal+nga ulayk* 'walk fast '.'

4.56. pPN- **ngAmu* > WLP *ngama.rdi* 'Trigona sp., bee, native bee, honey bee;' YDN *ngamu.ngamu* 'a long wasp, which ... looks a little like an English bee.'

4.57. pPN (E) **ngAmurrV(y)* > YDN *ngamurray* 'smell ... the unmarked sense is 'bad smell';' BAA *ngaamurru* 'dirty,' *ngaamurru-warta* 'having a dirty smell.'

4.58. pPN (E) **ngAmV* > WOI *ngama.t* 'sky, heaven;' BAA *ngamu.rruulu* 'Milky Way.'

4.59. pPN **ngAmV(n)* > NYA-S *ngama* 'nipple milk,' *ngama.kura* 'breast,' -W *ngama* 'milk; breast ...;' WLP *ngama* 'female, mature woman, mother,' *ngami-parnta* 'woman, female ...;' KAU *NGAMMAI.TYA* 'woman generally,' *NGAMMI* 'female breast;' PNK *NGAMMA* 'female breast, milk,' *NGAMMAI.TYU* 'mother,' *NGAMMI* 'mother;' GUP *ngama* 'mother,' *ngami.ni, ngamu.n'kurr* 'breast, milk;' GYA *ngamu* 'mother, mother's sisters, great grand-daughter;' YDN *ngamu* 'thumb, big toe,' *ngamun* 'breast, milk;' DYI *ngamun* 'breast, breastmilk;' BGU *ngamun* 'breast;' WOI *ngamai* 'sun;' BAA *ngama* 'breast, milk,' *ngama.ka* 'mother, also female of animal,' *ngama.ka-mara* '(lit. mother of hand) thumb;' DIY *ngama* 'breast, milk;' PIT *ngama.nya* 'breast (female), milk,' *ngama.ri* 'mother, mother's sister.' (pKAR **ngama*).
Residue: PIN *ngama, ngami* 'the barb of a spear thrower only,' *ngama.ny-pa* 'head;' KLY *AMA* 'mother, vocative only.' This form might be borrowed from Miriam *amau* 'mother, vocative only.' Alternatively, the Miriam form might be a borrowing from KLY.

4.60. pPN- **ngana* > NYA-S *ngana.rna* 'we (first person dual inclusive),' -W

ngana.rna 'we (pl. excl.);' WLP *ngani.m.pa* 'we, us;' PIN *ngana.rna* 'we all ... first person plural subject;' NYU *NGANNI.L* 'we; us;' NMA *ngana.rna* 'we plural exclusive;' GUP *ngana.purru* 'we pl excl;' YAN *nganu* 'we (plural, exclusive hearer);' UMP *ngana* 'we, non-sg excl;' WMK *ngan* 'we (but not you) (first person dual/plural exlusive subject pronoun);' YIM *ngana* '1 pl;' GYA *ngana* 'we plural inclusive;' BGU *ngana* 'we (plural).' (pNG **ngana.rna*, pP **ngana*). See Dixon (1980:327-377) and Blake (1988, 1990) for discussion of Pama-Nyungan pronouns.

4.61. pNY **ngangka* > NYA-S *wangka.rru* 'spider, grub;' WLP *wangki.li.nyi* 'witchetty grub sp.;' KAU *NGANGKA.RTE* 'a species of grub.'

4.62. pPN **ngAngka(l)* > WLP *ngaangaa* 'mistakenly, incorrectly,' *ngaangaa-ma-ni* 'mistake someone for someone else, fail to recognize someone;' BAY *ngangka.rnu* 'ignorant, not knowledgable;' WMK *ngengk.an* 'silly, stupid, does not know much, not very bright;' GYA *ngangkal* 'surprised or unexpected.' *ngangkal* 'ignorant of something,' *ngangkay* 'surprise;' YDN *ngangka-N* 'can't understand.' *ngangka.l* 'deaf; silly;' DYI *-ngangka.y* 'without;' WOI *NGANGA-DAK-KI-NO* 'stupid.' See (3.3) for a list of sets exhibiting relationships between 'negative' concepts. Residue: NYA-S *ngaku.mpa* 'deaf; ignorant.' -W *ngaku.mpa*, *ngaku.mpu* 'ignorant, unaware,' *ngaku.mpa-...-ku* 'be unable to.' These NYA forms are classified as residue because they lack a medial nasal.

4.63. pNY **ngangkarli* > NYA-S *ngangkarli* 'big clouds,' -W *Ngangkarli* 'one of the places where rain is made, according to mythology; a thunder-cloud;' WLP *ngangkarli* 'rain-cloud;' PIN *ngangkarli* 'rain cloud type;' KAU *NGAKALLA.MURRO* 'one of the maghellanic clouds.' The similarity of these forms may indicate that borrowing has taken place.

4.64. pPN- (E) **ngAngku(y)* > YAN *wangku.wa* 'Estuarine Rock Cod (*Epinephelus tauvina*);' YDN *ngangkuy* 'rock cod.'

4.65. pPN **ngAngkV* > WLP *ngangki.ri* 'husband, wife, spouse;' PIN *ngangki.ri* '... w[ife's] m[other's] b[rother]'s wife;' WMK *angk.alamwet* 'widower, ... has lost a wife or wife's brother or sister; widow, ... has lost her husband, husband's brother or sister;' WOI *nganggo.rrong* 'husband.'

4.66. pPN- **ngAngkV* > NYA-W *ngangku* 'thumb;' KAU *NGANGKI* 'female generally,' *NGANGKI.MUNTO* 'stomach;' PNK *NGANGKA.LLA* 'stomach;' NYU *mar ngangk, mara ngangka* 'thumb,' *ngangk* 'sun, mother, female, mother's sister,' *ngangk, ngangka, ngangkarn* 'sun,' *ngangk, ngangka* 'mother,' *NGANGA* 'the sun,' *NGANGA.N.BRU* 'a mother; the great toe; the thumb;' NMA *ngangka* 'mother, son's daughter's daughter,' *ngangka.riny* 'thumb, big toe;' WMK *ngangk* 'heart and stomach area; soul.' (pNG **ngangka*).

4.67. pPN- **ngaani* > NYA-S *ngani* 'what?,' *ngani.ja* 'how, what?,' *ngani.marta* 'something,' *nganu.rtu* 'who?,' -W *ngana.pa* 'which place?,' *ngani* 'what?,' *ngani-ja* 'from what? why?,' *ngani-pa* 'anything, something,' *nganu.rtu* 'who?;' WLP *ngana* 'who, whom, anyone, no one, someone ...;' PIN *ngana.nya* 'who, which;' KAU *NGANNA* 'who? what?;' PNK *NGANNA* 'interrog, who, what,' *NGANNA.RU* 'to what purpose, why;' NYU *NGANNI* 'who;' NMA *ngana* 'who?;' BAY *ngana* 'who;' GUP *ngani* 'an interrogative ...;' YAN *ngani* 'who?;' UMP *ngaani* 'what, something, anything, whatever,' *ngaani-ku* 'why;' WMK *ngeen* 'what?,' *ngeen-ak* 'why? what for?;' YIM *ngaanaa* 'what;' BGU *ngani* 'what?,' *ngani.mu, ngani.mu.ku* 'why?.' (pNG **ngana*, pKAN **ngana*, pP **ngaani*).

4.68. pPN **nganiny* > NYU *ngarni.j* 'chin;' WEM *ngani* 'beard;' WOI *nganiny* 'beard.'

4.69. pPN- **ngAnja* > KAU *NGAINTYA* 'what? how?;' YAN *ngantha* 'where?,' *nganthi.mpala* 'when? ...,' *nya-ngantha.ngu* 'which masculine thing?;' BGU *ngantha.nga* 'how?,' *nganthu.ru* 'who?.'

4.70. pPN- **nganju* > WLP *nganju.rr.pa* 'impatient for;' YAN *nganji.yanga-ntharra* 'wanting;' DIY *nganyja-* 'want, like, love.' (pKAR **nganja-*).

4.71. pNY **nganju-* > NYA-S *nganju-(rn), nganyju-(rn)* 'breathe.' -W *nganju-rnu* 'to breathe;' WLP *nganji.mirni* 'abdomen, belly, stomach;' PIN *ngaanyju-nu* 'to breathe heavily in sleep.' A relationship between 'breathe' and 'abdomen' is also found in (4.165).

4.72. pPN- **nganjV(n)* > NYA-W *nganju.rru* 'we (pl. incl.);' YIM *nganhthaan* '1 pl;' GYA *nganjin* 'we plural exclusive;' YDN *nganyji* 'first person non-singular pronoun.'

4.73. pPM **ngAnku* > WMK *ank.an* 'hard, strong;' GYA *nganku* 'too quickly;' BGU *wanka.ti* 'hard, vigorously, fast.'

4.74. pPN- **ngAnta* > WLP *ngaanta* 'cry, call;' DYI *nganta-y* 'call out.'

4.75. pPN **ngantin* > WLP *nganti* 'shelter, wind-break; nest;' BNJ *ngantan* 'windbreak.'

4.76. pPN **ngAnV* > PNK *NGANNA.LLI* 'musk duck.' *NGANNE.LLI* 'species of water bird;' WEM *nganə-wil* 'musk duck.' *nganə.k* 'wood duck.'

4.77. pPN- **nganya* > NYU *ngany* '1st pers sing,' *NGAN-YA* 'me;' UMP *nganyi* 'me;' WMK *ngany.ang* 'me (first person singular object pronoun);' GYA *nganya* 'me.' (pP **nganyi*). See Dixon (1980:327-377) and Blake (1988, 1990) for discussion of Pama-Nyungan pronouns.

4.78. pPN **ngAnya* > WLP *ngaany.pa* 'breathing, breath;' PIN *ngaany-pa* 'panting ...:' NYU *ngany-* 'breathe;' BAY *ngaany* 'chest,' *ngaany.ka-Y-* 'breathe;' KLY *NGANA, NGONA* 'the breath,' *ngoena-* 'breathe.' (pKAN **ngaanyka-Y*). The

-ka- seen in BAY 'breathe' may be a verb formative.
Residue: WEM *kanya-* 'to breathe.' Only WEM has an initial stop.

4.79. pPN- **ngAnyja* > PIN *nganji-rnu* 'to warm oneself by a fire;' YAN *nta-ngantha.l* 'tongue;' WMK *nganth* 'light (bush torch, firelight, etc.);' YDN *nganyjal* 'light (generic);' BGU *ngantha-* 'to burn (intr.),' *ngantha.n* 'flame, blaze.'

4.80. pP **ngAnyja* > GYA *nganja* 'taste; voice of one's spirit left behind;' YDN *nganyja* 'taste.'

4.81. pPN (E) **nganyja(R/y)* > YAN *nganji.rra* 'forbidden;' WMK *ngenj* 'forbidden, taboo ...;' GYA *nganjay* 'no good, wilted; bad smell ...;' BNJ *nganyjar* 'lie, falsehood.' This set may be related to that in (5.110) by antonymy. However, because the division between forms meaning 'bad' and those meaning 'good' coincides with that between forms with *ng-* and *w-*, the two sets have been kept separate. See (3.3) for a list of sets exhibiting relationships between 'negative' concepts.

4.82. pPN **ngAnyV* > WLP *nganyi-rni* 'warm, heat; share fire, warm self at same fire;' BAA *nganya* 'flame, light.'

4.83. pPN (E) **nganyVn* > GYA *nganyil* 'haze, mist;' BNJ *ngayaan* 'greyish haze of falling rain.'

4.84. pPN- **ngApa* > BAY *ngapa.rra.ri* 'outside, to here,' *ngapa.rra.ri-Y-*, *ngapa.rri.ri-Y-* 'come, return;' KLY *NGAPA* 'prefix, indicating motion towards the speaker,' *ngapa-* 'come.'

4.85. pPN **ngapa(ny/R)* > NMA *ngapu.ra-lku* 'to hasten, to hurry;' BNJ *ngapany* 'quickly,' *ngapar* 'quick, fast.'

4.86. pP **ngapu* > UMP *ngapu* 'saltwater crocodile;' GYA *ngawu.rr-ngawu.n* 'freshwater crocodile.'

4.87. pNYY **ngapu-* > WLP *wapi.rri* 'covering, concealing, ... over top of;' PNK *WAPU* 'covered, hidden; cover;' BAY *ngapa-L-* 'cover with.' (pKAN **ngapa-*).

4.88. pPN- **ngApu* > NYA-S *ngapa* 'water,' -W *ngapa* 'water; rain;' WLP *ngapa* 'water, rain, humidity, rain-cloud, water source,' *ngapa.ru.ku* 'blood;' PNK *NGAPPA.LYA* 'saliva;' NYU *ngama.r* 'water hole, a small rock-hole catchment,' *NGAMA.R* 'a hole or pool of water in a rock;' NMA *ngapa.lya* 'boggy - of wet ground ....' *ngapu.rr* 'foam on water ...;' BAY *ngapu.rra-Y-* 'swim, wash oneself, take a bath,' *ngapu.rra.tha-L-* 'sprinkle water;' YAN *ngapu-njarra* 'bathing; ... going underwater;' GYA *ngapa-l* 'soak, leach;' YDN *ngapa-N* 'bathe;' DYI *ngapa-l* 'immerse in water, soak,' *ngapa-y* 'bathe (Vint.);' DIY *ngapa* 'water;' PIT *ngapu* 'water.' (pKAR **ngapa*).

4.89. pPN- (E) **ngApu(l)* > WLP *ngapi.l.kiri* 'Ocyphaps lophotes, Crested Pigeon;' KLY *WABA* 'dove;' GYA *wapul* 'Torres Strait Island pigeon.'

4.90. pPN **ngApun* > PNK *NGABI.TYE* 'not eatable, useless;' YAN *ngapa.ngaku* 'dead person; corpse;' WOI *ngabun* 'never, nothing.'

4.91. pNYY **ngapV* > WLP *ngapi.lyi.lyi* 'giggle, chuckle, chortle; love-sick, infatuated;' GUP *ngap.ngap-thu-n* 'to cry.'

4.92. pPN **ngApV* > KAU *NGAPA.PPI* 'grandmother on father's side,' *NGAPI.TYA* 'grandchild of the NGAPAPPI;' NMA *ngapa.ri* 'father's mother, daughter's daughter;' BAY *ngapa.ri* 'father's mother; son's child;' YAN *ngapu.ji* 'father's mother; father's mother's brother; sister's son's child; sister's son's child; son's child;' KLY *NGEP* 'grandchild;' WEM *ngapa* 'maternal grandfather,' *ngapu.ntek*

'my grandchild;' WOI *ngaba* 'father's father.' (pKAN **ngapari*). This set may be ultimately related to that in (3.171), which contains *k*-initial forms. However, the fact that the above forms are geographically widespread and all have *ng-* warrants keeping the sets separate until further work shows that they should be combined. Residue: PNK *NGAPPI.RI.TI* 'daughter;' DIY *ngapi.ri* 'father.'

4.93. pPN- **ngApV* > NYA-S *ngapi* 'like, similar to, like this, whatsaname.' -W *ngapa.rtu, ngapi* '... what's its name:' KAU *NGAPI.LLO* 'somebody; something;' DYI *ngampi.ya* 'what's it called?;' DIY *ngampu* 'almost.'

4.94. pPN- **NGAPV* > PNK *NGAPPA* 'fat, corpulent.' *NGAPPA.TA* 'fat:' KLY *NGABI* 'fat (n.).'

4.95. pPN- **ngApV* > GUP *ngapi.pi* 'mother's brother, father in law:' KLY *NGAIBA.T* 'father's sister, brother's child.'

4.96. pPN **ngAra* > NMA *ngara.nti* 'duck;' WEM *ngare* 'black duck.'

4.97. pPN- **ngAraku* > WLP *ngaraku.rra* 'up, on top;' BGU *ngaraku* 'on top, upstream.'

4.98. pPN- (E) **ngari-* > KLY *ARI-* 'go in;' UMP *nga'a-* 'enter, go down into, wear (clothes);' DIY *ngari-* 'go down.' (pP **ngara*, pCK **ngari-*). These forms may be related to those in (3.207), which all have the meaning 'to drown.'

4.99. pPN **ngaari* > GUP *ngara.wayi-rri* 'wriggle;' UMP *aa'i-* 'dance;' GYA *waran* 'men's dance;' YDN *ngaru* 'between fork in legs, crotch; shake-a-leg dance style;' WEM *wari.pa-* 'to dance.'

4.100. pPN- **ngAri* > KAU *NGARA.MBULA-NDI* 'to be tired; fatigued; lazy ...;' YAN *ngari.ngari.rrinjarra* 'pain, feeling; hurting.'

4.101. pPN- (E) **ngAri* > YAN *ngara.ny-ma-ntharra* 'blowing hard on something; breathing heavily;' GYA *wari.maji* 'yawn (n.);' PIT *ngari-* 'breathe.'

4.102. pPN- **ngArku* > GUP *ngarku.la* 'water;' GYA *ngarngku-l* 'splash.' Residue: GYA *ngarkay* 'water hen.'

4.103. pNY **ngarli* > NYA-W *ngarli-ka-nya* 'to tell abominable lies;' NMA *ngarla.wangka-ku* 'to deceive, to lie, to fool.'

4.104. pNY **ngarli* > WLP *ngarli* 'Achilles tendon; big toe;' PIN *ngarli* 'little finger or toe;' NMA *ngarli.ra* 'little toe.'

4.105. pNYY **nga(r)lku* > NYU *ngarlku, ngorlka* 'tooth;' GUP *ngalka* 'tooth.'

4.106. pPN- **ngA(r)lkV* > NMA *ngarlka* 'taste, having a taste;' YAN *na-ngalki* 'essence; scent of flower; smell of animal; taste of food; tune of a song.'

4.107. pPN **ngArlpu* > PIN *ngarlpu* 'play, a joke, a non-serious situation; to play, joke;' PNK *WAILBA-TA* 'to swing round;' GUP *ngarlwa'-yu-n* 'play;' BAA *ngarlpa-ngarlpa-* 'to swing (intr.), to fool about.'

4.108. pPN- **ngA(r)lpu* > NYA-S *ngarlpu-pi-(n)* 'prancing steps when groups approach dancing;' WLP *ngalpa.rany-ka-nyi* 'walk around, move around;' YDN *ngalpa* 'female dance.'

4.109. pPN (E) **ngArlu* > BAA *ngarlu, ngarlu.ja* 'mother-in-law (woman speaking), father's oldest sister;' PIT *ngarlu* 'man's father-in-law, mother's brother.'

4.110. pNY **ngArlu* > NYA-S *ngarlu* 'stomach,' -W *ngarlu* 'stomach;' PNK *NGADLU.RU* 'the flesh part of the abdomen;' NMA *ngarlu* 'belly, outer stomach, feeling, emotions.' (pNG **ngarlu*).

Residue: YAN *na-ali.kali* 'meat cut from belly area of the dugong.' This may be a reduplication of a form **kali*, with the loss of initial **k*.

4.111. pPN- **ngArna* > NYU *.NGANA.LÁK* 'mine,' *.NGANNA* 'my;' YAN *ngarna* 'I: me.' Note also Mirniny *ngarna-nha* 'me.'

4.112. pPN- **ngArnka* > NYA-S *ngarnka* 'beard;' WLP *ja.ngarnka* 'chin; beard ... (*ja* from *jaa* 'mouth')' (K. Hale, p.c.); PIN *ngarnku.rr-pa* 'beard, whiskers;' PNK *.NGARNKA* 'beard;' NYU *ngarnak, ngarnka* 'chin,' *ngarnak, ngarnka* 'beard,' *.NGANGA* 'the beard; the chin; roots of trees or plants;' NMA *ngarnka* 'beard;' BAY *ngarnka* 'beard;' BGU *nganka.rt* 'beard;' DIY *nganka* 'beard;' PIT *nganka* 'chin, beard.' (pNG **ngarnka*, pKAN **ngarnka*).

4.113. pNYY **ngarnngaN* > NYA-S *ngarnngany* 'chin.' -W *ngarnngaN* 'jaw, chin;' PNK *.NGANGUNG.E* 'chin;' NMA *ngarnngarn* 'chin;' BAY *ngarnngany (?)* 'jaw.'

4.114. pNY **ngarnta* > WLP *ngarnta.piri* 'groin,' *ngarnta.rl.ku* 'fork (of tree);' PIN *ngarnta.piri* 'groin, crotch, lower edge of a sandhill or mountain;' KAU *.NGARTA* '*mons veneris*;' PNK *.NGARTA* 'region about the genitals.'

4.115. pNY **ngarnta* > KAU *.NGANDA.NNA* 'ill; sick; painful;' NYU *.NGANDY.N* 'unwell;' NMA *ngarnta* 'sore, wound.' (pNG **ngarnta*).

4.116. pPN **ngaRpV* > KAU *.NGARPA.RPO* 'father in law,' *.NGARPU.TYA, .NGARPA.TYA.TA* 'son in law;' BNJ *ngarpi.nyja* 'resident in a place with expectancy of getting married; a young man spent some months ... with his prospective in-laws ....'

4.117. pPN- **ngarra* > NYA-S *ngarra.kuny* 'for always, in the same way,' *ngarra.ny* 'yet, kept going,' -W *ngarra.kuny* 'always, ... continuously,' *ngarra.ny, ngarra.yi* 'yet, still;' UMP *nga'an.ngama* 'always.'

4.118. pP **ngarra* > WMK *nga'.alangk* 'a bottle (originally old people's skin bottles);' YIM *ngarraa* 'skin.'

4.119. pPN **ngArra* > BAY *ngarra.ny.ji* 'frog;' WOI *ngarre.rt* 'frog.'

4.120. pPN- **ngArra* > NYA-S *ngarra.ta* 'liquid poison.' -W *ngarra.rta* 'poison (generic term);' WLP *ngaarr.pa* 'warm, heat, hot; angry, ... smoldering;' KAU *NGARRA* 'a piece of burnt wood; stump; stick;' YAN *ngarra* 'warm,' *ngarra-ngarra* 'hot; sharp; dangerous; harmful; cheeky; poisonous.'

4.121. pPN- **ngArra* > NYA-S *nganta-(rn)* 'be prevented,' -W *ngarnta-rna* 'to block, stop ...; to stand in the way of;' YDN *ngarra.m, ngarra.m-kali-N* 'be obstructed, impeded;' DIY *nganda.walka-* 'close, stop.'

4.122. pPN- **ngArra* > NYA-W *ngarra* 'as well; also; but; moreover;' GYA *ngarra* 'also.'

4.123. pPN (E) **ngArra* > WMK *ngaant.am-ngeey-an* 'think, understand, realize, believe, decide, evaluate;' GUM *ngarraa(ng)* 'listen to, hear, remember, learn;' PIT *ngarra, ngarra.wa* 'ear.'

4.124. pPN **ngArram* > KAU *NGARA.TTA* 'spine;' NYU *NGARRA* 'the back;' WEM *warrəm* 'back, of person or animal;' WOI *ngarra.k* 'back.'

4.125. pNYY **ngarraya* > NYA-S *ngarraya* 'niece,' -W *ngarraya* '... son; daughter (?); sister's daughter;' NMA *ngarraya* 'son's wife;' BAY *ngarraya* 'husband's mother; daughter-in-law.' (pKAN **ngarraya*). These forms are phonologically identical, which may indicate that borrowing has taken place.

4.126. pPN **ngarri* > YAN *ngarri.yathangu* 'stranger; foreigner;' BNJ *ngarii.ng.pil* 'foreigner.'

4.127. pNY **ngarri-* > PIN *ngarri-ngu* 'to lie, or sleep;' NMA *ngarri-ku* 'to lie, to be lying down, ...' (pNG **ngarri-*).

4.128. pPN **ngArri* > KAU *.NGARRAI.TYA* 'plenty; abundance;' PNK *.NGARRA.RRI-TI* 'to increase, multiply,' *.NGARRA.RRITA* 'heap;' BAA *ngarri-ngarra* 'big.'

4.129. pPN- **ngArri* > WLP *ngarra* 'indeed, in fact, really;' YAN *ngarri* 'really?; is that so?; expecting an affirmative response;' YDN *ngarraa* 'do you think?.'

4.130. pPN- **ngarrku* > GUP *warrnggu.rl* 'spear made from barbs of stingray;' YAN *ngarrka.na-ntharra, arrka.na-ntharra* 'spearing; sewing; pricking; injecting; puncturing,' *ngarrki.tikiti* 'barbed spear.'

4.131. pPN- **ngArrku* > GUP *ngarrku* 'wallaby (collective term);' BGU *ngarrku* 'grey kangaroo;' PIT *ngarrhku.nu* 'wallaroo.'

4.132. pPN (E) **ngArrkV* > WOI *ngarrgi.gonen* 'backward,' *ngarrgu.th* 'behind;' PIT *ngarrhka-* 'follow,' *ngarrhka.ina* 'between.'

4.133. pNYY **ngarru* > NYA-S *ngarru.rta* 'trembling from fear,' -W *ngarru.rtu.karri-nyi* 'to be infuriated;' BAY *ngarra.pa-L-* 'shiver.'

4.134. pPN- **ngArru* > WLP *ngarru-ma-ni* 'live in camp of deceased person;' BAY *ngarra.ri* 'camp;' YDN *warra-N* 'shift camp.' (pKAN **ngarrari*).

4.135. pPN- **ngArru* > WLP *ngarru* 'desirous, happy, with appetite;' PIN *ngarru* 'a state of contentment with life; feeling of well being ...;' YAN *ngarru.ngarru.mpa* 'contented.'

4.136. pPN- **ngArru* > NYA-W *ngarri.ji* 'native honey;' NMA *ngarru*

'bottom-most section of native beehive or "sugarbag" ...;' PIT *ngarru.ngkarri* 'honey.'

4.137. pNYY **ngarrV* > PNK *NGARRU.RU* 'an edible kind of root;' GUP *ngarri.yal* 'sp of root food ....'

4.138. pPN **ngaarrV* > WLP *ngarru.rda* 'terrified, very upset, grief-stricken ...;' PIN *ngarra.ra-nu* 'to miss a target;' KAU *NGARRA.RE-NDI* 'to hide one's self;' PNK *NGARRA* 'error, deception, falsehood, lie, wrong, astray,' *NGARRA.RA* 'feigning, pretending;' YAN *ngarra.rn-ma-ntharra* 'refusing;' WMK *nge'.anath-an* 'hide (something or yourself); put inside (something);' BNJ *ngaari* 'game, dance;' GUM *ngaarri-* 'play;' PIT *ngarra.murntu* 'deaf,' *ngarra.pirnta-*, *ngarra.punka-* 'forget.' See (3.3) for a list of sets exhibiting relationships between 'negative' concepts.

4.139. pPN **ngArrV* > KAU *NGARRU* 'any white substance: as white ochre, chalk, lime, etc.;' BAY *ngarri* 'white clay ...; ashes;' YAN *ngarra.wa* 'salt;' WOI *ngarra.mbel* 'white ochre.' (pKAN **ngarri*).

4.140. pPN- **ngArrV* > GUP *ngarra.wu* 'mangrove tree ...;' YAN *ngarri.mi* '... mangrove spirit, inhabits the mangrove forests ....'

4.141. pPN **ngA(r)ta* > NYA-S *nganta.nganta* 'very big fire;' PNK *NGANDI* 'sunshine, light;' GUP *ngat.ngat-thu-n* 'shine, burn brightly, flame;' YAN *ngarta.ra* 'dry season: hot of the day;' BAA *ngarta-* 'to light a fire.'

4.142. pNYY **nga(r)ti* > NYU *ngati.rra.k* 'clavicle, collar bone;' GUP *ngarda.ngart* 'collar bone.'

4.143. pPN **ngArti* > NYA-S *ngarti.ngarti* 'river bank, edge, side of something;' PNK *NGARTA.RA* 'bank, precipice;' WMK *ngaat* 'side (of person's body, or house,

etc), corner.'
Residue: NYU *ngarri.ly* 'rib.' *NGARRĂ.L* 'the ribs; the sides.'

4.144. pPN **ngArti-* > WLP *ngardaly-kiji-rni* 'turn over, toss over, flip over; change (over).' *ngardaly.pa* 'over, other side, facing other way;' BAY *ngarntirni-L-* 'roll it up (as swag);' WMK *weent-an* 'turn ...;' BAA *ngarti-* 'to turn, to turn over.'

4.145. pPN **ngA(r)ti* > PIN *ngarnti* 'behind, after;' BAA *nganta.rra* 'behind, later;' DIY *ngarda* 'then, next, behind.' (pCK **ngarda*).

4.146. pPN- **ngA(r)ti* > WLP *ngati, ngardi.na* 'mother, maternal aunt.' *ngati-na* 'mother;' GUP *ngaarndi* 'mother;' DIY *ngandi* 'mother.' (pCK **ngandi*).

4.147. pPN- **ngA(r)ti* > GUP *ngarda.rra-cu-n* 'speak angrily (sometimes involves swearing).' *ngardi* 'discontent, dissatisfied;' YAN *nganta-yarra* 'unfamiliar with; disliking; ignorant towards.'

4.148. pPN- **ngA(r)ti* > NYA-W *nganti.ngi* 'extra, in addition;' NYU *NGATTI* 'more; go on; continue,' *NGORIU.K ?* 'much; very;' NMA *ngarti.lyi(lpa)* 'again, more;' WMK *want.anam* 'very many;' GYA *ngati* 'a long time.'

4.149. pPN **ngA(r)tu* > NYA-S *ngatu* 'stopped there,' -W *ngatu* 'at rest, stationary;' BAA *ngarta-* 'to stay in one's own place; to return, to go back.'

4.150. pPN **nga(r)tV(R)* > NYA-W *ngartu* 'who? (sing.), which? (of people);' KAU *NGANDO* 'who, the agent;' NYU *NGANDO* 'who, as the agent;' YAN *nganta.rra* 'how?;' UMP *wanta.lmpanhu* 'what kind of,' *wanta.ntu* 'how; somewhere,' *wantil* 'when,' *wantun* 'where, where to;' WMK *wantt.ak* 'how? what?;' BNJ *ngantur* 'some, others;' PIT *ngarnta.rta* 'a few.' (pP **wantu*).

4.151. pPN (E) **ngaru* > GYA *waru.rrijiniji* 'pacing the floor, thinking things

over;' BNJ *ngaru.n.pa-* 'to wonder, to puzzle over.'

4.152. pPN **ngAru* > BAY *ngara.rn.kura* 'small frog (in pools);' BAA *ngaru.ka* 'frog (*Hyla caerulea*), the large green frog.'

4.153. pPN- **ngAru* > BAY *ngara.ja-L-* 'taste, to echo;' GYA *ngaru* 'husky or squeaky voice;' DIY *ngaru* 'voice, echo.' (pCK **ngaru*).

4.154. pPN- **ngAta* > NYU *ngat* 'true;' BAY *ngaNTa.Li* 'very good;' KLY *NGATA* 'clean.'

4.155. pPN **ngatV(n/ng)* > WLP *ngarta.rta* 'freshwater crab;' WMK *nga'* 'fish (generic term);' GUM *ngatun* 'crab;' WEM *ngatang* 'a small crayfish.' (pP **ngata*).

4.156. pPN **ngAwa* > PNK *NGAUWA.LLA* 'word, language, dialect;' GUM *ngaawa* 'language.'

4.157. pPN- (E) **ngAwu* > YAN *a-ngawu* 'bladder of the sea turtle;' GYA *ngawi.ya* 'sea turtle;' YDN *ngawu.yu* 'turtle.'

4.158. pPN **ngAwuny* > WLP *ngawu.rr.pa* 'heat, hot weather, hot, burning;' KAU *NGAUWA.KKA* 'burning charcoal ...;' BNJ *ngaawiny* 'hot, of people.' *ngawuny* 'hot;' WOI *ngawany* 'sun.'

4.159. pPN- **ngawV* > PNK *NGA* 'yes;' BAY *ngawu* 'yes;' YDN *ngaa* 'yes;' DYI *nga* 'yes.' (pKAN **ngawu*).

4.160. pPN- **ngAwV* > WLP *ngawu.rru* '... younger sister;' KLY *NGAWA.KA, NGAWA.KI, NGOWA.KA* 'a girl.'

4.161. pPN (E) **ngAwVn* > YIM *wawu* 'breath, soul, inside;' GYA *wawu* 'the spirit of a man; breath;' BNJ *ngaawin* 'to breathe.'

Residue: YDN *wayway* 'wind,' *wayway (?)* 'heart.'

4.162. pPN- **ngayu* > PIN *ngayu.lu, ngayu.nya* 'I ... first person singular subject:' PNK *NGAI* 'first person sing. I:' NMA *ngayi* 'I (obj. ngaju me, poss. ngajutharntu my) ;' KLY *ngay, NGAI* 'I (intrans.);' UMP *ngayu* 'I;' WMK *ngay* 'I:' YIM *ngayu* '1 sg;' GYA *ngay.ku* 'my; for me, for my benefit;' YDN *ngayu* 'first person singular pronoun.' (pNG **ngayi*, pP **ngayu* ~ **ngaya*). See Dixon (1980:327-377) and Blake (1988, 1990) for discussion of Pama-Nyungan pronouns.

4.163. pPN- **ngAyu* > PIN *ngayu.n.pala* 'we all ... first person plural subject.' *ngayu.n.yali* 'we two ... first person dual subject;' KLY *ngoey, NGOI* 'we pl. excl..'

4.164. pNYY **ngayV* > NYA-S *ngayi.rr.ngayi.rr-pi-(n)* 'fight, box using hands and feet;' GUP *ngaya.k-thu-n* 'to promise, threaten to fight.'

4.165. pPN- **ngAyV* > WLP *ngaya.rla* 'chest, torso.' *ngayi.rni* 'abdomen, belly, stomach;' NMA *ngayi.ny* 'breath, inner feelings.' *ngayi.ny.ma-ku* 'to beat - of heart .... to breathe;' BAY *ngayi.nka-Y-* 'pant, huff and puff;' YAN *nta-ngayi* 'stomach, your; the centre of all emotion and well being.' A relationship between 'breathe' and abdomen is also found in (4.71).

4.166. pPN (E) **ngAyV* > YAN *ngaya.ma-ntharra* 'approving; ... agreeing; complimenting; satisfied, of hunger;' YDN *ngayi* 'exclamation of agreement;' WOI *ngayi* 'yes.'

4.2 *ngi-

4.167. pPN (E) **ngii* > UMP *ngii* 'yes;' BAA *ngii* 'yes.'

4.168. pNY (D) **ngilya* > NYA-S *ngilya.rn.ngilya.rn* 'noise of people talking;' PIN

ngilyi.ngilyi-rnu 'to make a jabbering talking noise ....'

4.169. pPN (E) **ngiimpa-* > BNJ *ngiim pa-* 'to ask for, ask someone for something,' *ngiimpa.l* 'cadger, beggar;' GUM *ngiimpa-* 'ask.' Borrowing may be responsible for the similarity of these forms.

4.170. pPN **ngInyV* > PIN *nginyi.warra.rri-ngu* 'to experience a cold, shivering feeling after a sudden fright;' BAA *nhinh-nhinh-mala-* 'to shake, to tremble.'

4.171. pPN **ngiira* > WLP *ngira.ngira* 'high up, ..., flying, ...,' *wira* 'up, out, upwards, outwards;' YDN *ngira-L* 'hang up;' BNJ *ngiira-* 'to look upwards.' This set resembles that in (4.174), except for the choice of rhotic.

4.172. pPN **ngirla* > YAN *ma-ngirla.ngirla* 'headband ...:' BNJ *ngiil* 'forehead.'

4.173. pPN **ngIrlV* > NYA-S *wila.wila* 'upper arm,' -W *wila.wila* 'shoulder;' NYU *ngirl* 'shoulder blade, scapula;' BAA *ngirli-pirnha* 'shoulder blade.'

4.174. pPN (E) **ngIrra* > YAN *wirra.nka-yarra* 'ascending; going upwards ...:' WOI *ngirr-ngirr.wan* 'up, above.' *wirra-* 'climb up.' See also (4.171).

4.175. pPN **ngIrra(y)* > WLP *ngirr.ngirr.pa* 'wailing, keening, crying;' GYA *nyirray* 'noise of crying, weeping, mourning;' BAA *nhiirra-* 'to wail, to cry continually.'

4.176. pPN **ngiirri* > WLP *nyirri* 'head-band;' BNJ *ngiiri* 'forehead.'

4.177. pNY **ngirt* > NYA-S *ngirt.ngirt* 'ache, pain,' -W *ngirt.ngirt* 'rheumatic ...:' KAU *NGIRTE-NDI* 'to halt; hobble; go lame.'

4.178. pNY (D) **ngitarn* > NYA-S *ngitarn-pi-(n)* 'hiccough;' PIN *ngitarn-pa* 'a hiccough.'

4.3 *ngu-

4.179. pYUR **NGUDLI* > KAU *NGUDLI* 'the kangaroo's pouch;' PNK *NGUDLI* 'pouch of the kangaroo and other marsupial animals.'

4.180. pPN **ngUja* > NYA-S *nguja.yi* 'frightened;' BAA *nguuya-* 'to fear, to be frightened.'

4.181. pPN- **ngUja* > NMA *nguja.rla.rti* '(Halley's) comet;' WMK *nguj* 'star.'

4.182. pPN- **ngUja-* > GUP *ngutha-n* 'grow;' YDN *wuji-N* 'grow, grow up;' DYI *wuji-y* 'grow up.'

4.183. pPM **ngUja-* > WMK *nguuth-an* 'smell, sniff;' BGU *ngutha-* 'to smell (trans.).'

4.184. pPN (E) **ngUjal* > UMP *nguunthal* 'spirit home, birthplace;' BNJ *nguthal* 'spiritual blessing or strength.'

4.185. pPN (E) **ngujam* > GYA *nguja.y* 'freshwater turtle;' BNJ *ngunyuum* 'long-necked turtle.'

4.186. pP **ngUju(rr)* > WMK *oth.am* '... older's sister's children ...;' GYA *ngujurr* 'man's sister's daughters.'

4.187. pPN- **ngujV* > PIN *ngunyji* 'a picture or situation which is not real, a make-believe situation, ... a lie or untruth;' YIM *nguthu* 'game, play;' GYA *nguju* 'fun.' *nguju.ri-* 'to play.' The meaning of the PIN form can be related to 'play' through the notion of 'pretend.'

4.188. pPN- **ngUjV-* > WLP *nguju.ly.pa* 'gashing, cutting through, ...;' YAN

wutha.ngka-yarra 'cutting; breaking; damaging the skin.'

4.189. pPN- **ngUjV(l)* > WLP *ngunjal.pa* 'blackened country after bush-fire. ...;' PIN *nguju.l.pu-ngu* 'to ignite a fire by rubbing a spear thrower on another piece of wood:' YAN *nguju.rru.mpa* 'without fire:' GYA *ngunjil* 'charcoal: hot coals or hot ashes.'

4.190. pPN- **ngUka* > NYA-W *nguku.juli.juli* 'tiny, white, inedible eggs in native honey;' NYU *ngok. nguka* 'honey from banksia.' *nguku. ngok* 'sweet:' BGU *nguwa.l* 'swarm of bees.'
Residue: GUP *guku* 'native sugar bag, honey, syrup.' This form is classified as residue because it is the only one to have an initial stop.

4.191. pPN **ngUka-* > NYA-S *nguka-(ny)* 'abduct,' *ngungku.wiyirr* 'share.' -W *nguki-nyi* 'to steal .... abduct:' WLP *nguku.nju* 'greedy;' WMK *ngook* 'jealous:' GYA *ngukal* 'the asking for things:' DYI *wuka-l* 'give:' WEM *wuka-* 'to give:' BAA *nguuka-* 'to give.' (pP **wu-*).
Residue: WOI *gunga-* 'give, take.' *wunga-* 'give.' The first form differs from those above in having an initial stop. This is the only data indicating that WOI weakens medial stops to nasals.

4.192. pPN **nguki* > WLP *nguku* 'water, rain, humidity, rain-cloud, water source; beer; petrol,' *nguku.ny.pa* 'brain, brains ;' KLY *NGUKI* 'water, fresh water.' *nguuki* 'water;' UMP *uku.lmpuy* 'brain;' BAA *nguku* 'water.'

4.193. pPN (E) **ngUku* > BGU *ngungku.lu* 'stick;' BAA *nguuku.ku* 'long stick.'

4.194. pPN- **ngUkVa(l)* > WLP *nguka-rni* 'gulp down, wolf down;' PIN *nguka-rnu* 'to swallow;' KLY *nguki.nay* 'thirsty;' WMK *wukal* 'neck;' YDN *wukul* 'nape.' See (3.130) and (3.701) for further evidence of a relationship between 'throat' or 'neck'

and 'swallow.'

4.195. pPN- **ngUla* > GUP *ngulu.mung* 'sp. of mangrove tree;' YAN *wula.nta* 'Mangrove (*Aegiceras cornicalutam*).'

4.196. pPN **ngulang* > PIN *ngula* 'by and by, later;' NYU *NGO-LA.NG* 'after; behind;' YAN *ngula* 'behind; back further.' *ngula.ya* 'after;' KLY *ngul, NGUL* 'yesterday;' UMP *ngula* 'by-and-bye, later on.' *ngula-ngula* 'soon;' WMK *ngul* 'later on ...; planning to ...; predict ... ; then ...; so then ....' *ngul-ngul.am* 'very soon;' BNJ *ngulung* 'in front, ahead.' *ngulung.may* 'soon.' (pP **ngula*). This set may be ultimately related to that in (3.644), but the widespread occurrence of initial *ng* is reason to keep these forms in a separate set.

4.197. pP **ngulka* > UMP *ngulka, ngulka.'a* 'yesterday.' *ngulku* 'night;' YIM *ngulku* 'afternoon, yesterday;' DYI *ngulka* 'tomorrow.'

4.198. pPN- **ngUlkV* > PNK *WOLGARRA* 'a species of shark;' YAN *ngulku* 'Epaulette Shark.'

4.199. pP **nguulpan* > YIM *nguulpaan* 'cloud;' YDN *ngulpan* 'fine cloud.'

4.200. pPN **nguluny* > BNJ *nguluny* 'digging-stick;' WOI *wuluny, wulu.wany* 'yamstick.'

4.201. pPN **ngUlya* > NYA-W *ngulyu* '(the) same; the same place;' WEM *ngula-* 'like [similar].'

4.202. pPN- **ngUlya* > NYU *NGUL-YA.P* 'empty;' BAY *ngulha* 'no; I don't know.' *ngulha.ya* 'no more;' YDN *nguju* 'not, never, no.' (pKAN **ngulha*). See (3.3) for a list of sets exhibiting relationships between 'negative' concepts. See also Evans (1992).

4.203. pPN **ngUlya-* > NYA-S *ngulya-(rn)* 'splash, throw water, pour water,' *wulya-(rn)* 'splash water,' -W *ngulya-rna* 'to wash (tr.),' *ngulyu.lyurr* 'menstrual blood (?);' YAN *ngulya* 'blood;' BAA *ngulya-* 'to wash.'

4.204. pP **ngU'ma* > YDN *nguma* 'father;' DYI *nguma(nti)* 'father, and father's younger brother.' Borrowing may be a factor in this set.

4.205. pPN- (E) **ngUmpa* > YAN *ngumpa* 'dugong calf;' WMK *ngoomp.ang* 'navel, umbilicus; umbilical cord; name given to child ... at time of delivery of afterbirth;' YDN *ngumpu.pu* 'new-born baby.' Evidence for a relationship between 'umbilical cord' and 'baby' or 'child' is also found in (3.369), (3.604) and (5.160).

4.206. pPN- **ngU'mpa(l)* > WLP *ngumpa.rna* '(senior) brother-in-law; husband,' *ngumpa.rna-rra* 'married couple, spouses, ...;' PIN *ngumpa.rna* 'older brother-in-law;' KAU *NGUBBA* 'husband;' GYA *ngumpal* 'fully trained boy ... eligible to marry.'

4.207. pPN **ngumpany* > PIN *ngumpa* 'shade or shade shelter;' BNJ *ngumpiny* 'camp, house, hut.'

4.208. pPN- **nguna-* > WLP *nguna-mi* 'lie ...; sleep ...;' NYU *ngurni.ny, ngurnti.ny* 'lying, lying down;' UMP *wuna-* 'lie, sleep, stay the night;' WMK *wun-an* 'lie down, live, stay; ... stative verb ... to be;' YIM *wu-naa-* 'lie, exist;' GYA *wuna-y* 'to lie down; to sleep; to have; state of being;' YDN *wuna-N* 'lie, sleep, live;' BGU *wuna-* 'to lie down.' (pP **wuna-*).

4.209. pPN- **ngUna* > PIN *nguna.rn-pa* 'arm, branch of tree;' PNK *NGUNNI-TI* 'to motion with the hand, to beckon to come;' NMA *nguna.marra* 'armpit;' WOI *wurni.t* 'river, creek;' DIY *nguna* 'arm,' *nguna.ngana-* 'wave.' (pNG **nguna*, pWK **nguna*).

4.210. pPN- (E) **ngUna(y)* > YAN *na-nguna.ntha* 'sea above sea grass beds ...;' GYA *ngunay* 'wet.'

4.211. pP **ngungku* > UMP *ngungku* 'there (far);' YDN *ngungku* 'there.' (pP **ngungku(-na)*).

4.212. pPM **ngUngu* > YDN *ngungu* 'that;' BGU *ngungu* 'that, there.' Residue: KAU *.NGUWARRA* 'there along.' This is the sole example of KAU potentially weakening a medial nasal to a glide.

4.213. pPN- **ngUnju* > NYA-W *ngunji.rr* 'smoke;' WLP *ngunju* '... tobacco, cigarette, chewing tobacco;' YDN *wunyju* 'smoke, tobacco.'

4.214. pPN (E) **ngUnta-* > BAA *ngunta-* 'to rub, to smear;' PIT *ngunta.mali-* 'paint oneself.'

4.215. pNYY **nguntu* > NMA *nguntu* 'catarrh, head cold;' BAY *nguntu.n-wartu* 'suffering from a cold.' (pKAN **nguntun*).

4.216. pNY **nguntu* > WLP *nguntu.rr.ku, nguntu.rr-nguntu.rr.ku* 'big and heavy, bulky ;' PNK *.NGUNDU.NYU* 'broad, thick.'

4.217. pPN- **ngunturri* > NYA-S *ngurntirri* 'sound of engine,' -W *nguntirri* 'even-sounding; running evenly (as of an engine);' WLP *ngurntirri* 'growling ;' NMA *nguntirri* 'sound, having a sound;' YAN *ngunturr-ma-ntharra* 'snoring .'

4.218. pPN- **ngunV* > NYU *.NGUNĂ.LLĂNG* 'Yours; thine;' UMP *ngunu* 'you sg..'

4.219. pPN- **ngUnya(n)* > KAU *.NGUNYA* 'joy; pleasure,' *.NGUNYA.WAIE-NDI* 'to play;' GYA *ngunya-ngunya* 'imagination, ...;' YDN *ngunyan* 'silly(ness).'

4.220. pPN (E) **ngUnyi(n)* > GYA *ngunyin* 'dilly bag ...;' WEM *ngunyi* 'a bag.'

4.221. pPN- (E) **ngUnyji-* > WMK *ngunj-an* 'to take from someone, gather, pick up ...;' PIT *ngunyji-* 'give.' (pKAR **ngunji-*).

4.222. pPN- **nguunyjV(l)* > NMA *ngunthu.rru.ma-ku* 'to snore;' UMP *nguunjil* 'snoring.'

4.223. pPN **ngunynguny* > PIN *nguny.nguny-pa* 'ant, generic;' BNJ *nguny nguny* 'ant.'

4.224. pNYY **ngunyV* > NMA *ngunhu* 'that one (removed);' BAY *ngunyi* 'over there.' (pNG **ngunha* ~ **ngunhal* ~ **ngunhu*).

4.225. pPN- **ngUpa* > NYU *nguup, ngupa, ngupu* 'blood,' *NGU-BU* 'blood,' *NGUBU.L-YA* 'red; blood-coloured;' YAN *wumi.liji* 'red;' WMK *wu* 'brown or red ochre;' GYA *wupa* 'red ochre;' YDN *wupa* 'red clay; red bream; red,' *wupa.kar* 'red.' Residue: NMA *ngupa* 'large thick red grasshopper.'

4.226. pPN (E) **ngupu* > DYI *ngumpu.ngka* 'yesterday;' BNJ *ngupu, ngupuu* 'yesterday, tomorrow.'

4.227. pPN- **ngUpu(n)* > NYU *NGOBA.R* 'open downs near the sea; the sand-hills of the coast;' WMK *wump* 'hump-backed, heaped;' YDN *ngumpun* 'piles of soft sand.'

4.228. pPN- **ngUpV* > PNK *NGUPI* 'darkness, pitch dark night;' YAN *ngupu.nthurr* 'black; dark;' WMK *ngow.anthang* 'night-time;' YDN *nguwa-N* 'get really dark.' The forms with medial *-w-* could plausibly belong in (3.505).

4.229. pP **ngUra(n)* > YDN *ngurun* 'shade;' BGU *ngura* 'shadow.'

4.230. pNY **ngu(r)la* > NYA-S *ngurla.n* 'wedgetailed eagle,' -W *ngula.n*

'Wedge-tailed Eagle (also called Eaglehawk);' NYU *NGULO.R* '*Haliaeetus leucogaster*? sea-eagle.'

4.231. pPN- **ngUrla* > WLP *nguurl.pa* 'resentment, resenting ;' PIN *ngurlu* 'fear, afraid;' BAY *ngurlu.mpa-Y-* 'make ashamed;' KLY *NGULA.MI-* 'hate.'

4.232. pPN (E) **ngUrlany* > YAN *ngurla.ngurla* 'dirty water: muddy water: stagnant water;' GUM *nguuluny* 'mud.'

4.233. pPN- (E) **ngurlku* > YAN *ngurlku* '... Short Necked Turtle (*Elseya*sp.);' UMP *ulki.ji* 'short-necked tortoise.'

4.234. pNYY **ngurlku-* > WLP *ngurlku.rr.pa* 'gulping;' GUP *ngurlk-thu-n* 'to swallow.'

4.235. pNYY **ngu(r)lu* > WLP *nguurl-ka-nyi* 'push away, push along, ...;' BAY *ngulu.ngulu-L-* 'push, drive backwards.'

4.236. pNYY **ngurluwarnta* > NMA *ngurluwarnta* 'pelican;' BAY *ngurluwarnta* 'pelican.' Borrowing may be a factor in this set.

4.237. pNY **ngurlV* > NYA-S *ngurli.ngurli* 'little baby;' PIN *nguli* 'child, children.' *ngurli.ngurli* 'a child at the sitting stage;' PNK *NGUDLA.LLI* 'a mother, a woman having born children.'

4.238. pNY (D) **ngurn* > NYA-W *ngurn.ngurn* 'the humming of tunes; a person who hums;' WLP *nguurn.pa* 'humming, whining.'

4.239. pNYY **ngurnta-* > NYU *ngurnt-* 'lie,' *NGWUND-OW* 'to lie down;' BAY *ngurnta-Y-* 'lie down, sleep, camp.' (pKAN **ngurnta-*).

4.240. pPN- **ngU(r)nti* > PIN *ngurnti* 'nape of neck;' YAN *nta-nguntu.wa* 'throat,

your.'

4.241. pPN- **ngUrnV* > NYA-S *ngurna.rri* 'that way.' *ngurnu.ngu* 'that one (distant).' -W *ngurna.rri* 'yonder, over there,' *ngurnu* 'that (yonder).' *ngurnu-ngu* 'over there;' KAU *NGUNNA* 'those;' PNK *NGUNNA* 'demonstrative, that, you.' *NGUNNA.RA* 'yonder;' BAY *ngurna, nguna* 'there;' BGU *nguni.nga* 'there.'

4.242. pPN- **ngUrra* > NYA-W *ngurru* 'small piece, remnant ...;' DYI *wurra* 'little.'
Residue: WLP *ngurdu.nyun.pa, ngurdi.nyin.pa* 'baby, infant .'

4.243. pPN **ngurram* > NYA-S *ngurra* 'camp site,' -W *ngurra* 'camp;' WLP *ngurra* 'camp, home, ...; country, land, ...; day, night;' PIN *ngurra* 'camp, dwelling, dwelling area;' NMA *ngurra* 'camp, place, land, country;' GUP *nguurra* 'lie down, sleep;' BNJ *nguraam* 'asleep; sleep;' DIY *ngurra* 'camp;' PIT *ngurra* 'camp.' *ngurru.ngurru* 'sleepy.' (pNG **ngurra*, pKAR **ngurra*).
Residue: GUM *nguura* 'house, camp.' GUM's rhotic differs from those in the forms above.

4.244. pPN- **ngUrrji* > GUP *ngurrci* 'nasal discharge;' KLY *NGURSI* 'mucus of nose.'
Residue: WMK *ngooj* 'nasal mucus, cold in the head.' WMK is lacking a medial rhotic.

4.245. pPN- **ngUrrka* > NYU *ngurrka.lij* 'mosquito;' YAN *a-wurrka.ny* 'Mosquito ....'

4.246. pNYY **ngurru* > KAU *NGURRO* 'back; backside;' GUP *ngurru.gu* 'out of sight, behind.'

4.247. pNY **ngurru* > WLP *ngurru.rn.pa* 'body hair, pubic hair, armpit hair;

fibre;' PNK *NGURRO* 'hair.'

4.248. pPN- (E) **ngUrru* > YAN *nta-ngurru* 'nose, your: face, your;' KLY *NGUR(O)* 'hook or peg ...; beak of bird (?).'

4.249. pPN **ngurruny* > WLP *ngurri.ny.pa, ngurru.ny.pa* 'fly sp., flying insect sp.;' GUP *ngurru.marr* 'marchfly,' *wurru.rlurl* 'fly;' BNJ *nguruny-nguruuny* 'dragon-fly.'

4.250. pPN **nguurrV* > NYA-W *ngurr-ngurr-kurru* 'thunder,' *ngurr.kurru-ma-rna, ngurr.kurru-mu-rnu* 'to purr, of a cat (onom.).' *ngurr.ngurr* 'pig (onom.);' WLP *kurru.rlurlu, ngurru.rlurlu* 'echo, ... resounding noise, roll of thunder ...,' *nguurr-nguurr.pa* 'pig .' *nguurr.pa* 'growling, snarling, grunting, snorting ;' BAY *ngurru.rru.karri-Y-* 'snore;' GUP *nguurr'-yu-n* 'hum a tune, moan or cry softly;' YAN *wurru.nturla* 'dingo, male;' BGU *ngurra, ngurran* 'dog;' BNJ *nguur* 'growl (of dog).'
Residue: WMK *ngur-ngur* 'pigs' noise.'

4.251. pPN- **ngUrrV* > NYA-S *ngurr.ngurr* 'pig; catfish;' YAN *ngurru* 'Marine Salmon Tailed Catfish.'

4.252. pPN **ngUrrV-* > GUP *ngurru.mara-ma* 'chase away, out;' WMK *woo'.ath-an* 'drive away;' WEM *wurre.ngala-* 'to chase away.'

4.253. pNYY **ngu(r)ta* > WLP *ngutu.ngutu* 'proper, ... right, good. ...;' BAY *ngurnta.yi* 'right, correct, proper.'

4.254. pPN- **ngU(r)ta* > NYU *ngurti.j* 'heel,' *NGUDA.NG* 'the heel;' PIT *nguntu.ruku* 'heel.'
Residue: DIY *nguda* 'shin.'

4.255. pPN- **ngUrti-* > GUP *ngurdu.l.ngurdu.l* 'make a noise, hum; far voices;'

YAN *ngurti.ngurti-ma-ntharra* 'whispering; talking quietly,' *nyampa-ngurtu.ka-ntharra* 'mumbling to oneself; speaking together indistinguishably.'

4.256. pPN- (E) **ngUrti(n)* > KLY *NGUDI* 'a tear.' *nguudi* 'tears:' BGU *ngurtun* 'tears (when not in the eye).'

4.257. pPN **ngUrtu* > KAU *NGUTTO.WORTA* 'chin;' PNK *NGUR-TU* 'cheek:' WOI *ngurndu.k* 'chin.'

4.258. pPN (E) **ngu(r)tV* > UMP *ngu'u.la* 'you non-sg;' WEM *ngute.in* 'you ... plural:' BAA *ngurta* 'you (pl).'

4.259. pPN **ngurun* > WLP *nguru* 'sky, ...; country, district, ... place, area:' PIN *nguru* 'sky; the heavens;' YAN *nguru.nguri.rri-njarra* 'homesick ...;' BNJ *ngurun* 'sky.'

4.260. pPN- **ngUrV-* > BAY *ngura.tharri-Y-* 'stage a corroboree, dance;' KLY *URA.TIAI-* 'dance in a certain way;' GYA *wuri-* 'to dance, swing; to gamble;' BGU *wura.li-* 'to play.'
Residue: YIM *wuurrii-, wuurri-l* 'play.' YIM has *-rr-* corresponding to *-r-* in the above languages.

4.261. pPN **ngUtV* > NYA-W *ngutu* 'blocked, stuffed up (of nose);' BAA *ngunti.nya* 'dirt from nose, snot.'

4.262. pPN- **ngUya-* > NYA-W *nguya.ji-ni* 'to tease, annoy;' YAN *narnu-nguyu.la* 'trick; deception,' *nguyu.l* 'amusing person; trickster;' WMK *uuy.am-an* 'tell lies,' *uuy.amath-an* 'fool, trick someone.'

4.263. pPN- **ngUya-* > NYA-W *nguya.l.ma-rna* 'to fail to reach (far enough) ...;'

GYA *nguya.rr-mani-l* 'to plan to do, but unable to; to want something but can't get it;' DIY *nguya.waka-* 'prevent.'

4.264. pPN- (E) **ngUya(y)* > YAN *ma-nguya.rr* 'Spinifex grass;' YDN *nguyay* '*Themeda australis*, kangaroo grass.'

4.265. pPN- (E) **ngUyka* > YAN *ngungka.ngungka* 'talking softly;' WMK *nguungk* 'word;' YDN *nguyku.nU* 'talk like a whisper.'

4.266. pPN- (E) **ngUyma* > DYI *nguyma-l* 'do properly;' DIY *ngumu* 'good.'

4.267. pPN- **ngUyu* > NYA-S *nguyu.mpa.ra* 'fire, firewood ...;' KAU *NGUYO-NDI* 'to warm; to make warm;' BAY *nguyu* 'lightning;' WMK *ooy.am-an* 'to be burnt (food and meat).'

4.268. pPN- **ngUyu* > BAY *nguyu* 'raw (of fruit);' UMP *nguy'u.lu* 'raw meat;' WMK *ngoy.al* 'raw.'

4.269. pPN- **ngUyV* > NYU *NGU-YĂ.NG* 'the distant misty appearance of approaching rain;' WMK *ngooy* 'rainbow.'

Chapter 5

*w-Initial Etyma

5.1 *wa-

5.1. pYUR **WADLA* > KAU *WĀDLA* 'a tree lying on the ground: block;' PNK *WADLA* 'tree, fallen timber, block.'

5.2. pNYY **waja* > NYA-W *waja-rna* 'to shut, close (tr.);' GUP *waca.rr'-yu-n* 'hold back.'

5.3. pP **waaja* > UMP *waatha* 'crow;' WMK *waath* 'Torresian Crow (*Corvus orru*);' GYA *waja* '... crow;' YDN *waja* 'crow;' DYI *waja* 'crow.' (pP **waaja*).

5.4. pPN- **waaja-* > BAY *watha.nta-* 'crawl;' UMP *waatha-* 'go, walk;' BGU *waja-* 'to go, to come, to walk,' *waji-* 'to bring, to take away.' See also (5.15).

5.5. pPN (E) **waja(l)* > UMP *aja.ji-* 'blow, of wind;' GYA *watjal* 'cyclone;' BAA *watha-* 'to blow;' DIY *watha.ra* 'wind.'

5.6. pNY **wajapi* > NYA-S *wajapi* 'grasshopper, locust,' -W *wajapi* 'grasshopper;' NMA *wajapi* 'green grasshopper.' Borrowing may have occurred in this set.

5.7. pPN- **wAji* > WLP *waji* 'failing to, mistakenly,' *waji.waji* 'wrong way, immoral, ... wrong marriage partners;' YAN *waji.waji* 'unlawful, of marriage; incestuous.' See (3.3) for a list of sets exhibiting relationships between 'negative' concepts.

5.8. pNYY **waju* > NMA *waji.rr* 'harpoon;' BAY *wathu.ru.ngu* 'fish spear;' GUP *waca* 'pointed,' *wacu.rrapi* 'long pointed ceremonial stick.'
Residue: WMK *wenth.an* 'part of spear shaft.'

5.9. pPN- **wAju* > BAY *waji.rti, waji.rti.mpa* 'always;' BGU *wanyu* 'every time, usually.'

5.10. pPN **wajung* > WLP *waja.mirni* 'mother of spouse, maternal uncle of spouse, ... maternal grandmother's father;' WMK *wanj* 'woman;' BNJ *wathung-* 'mother.'
Residue: YIM *ngaanhthu* 'woman.' This form disagrees with BNJ with respect to vowel length, and has an initial nasal instead of a glide.

5.11. pPN **wajV* > PNK *WAITYU.RU* 'sore, boil;' YAN *waja.waja-ma-ntharra* 'death throws; partly alive ...;' UMP *wanyji* 'a sore,' *wanyji.pinta* 'sore (adj.);' WMK *weej-an* 'be sick;' YIM *wathi* 'wounded;' WEM *wathə.njən* 'dead.' (pP **wanyji*).

5.12. pPN- **wajV* > WLP *waja.rlurra* '*Rattus villosissimus*??, Long-haired Rat;' NMA *waju.warra* 'spinifex wallaby, spinifex rat ?;' UMP *wathi* 'rat, small sp., which enters houses;' WMK *wath* 'white tailed water rat;' BGU *waya* 'scrub wallaby.' (pNG **waju.warra*).

5.13. pPN **wajV-* > WLP *waja* 'I say, I said, says (he, she), of course;' PIN *waja-rnu* 'to say, tell speak;' BNJ *wathi-* 'to speak, say, talk,' *wathi-* 'say, tell (to do something).'

5.14. pPN- **wajV-* > NMA *watha.rri-ku* 'to look for, to be about to;' WMK *wej-an* 'look thoroughly for something ...;' YIM *wathi.n* 'hunting;' DIY *wanhthi-* 'search.' (pNG **watha.rri-*, pKAR **wanthi-*).

5.15. pPN (E) **waajV* > UMP *waaji-* 'be born; turn;' DYI *wayu* 'change[d] into something;' BNJ *waanyja.ri-* 'to roll, to turn, to change, to turn into;' BAA *wathi-* 'to get into, to turn into (intr), to become, to crawl into.' The BAA form bears a resemblance both phonologically and semantically to those in (5.4). It does, however, seem to share more semantic features with the forms in this set.

5.16. pPN **wAjV* > WLP *waja.m.pa* 'worry, ..., sad(ness), ..., grieving, upset, ..., bad; ... sick, ill, dead ??;' BAA *waathi-waathi-la-* 'to be wild, to get angry.'

5.17. pPN **wAjV(rr)* > WLP *waji.rr.ki* 'new growth, ..., green grass: ..., green vegetables, ...;' NYU *woj* 'grass;' KLY *WAUS, WOS* 'a grass fence or screen;' BGU *waju* 'scrub;' GUM *wajaarr* 'grass, ground, country.'

5.18. pPN- **waka* > NYA-S *wangka* 'near; raw.' -W *wangka* 'close, nearby;' YAN *wanga.rni* 'nearby; close.'

5.19. pNYY **waka* > WLP *waka.rra* 'womb, uterus; placenta, afterbirth;' GUP *waka.'ngurrka-ma* 'beget, procreate ....'

5.20. pPN **wAka* > KAU *WAIKU.RTA-NDI* 'to fear; dread;' KLY *aaka-* 'be frightened.' *AKA* 'fear;' WMK *ak.angam* 'shaking, quivering from fear or sickness;' WEM *waka.tang* 'determined, obstinate;' WOI *WAKE.RING* 'argue.'

5.21. pPN **wAka* > WLP *waka.larra.ngu* 'grass poles tied to legs, leg poles;' WEM *wak* 'paddle of a canoe, shaped like a pole.'

5.22. pPN- **wAka* > PNK *WAKA.RRA* 'neck;' KLY *WAKAI* 'voice, throat;' DIY

waka.da 'neck.'

5.23. pPN- **wAka* > GUP *waanga.wulanybuy* 'whale;' WMK *aak.am* 'whale.'

5.24. pPN- **wAka-* > NMA *waka-ku* 'to go, to move in manner characteristic of species - as to fly of bird;' GUP *waangga-ma* 'walk pl.,' *waka.la-ma* 'crawl.' *wangga.ma* 'go, walk;' KLY *WAKAI-* 'chase;' DYI *wangka.ka-y* 'step over (e.g. log);' BGU *waka.ni-* 'to run, to fly, to walk;' DIY *waka.ra-* 'come.'

5.25. pPM **wAka-* > WMK *ek-an* 'get up (people or animals), take off (planes or birds) ....' *ek.ath-an* 'to get someone up;' BGU *waka-* 'to climb, to go up, to rise (of sun), to grow (of grass).' *waka.l.ma-* 'to lift, to make (a nest).'

5.26. pPN- **waka(l)* > WLP *waka.ni.ngi* 'in love, amorous, lover;' YDN *wakal* 'wife.'

5.27. pPN (E) **wAkan* > BNJ *waangkan (wangkaan?)* 'south;' GUM *wangkaan* 'south;' PIT *waka.rrha* 'south.'

5.28. pPN- **wAkari* > WLP *wakari* 'meat (in ancillary vocabulary)' (K. Hale, p.c.): PIN *wakari* 'meat;' NYU *waaka.l* 'carpet snake.' *waka.rl* 'snake (edible), carpet snake;' NMA *wakari* 'fish;' YAN *akari-ma-ntharra* '(verb) fishing over the islands and sea.' Evidence for a relationship between 'meat' and 'snake' is provided by PIT *kathi* 'meat, animal, snake' and by BNJ *kuthim* 'wild game, native animals, bush food ... snake.' See (3.823) for a discussion of the evidence for a relationship between 'meat' and 'fish.'

5.29. pPN **waka(y)* > NYU *waka-* 'breathe,' *WAUG* 'soul; spirit; breath;' BNJ *wakaay* 'spirit of living person,' *wakay* 'shadow, reflection; spirit.'

5.30. pPN- **wAkin* > NYA-W *waki.ji.kirri* 'all, everyone;' GUM *wakin*

'completely, very.'

5.31. pPN- (E) **waku* > YAN *waku.ku* 'dog; dingo;' WMK *wak-an* 'growl at (someone);' PIT *waku.npa-* 'bark (of dog).' This set may be ultimately related to that in (4.19).

5.32. pPN- **wAku* > WLP *waku.rtu.rdu* 'quick(ly). .... vigorous(ly). ... : loud. .... forcefully. ...; of language: difficult. ...; strong, powerful, ...;' YAN *waku.la.mpa* 'intensely; loudly; vigourously; hard.' *waku.ru* 'fast, of walking/speaking; quickly.'

5.33. pPN- **wAku* > WLP *wangku* 'grass nest, lair;' WMK *wak* 'grass, weeds; ....'

5.34. pPN- **wAku* > NYA-S *waku.rla* 'flat one;' YDN *wangku* 'level, flat.'

5.35. pNYY **wAku* > KAU *WAK.WAKKO* 'child; offspring;' GUP *waku* 'woman's daughter or son, man's sister's son or daughter.'

5.36. pYUR **WAKU* > KAU *WAKU.RRI* 'a species of lizard;' PNK *WAKA* 'a small species of lizard.'

5.37. pPN **wakun* > NYA-S *waku.rra* 'little crow.' -W *waaku.rra* 'crow;' NMA *waku.rra* 'crow;' GUP *waak* 'crow;' BNJ *wakaan* 'crow, raven;' GUM *waakan* 'crow;' BAA *waaku* 'crow ...;' PIT *waka.rla, waki.ri, waki.rti* 'crow.' (pNG **waaku.rra*).
Residue: BAY *kaaku* 'crow.' The widespread languages above all have initial *w*, while BAY has *k-*.

5.38. pPN **wakun* > NYU *waka.rn, waka.rra.ng* 'mountain duck;' BNJ *wakun* 'Brush Turkey, *Alectura lathami.*'

5.39. pPN **wakuny* > NYA-S *waku.jarta* 'upper arm,' -W *waku.jirti* 'shoulder;'

WLP *waku* 'arm; upper arm; arm, wing, front leg, foreleg;' BAY *waku.ny* 'armpit;' GYA *waku.mpa* 'spreading branches of tree; biceps, or upper arm,' *wakuy* 'arm;' BNJ *wangany* 'armpit;' BAA *wangka.rra* 'upper arm near shoulder.'

5.40. pPN (E) **wakuny* > YIM *wakuurr* 'outside;' GUM *waakiny* 'outside.'

5.41. pPN (E) **wakuny* > YAN *waku.jiri* 'Marine Salmon Tailed Catfish;' BNJ *wakany* 'catfish.'

5.42. pNY **waku(r)la* > NYA-W *wakulu* 'rockhole;' NMA *wakurla* 'rock hole.'

5.43. pPN **waku(y)* > KAU *WAIKU.RTA* 'string;' WMK *ak* 'string ...;' BNJ *wakuy* 'vine, generic; rope.'

5.44. pPN- **wAkV* > WLP *waku.rlu* '(head) hair; mane;' WMK *angk.alam* 'hair.'

5.45. pPN- **wAkV* > WLP *waki.ji* 'rubbish, garbage;' KAU *WAKKI.NNA* 'bad; wicked; naughty;' PNK *WAKKA* 'a privative affix, answering to the English ending less.' *WAKKO* 'a negation;' NYU *waka.ny* 'bad.' *WAUKY.N* 'bad, useless;' YAN *waku.l* 'rotten; decayed.'

5.46. pPN- **wAkV* > NYA-S *waki.lirri* 'sitting cross-legged, walk with both feet pointing outwards,' -W *waki.lirri kaja-rna* 'to sit with crossed legs;' WMK *ak.ul* 'folded up, crossed-legged.'

5.47. pNYY **wAkV* > PNK *WAKKU.MANNA, WAKKU.MBALLA* 'a person bereft of relative;' GUP *waki.n.ngu* 'illegitimate, belonging to no one, uninhabited.'

5.48. pNYY **wAkV* > NYA-W *wangka.rru* 'spider;' KAU *WAKO* 'spider;' GUP *waku.lunggul* '... spider ....'

5.49. pPN- **wAkV-* > NMA *waka.rta.rri-ku* 'to turn, change directions;' PIT

wangku.ma- 'turn, swing around; stir.' (pNG **waka.rta.rri-*).

5.50. pPN **wakVl* > YAN *wakul.wakul* 'tasty;' BNJ *wakal* 'flavour, taste; person's accent or distinctive quality of voice.'

5.51. pPN- **wakV(r/rr)* > KAU *WANGKU.RE-NDI* 'to ascend;' WMK *waak.ang-an* 'go up, climb up;' YIM *wangkaarr* 'high, above;' GYA *wangkar* 'up, upriver.' *wangkar-wangkar* 'above;' YDN *wangka-L* 'make rise up,' *wangki* 'up.' Residue: NYU *KOKA.RDA.R* 'high; lofty.' This is the only potential member of the above set to have initial *k*.

5.52. pPN **wakV(rr/y)* > WLP *waka.waka* 'armed, with weapons.' *wangki.ny.pa* 'stone-axe;' PIN *waka-rnu* 'to spear ...;' PNK *WAKKA.RRA-TA* 'to make fall, fell.' *WAKKA.RRI* 'asunder, to pieces, broken,' *WAKKA.RRI.NGU-TU* 'to tear, break;' NYU *WAUGA.RT DTAN* 'to pierce through;' NMA *waku.purra* 'men's fighting stick;' GUP *waawu.rla* 'axe,' *waka.rta* 'club, stick for fighting;' YAN *waku-ma-ntharra* 'hitting to break/crack;' KLY *aga* 'steel axe.' *AGA* 'an axe;' UMP *waku* 'steel ax;' YIM *waki-l* 'cut;' GYA *wakay* 'wooden sword;' DYI *waka-y* 'spear ...;' BNJ *wakar* 'small axe, tomahawk;' GUM *wakaarr* 'axe, tomahawk;' BAA *waka-* 'to cut, to chop, to strip (a canoe),' *waka-waka-* 'to smack, to beat, to hit, to chop,' *waka.ka* 'tomahawk, stone-axe;' DIY *waka.rri-* 'break.'

5.53. pPN **wAla* > NMA *wala.mpa.ri* 'possum;' WOI *wale.rt* 'possum.'

5.54. pPN (E) **wAla* > GYA *wala-l* 'to enter, to go into;' WEM *wale.ja-* 'to come near, approach.'

5.55. pPN- **wAlakarri* > NYA-W *walakarri* 'a multi-barbed spear;' YAN *na-walangkarra.gu, na-walangkarra.mpa* 'harpoon point.'

5.56. pPN- (E) **wAla(rr)* > YAN *wala.kurruwiji* 'Eel Tailed Catfish;' GYA *walarr*

'whiskers, beard ....' *walarr-ji* 'literally "with whiskers." Freshwater catfish ....'

5.57. pNY **WALBA* > PNK *WALBA* 'sand.' *WALBA.RA* 'bottom of the sea;' NYU *WALBĂ.R* 'the sea-shore.'

5.58. pPN **wali* > PIN *wala.ju-nu* 'to set free, to put down, to put off a vehicle ....' *wala.ri* 'one who intends to stay elsewhere for awhile ...;' YAN *wala.rtanka-yarra* 'wanting others to keep away.' *wali-ma-ntharra* 'throwing; putting off, passenger/load; disposing of; ....' *wali.j.purrungka-yarra* 'swiftly moving away ...;' WOI *WELI.P.TEEN* 'flee.'

5.59. pPN- **wAli* > PIN *walu-rnu* 'to tighten, strengthen;' YAN *wali.karra* 'strong person; skilled dueller/fighter;' BGU *wala.li* 'hard, solid, strong.'

5.60. pPN- **wAlima* > NYA-W *walama.ngka ka-* 'to carry across the shoulders (as a log);' YAN *walima, walama* 'carrying position on one shoulder.'

5.61. pNY **waLja* > NYA-S *walja* 'belong,' *walja.marri* 'family.' -W *walja* 'self, oneself.' *walja.marri* 'fellow-tribesman;' PIN *walyja* 'relation ....' *walyja.pirti* 'group of relatives ....' It is not clear whether the protoform should be reconstructed as **walja*, with PIN assimilating **-l-* to **-j-*, or whether the difference seen in the laterals is merely one in transcription practices.

5.62. pNY **walka* > NYA-S *walka.rr* 'big lump;' PNK *WALGA* 'bag, protuberance, the protruding part of anything;' NMA *walka.rlu* 'insect gall on bloodwood tree.'

5.63. pPN- **walka-* > YAN *nyampa-walka-ntharra* 'opening one's eyes wide; opening one's legs wide apart;' YIM *walnga-l* 'open;' GYA *walnga-l* 'open; wake (someone) up; take clothes off.'

5.64. pNY **walku* > NYA-W *walku* 'hailstone;' PNK *WALKO* 'hail stone.'

5.65. pPM **wAlku-* > YDN *walngku-R* 'peep at;' DYI *walki-y* 'look over, in or round (something) at.'

5.66. pP **walkun* > UMP *alkun* 'spotted eagle ray;' GYA *walkan* 'diamond fish, devil ray.'

5.67. pPN- **walma-* > GUP *walma-* 'go out, come out, rise (sun or moon);' YIM *wal-maa-* 'rise, ascend;' DYI *walma-y* 'arise, get up.' The forms in this set bear a close resemblance to those in (3.230). If the sets were amalgamated however, they would contain the only examples in my data of **-p-* > DYI *-m-* and **k-* > YIM *w-*.

5.68. pPN **wAlmpV* > NYA-S *wampu.rr* 'everything mixed up,' -W *wampu* 'wrong, mistaken, in error, confused;' PIN *wampa* 'ignorant ...;' PNK *WAMBA.RA* 'ambush, treachery;' NYU *wompa* 'a totem, ? an ill omen;' BAY *wampu* 'bad: wrong; tasteless.' *wampu.tharri-ma-Y-* 'get lost, confused;' GYA *walmpi* 'left [hand side];' BGU *wampa, wampa-wampa* 'deaf,' *wampa-* 'to be lost,' *wampa.na-* 'to sulk,' *wampa.rt, wampa.rt-wampa.rt* 'mad;' GUM *waampi-* 'be afraid, fear;' WEM *wemba* 'no.' See (3.3) for a list of sets exhibiting relationships between 'negative' concepts.

5.69. pP **wAlngka* > YDN *walngka* 'chest: wind;' DYI *walngka* 'breath,' *walngka.mu* 'lung.' This set may be related to the one in (5.101).

5.70. pNYY **walpa* > WLP *walpa.ngku.rra* 'Black tree-lizard sp., goanna sp.,' *walpi.rda, warlpu.rda, walpu.rda* '*Varanus tristis*, black goanna sp.;' BAY *walpa.ji* 'netted dragon.'

5.71. pNYY **walpi* > PNK *WAILBI* 'south west country;' BAY *walpa.ra* 'south.' (pKAN **walparra*).

5.72. pPN **wAlpu* > PNK *WALBA.DLI* 'strong, powerful,' *WALBU.RRU* 'strong, headstrong;' BAA *walpu.nya, walpi.nya* 'stubborn, naughty, ...'

5.73. pPN- (E) **walu* > YAN *walu.ku* 'while, a little; for a while;' WMK *wal* 'partly, a little bit.'

5.74. pPN **wAlu* > PNK *WADLU* 'behind;' GUM *waala* 'behind, back of.'

5.75. pPN- **wAlu* > PNK *WALLU.MBA* 'common rat;' YAN *a-walu.rru.ma* 'Rock Rat poss (*Zyzomys argurus*).'

5.76. pPN- **walu(y)* > NYA-W *wala.rra, wala.rriny* 'past, by the side of;' YAN *wala.ngala* 'looking sideways;' UMP *walu* 'cheek;' WMK *wal* 'jaw, cheek area;' YIM *walu* 'temple, side;' GYA *walu* 'face;' YDN *walay* 'cliff,' *walu* 'temple; side of hill.' (pP **walu*).

5.77. pPN- **wAlV* > NYU *wal-, wel-* 'cry,' *WALLE* 'to cry; to shed tears; to wail;' KLY *WAL* 'cry, cooey;' WMK *wal.angenyan-an* 'cry.'

5.78. pNYY **walya* > NYA-W *walya.ka* 'leaf, foliage; tea leaves;' NYU *walya.l* 'lungs.' *WAL-YA.L* 'the lungs;' NMA *walha.rn* 'lungs;' BAY *walha.rti, walha.rri* 'leaf.' (pNG **walharn*).
Residue: WLP *walyuru, walyuri* 'green, alive ....'

5.79. pNYY **walya* > PNK *WALYA.RI* 'a species of mouse or rat;' NYU *woly, walya, wolya* 'rat-kangaroo, woylie,' *WAL-YO* 'the Kangaroo-rat;' BAY *walya.ji* 'mouse.'

5.80. pNY **walya* > NYA-W *walya.rra* 'long (of hair);' NYU *walya.rti* 'long,' *WALY-A.DI* 'tall; long; ungainly.'

5.81. pPN **wAlya* > NYA-S *walyi* 'almost, nearly,' -W *walyi* 'unsuccessfully, without the desired effect;' KAU *WĀDLI* 'imperfect; incorrect; bad; an affix, expressing dislike;' PNK *WADLI* 'wrong, incorrect;' NMA *walyi.l-kulhanga-lku* 'to

miss - with object thrown;' BAY *walhi.li* 'bad;' BAA *walya* 'not, "don't" (prohibitive particle).'
Residue: YAN *wala.rti-ma-ntharra* 'failing to hit; missing a target ....' Because YAN's inventory includes a laminal lateral, an apical is unexpected here.

5.82. pNY **walyku* > PIN *walyku* 'bad, no good;' PNK *WAILKA.NNI-TI* 'to be careless, indifferent,' *WAILKA.NNI.NGU-TU* 'to neglect, slight;' NMA *walyka* 'bad, out of order.' See (3.3) for a list of sets exhibiting relationships between 'negative' concepts.

5.83. pNY **walypu* > WLP *walypa.rda* 'prostrate, spread out flat ...;' NYU *WALBU.L* 'stretching or reaching over.'

5.84. pPN **wAlyV* > NYA-W *waly* 'hanging down (?);' WMK *waanj-an* 'hang up, put up high;' BGU *wanji.ma-* 'to hang (trans.);' BAA *waly-mala-* 'to dangle, to hang free (intr).'

5.85. pPN- **wAlyV* > WLP *walya-jarra, walya-patu* 'ancestors, oldtimers, forebears, ...;' BAY *walha.ya* 'first;' YDN *wala.purri* 'old man/men;' BGU *wathu* 'in *wathukan* 'old woman' and *wathurany* 'old man'.'

5.86. pPN- **wAma* > PNK *WABMA* 'a species of snake, diamond snake;' DIY *wama* 'carpet snake;' PIT *wama* 'carpet snake.' (pKAR **wama*).

5.87. pPN- **wAma* > WLP *wama.ny.pa* 'blocking, closing;' YAN *wama-ntharra* 'stopping; ceasing ....'

5.88. pPN- **wampa* > NYA-S *wampa.wampa-karri-(ny)* 'talk in sleep;' UMP *wampa* 'yawn (n.).'

5.89. pPN- **wampV* > PNK *WOMBA.LLA* 'female oppossum;' NYU *wamp*

'black/ringtail possum;' UMP *ampu.yu* 'opossum species.'

5.90. pPN **wAmpV-* > GUP *wambu.rt-thu-n* 'run;' BAA *wampa-* 'to flow.' *wampa-wampa-* 'to pick up, to drive along ...;' PIT *wampa-* 'shoo.' This set and the one in (5.279) may be related.

5.91. pPN- (E) **wAmu* > YAN *wawu* 'sugar;' KLY *WAM* 'honey-comb;' WMK *wom* 'wax taken from wild honey bee's nest.'

5.92. pPN (E) **wana* > WEM *wan* 'boomerang;' BAA *wana* '... a fighting boomerang ....'

5.93. pNY **wana* > NYA-W *wana.ngka* 'whirlwind;' PIN *wana.ngara* 'very strong boisterous whirlwind ...;' NMA *wana.ngku.ra* ' whirlwind.'

5.94. pPN **wAna* > NYA-S *wana-(rn)* 'burn out,' -W *wana-* 'to spread (of fire);' WLP *wana.rli* 'relating to heat/fire; source of heat; form of heat; product of heat.' *warna.li ??* 'fire;' WEM *wana.p* 'fire, firewood.'

5.95. pNY **wanal* > NYA-W *wanal* 'root of a tree;' PIN *wanal-pa* 'root generic for all trees;' NYU *wanal* 'root of tree.'

5.96. pNYY **wanga* > NYA-S *wanga.l* 'wind,' -W *wanga.l* 'wind, air;' WLP *wanga.pa* 'storm, big wind, ...,' *wangu.n.pa* 'gusting, blowing;' PNK *WANGA.RA* 'as *WANGARA WARRI WIRRITAO* 'the bleak west wind is blowing' (*WARRI WIRRITAO* '*wind blows*').'
Residue: GUP *waka.rr* 'whirlwind,' *wangga.lkal* 'wind.' GUP has a medial stop where the languages above have a nasal.

5.97. pPN- **wAnga* > NYA-W *wanga.rta* 'an edible sp. of spotted stingray;' WMK *waang.an* 'long-tailed stingray.'

5.98. pPN **wanga(l)* > NYA-W *wangu.rl* 'restless, anxious;' WLP *wanga.la* 'deaf, hard of hearing,' *wanga.marra* 'deaf, ...; .... mad, ... unknowing, unconscious, ...:' PIN *wanga.marra* 'one who is mad or will not listen;' YAN *wanga.rr* 'fighting; fighting ground.' *wanga.rr.mara* 'person looking for a fight; fighter;' BNJ *wangal* 'disobedient.' *wangal.kir* 'deaf.'

5.99. pPN (E) **wanga(y)* > BNJ *wangay* 'Tallow-wood, *Eucalyptus microcorys*;' GUM *wangaa.ka* 'tallow-wood tree.'

5.100. pPN- **wAngka* > GUP *wangga.ny* 'one,' *wangga.ny.ngu* 'different;' BGU *wangka.ra* 'one.'

5.101. pPN- **wAngka-* > NYA-S *wangka.ly.pa* 'talk too much;' WLP *wangka-mi* 'speak ...: make sound: ...: growl; ... call, neigh ..., sing .... chirp ..., low ...; howl .... hum ..., thunder ..., roar ...: ask (for), ... promise; blow (of wind); signal ...:' PIN *wangka-ngu* 'to talk;' KAU *WANGGA-NDI* 'to speak; say; utter.' *WANGKI* 'throat;' PNK *WANGGA-TA* 'to say, speak, talk;' NYU *wangka, wangk* 'word, story, language.' *wangka-, wongk-* 'speak, talk, tell, ask,' *WAN-GOW* 'to speak; to talk;' NMA *wangka* 'language.' *wangka-ku* 'to speak, to talk, ..., to make characteristic noise ...,' *wangka-wangka* 'windpipe;' BAY *wangka-Y-* 'speak, say, tell.' *wangka.rr* 'throat,' *wangka.yi* 'language;' GUP *wanga* 'talk, speak, tell;' WMK *engk-an* 'ask;' DIY *wangka-* 'sing.' (pNG **wangka-*, pKAN **wangka-*, pKAR **wangka-*). This set may be related to the one in (5.69).

5.102. pPN- **wAngku* > NYA-W *wangka.rli* 'Racehorse goanna;' NMA *wangka.rli* 'goanna;' GYA *wangku* 'small tree or wood goanna.'

5.103. pPN- **wAngkV* > NYA-W *wangki.ti* 'crow;' YAN *a-wangka* 'Crow (*Corvus sp*).' Note the set in (5.107), the forms in which are similar to those above, but lack a medial stop.

5.104. pPN **wangkVm* > WLP *wangku-ngawurr.pa* 'Western Hare-wallaby, Spectacled Hare- wallaby;' BNJ *wangkim* 'scrub wallaby.'

5.105. pPN- **wAngu* > NYA-W *wanga.langu* 'young adult male (?);' PIN *wangu* 'a boy from baby-hood to initiation;' YAN *wangu.lu* 'boy approaching adolescence;' YDN *wanga.rI/i* 'prepubescent boy.'
Residue: PIT *wangi* 'younger sibling.'

5.106. pPN- **wAngu-* > NYA-S *wangu-(rn)* 'hit, spank with hand.' -W *wangu-* 'to hit, to smack (as a child);' YAN *wanga-ntharra* 'hitting; shooting; spearing; striking.'

5.107. pPN **wAngV* > WLP *wanga.rla, wangki.rna* '*Corvus orru, Corvus bennetti*, Crow, Torresian Crow, Little Crow ...;' WOI *waang* 'crow.' See also (5.103).

5.108. pPN- **wAngV* > NYA-S *wanga.rr* 'light, not heavy,' -W *wanga.rr* 'light, flimsy;' WLP *-wangu* 'without, not having, not;' GUP *wanga.ra* 'empty, light, barren (no child);' DIY *wangi* 'poor.'

5.109. pPN (E) **wangV(l)* > YIM *wangi* 'boomerang;' GYA *wangal* 'boomerang;' YDN *wangal* 'boomerang; bone off eel's jaw; ...;' BGU *wangal* 'boomerang.'
Residue: YAN *waki.rli* 'boomerang (generic).' This form is classified as residue because it has a medial stop where all of the above forms have a nasal.

5.110. pPN- (E) **wAnja* > WMK *wanth* 'really good (smell), nice looking;' BGU *wanja* 'right, true, good, well.' See also (4.81).

5.111. pNYY **wanka* > NYA-S *wanka* 'raw, alive,' -W *wanka* 'half-cooked, undercooked,' *wanka.nyu* 'alive, living;' WLP *wanka* 'raw, ..., unripe, green (of fruit); ...; alive, ..., returned to health;' PIN *wanka* 'alive, awake, conscious; raw, not cooked, not ripe ...;' NYU *WANG-E.N* 'alive; well; in health,' *WON-GI.N* 'living;

also green, when applied to leaves or wood;' NMA *wanka* 'raw, unripe, alive ...;' BAY *wanka* 'alive, raw.' (pNG **wanka*, pKAN **wanka*).

5.112. pPN- (E) **wAnki(r)* > YAN *wanki.wanki* 'Spinifex (*Spinifex longifilious*);' YDN *wankar* 'small bamboo/reed.'

5.113. pPM **wankV-* > YDN *wankaa.r.ji-N* 'bark;' BGU *wanku.li-* 'to bark.'

5.114. pPN- **wAntV-* > NYA-S *wantu-(ny)* 'stay, stop,' -W *wanti-* 'to stay, stop, remain;' WLP *wanta.wanta-ma-ni* '... stop a fight, intervene in fight ...;' PIN *wanti-ngu* 'to leave; to cease from doing an action, finish;' KAU *WANDE-NDI* 'to lie down: dwell; exist: be;' PNK *WANTI.RRI-TI* 'to stop, remain;' WMK *want-an* 'stop (an activity), leave (something or someone);' PIT *wanti-* 'wait.' (pP **wanta-*).

5.115. pPN **wAnyi* > GUP *waany* 'armpit;' BAA *wanyi* 'upper arm near shoulder, wing.'
Residue: GUP *waayu.k* 'arm, especially upper arm.' This form is in residue because it is the only case of GUP possibly weakening a medial nasal to a glide.

5.116. pPN- **wanyja* > NYA-S *wanyja.ngu.rrangu* 'which?,' *wanyja.rni* 'where?,' -W *wanyja, wanyja-wanyja?* 'where?;' PIN *wanyja* 'where?,' *wanyja.ngara* 'when? How many times?;' PNK *WANTYE* 'how;' NMA *wantha.rni* 'how, where,' *wanyji.la* 'where at;' BAY *wantha.kala* 'how?,' *wantha.la* 'where?;' YIM *wanhtha.rra* 'how,' *wanhthaa* 'where;' GYA *wanja* 'where,' *wanja.rr* 'how, which, how many,' *wanju* 'who;' YDN *wanyja-* 'root for "where",' *wanyju-* 'root for "who".' (pNG **wanhtha*, pKAN **wantha*). See also (5.120).

5.117. pPN **wAnyja* > NMA *wanyja* 'dog;' GUM *waanyji* 'dog (tame).' (pNG **wanyja*).

5.118. pPN **wAnyju* > WLP *wanja.ni, winja.ni* 'not, fail to, refrain from;' BGU

wanju 'bad, no good;' WOI *wanydha.rrabil, wanydhe.borring, wanydhe.rring* 'crooked.' See (3.3) for a list of sets exhibiting relationships between 'negative' concepts.

5.119. pPN- **wAnyu* > PIN *wanyu* 'wait!;' YAN *waya.lirri-njarra* 'waiting.'

5.120. pPN- **wanyV* > GUP *wanha, wanha.mala* 'where;' YIM *wanhu* 'who;' GYA *wanya* 'who,' *wanyu* 'what;' YDN *wanya* 'who,' *wanyi* 'what.' The GUP form could also be a member of the set in (5.116).

5.121. pNYY **wapa* > NYA-S *wapa.rnu* 'wedgetail eagle;' BAY *wapa.ku* 'eaglehawk;' GUP *waamu.t* 'Australian eagle.'

5.122. pNYY **wapa-* > NYA-S *wapa.ka-(rn)* 'jump,' -W *wapa-ka-rna* 'to leap, jump ...;' GUP *wap-thu-n* 'jump, hop.'

5.123. pPN (E) **wApa-* > UMP *waa'a-* 'look up at it;' DYI *wapa-l* 'look up at;' BNJ *wapa-* 'to peer, to peep, to spy on.'

5.124. pPN (E) **wApan* > YAN *wapa.nirri-njarra* 'ceremonial dance style;' GUM *waman* 'corroborree.'

5.125. pPN- **wApi* > NYU *WAPPI* 'a small species of fish ...;' KLY *waapi* 'fish,' *WAIPI* 'a fish (? cod),' *WAPI* 'fish, a *KOI NEL* [generic name],' *wapi-* 'go fishing;' BGU *wapa.l.kan* 'codfish.'

5.126. pPN (E) **wApi-* > YAN *nyampa-wapi.ja-njarra* 'burning; cooking,' *wapi.ja-njarra* 'burning scar marks,onto oneself; singeing hair of animals prior to cooking;' BAA *wapi-la-* 'to be hot, to hurt,' *wapi.rl.ka* 'hot, boiling.'

5.127. pYUR **WAPI-* > KAU *WAMPE-NDI* 'to swing; wave; fan;' PNK

WAPPI.RTI.WAPPI.RTI-TI 'to swing from one side to the other, slouch.'

5.128. pYUR **WAPI-* > KAU *WAPPE-NDI* 'to make; do; perform;' PNK *WAPPI-TI* 'to do, make.'

5.129. pNYY **wApu* > WLP *wapa.rl.ku, wapa.l.ku* 'unaware, unknowing, unnoticing, unseeing, ... uninvolved, unconcerned, ... uninterested in;' PIN *wapa kanyi-rnu* 'to sit, [of] old or sick people (*kanyi-rnu* 'to keep, have, hold'),' *wapa.rl-pa* 'without a care, or concern, or without being worried ....' *wapa.rl.wapa.rl-pa* ' ... unaware, or not wanting to be involved ....' *wapa.ti-ngu* 'to move very slowly .....: used when a person is old or sick;' GUP *wapu.rarr* 'calm, motionless.'

5.130. pPN (E) **wapuny* > BGU *wapu, wapu.rt.yila, wapu.nu* 'younger brother.' *wapu.wantila, wapu.kanu* 'younger sister;' BNJ *wapuuny* 'female's younger sister and female cousin.'
Residue: BAA *wapa.nya* 'grandchild of the same moiety ....'

5.131. pPN **wapV* > BAY *wapi.rri* 'wind;' BAA *wampa-yartu* 'wind coming from the east and north-east.' (pKAN **wapirri*).

5.132. pNY **wapV* > NYA-S *wapi* 'when someone/something breaks in while talking, interruption;' PNK *WABU.RTU* 'hallo.' *WABU.RTU.KKU-TU* 'to hail, accost.'

5.133. pPN- **wApV* > NYA-S *wapi-(rn)* 'catch (by dog),' *wapi.ra* 'go hunting with a dog,' -W *wapi.rri (yukurru-jartiny) ya-ninyi* 'to hunt game with the help of dogs;' WLP *wapa.l.pa* '...searching for, in expectation of ...;' YAN *wapa.nyi* 'avenger; individual or group who travel to kill people in revenge;' BGU *wapa-* 'to hunt;' PIT *wapa-* 'look for,' *wapa.ri-* 'hunt, gather.'
Residue: DYI *wapu.parra* '(wild) dingo.'

5.134. pPN- (E) **wApV* > KLY *WAPA.DA* 'the cotton tree (Bombax);' GYA

wawu.purra 'cottontree.'

5.135. pPN **wApV-* > WLP *wapa-mi* 'walk; move, ...; fly; swim, ...; come out, ...;' UMP *aampi-* 'take it out - as from oven.' *wa'a-li* 'let's go;' WMK *wamp-an* 'come.' *wamp.ath-an* 'bring;' YDN *wapa.r* 'a walk.' *wapi-L* 'go and visit;' BAA *wapa-, wapu-* 'to come, to arrive, to come out (intr.);' DIY *wapa-* 'go, walk.' (pWK **wapa-*).

5.136. pPN (E) **wapV(r)* > YAN *na-wapi.ja* 'digging stick;' BNJ *wampar* 'stick.'

5.137. pPN **wAra* > PIN *wari.ny.kati-ngu* 'to come from a distance;' WEM *wara-* 'to walk, to come.'

5.138. pPN- **wAra* > NYA-S *wara.ja* 'one,' *wari.ny* 'different, other.' -W *wara.ja* 'one; alone.' *wari.ny* 'other, another;' KLY *wara, WAR(A)* 'other.' GUP *wiri.pu* 'other' may also belong in this set, showing assimilation of V_1 to V_2. Note that other Yuulngu dialects have *wari.pu* 'other' (O'Grady, p.c.).

5.139. pPN- **wAra* > WLP *wara.kupali.pali, wara.rl.ku.palu.palu* '... pigeon;' KLY *WARA.NIS* 'a green pigeon.'

5.140. pNY **wari* > NYA-S *warnti* 'tail,' -W *warnti* 'tail of an animal;' KAU *WORRI.PARTI* 'a circumcised person;' PNK *WORRI* 'penis;' NMA *warnti* 'penis, tail.' (pNG **warnti*). Adnyamathanha, a member of the Yura subgroup along with KAU and PNK, *wari* 'penis,' which indicates that **-r-* should be reconstructed. NYA and NMA have undergone prenasalization.

5.141. pPN- **wari-* > WLP *waru.rr.ku* 'scratching noisily;' PIN *wari.ka* 'a long stick ...;' YAN *na-wari.wari* 'digging stick;' UMP *wa'i-* 'dig;' WMK *we'-an* 'dig (plant food, etc.).' (pP **wari-*).

5.142. pPN **wAri-* > BAY *wara.li-Y-* 'go;' WEM *wari.wa* 'to go away.'

5.143. pNYY **warla* > NYA-S *warla.rtu* 'wedgetailed eagle;' WLP *warla.wurru* '*Aquila audax*, Wedge-tailed Eagle, Eagle Hawk; ...;' PIN *warla.wurru* 'eagle type;' NYU *warli.j* 'eaglehawk;' NMA *warla.wurru* 'down of eaglehawk;' BAY *warla.wurru* 'eaglehawk.'

5.144. pNYY **warla* > NMA *warla.yakura* '... pigeon sp., ... topknot;' BAY *warla.rarra* 'topknot pigeon.'

5.145. pNY **wa(r)la* > WLP *wala.ny.pa* 'native pick-axe ...; calf of leg;' PIN *warla* 'handle area of a spear thrower;' NMA *wala.ny* 'handle - of axe.'

5.146. pPN- **wA(r)la* > GUP *warla.rr* 'tall, long;' YAN *wala.rr.ka* 'long,' *warla.nganja* 'long haired.'

5.147. pPN- **wA(r)la* > PIN *wala* 'quickly; fast;' NYU *WELLA.NG, WELA-WELL.ANG* 'quickly;' YAN *ala.tharri-njarra* 'quickening pace; moving faster,' *arla.jkarla* 'impatient; quick of speech.'

5.148. pPN- **wA(r)la* > NYA-S *warla* 'lake;' WLP *wala.ya* 'sea;' PIN *warla.rtu* 'salt lake;' YAN *warla.maka.maka* 'sea; ocean.'

5.149. pPN- **wA(r)la(y)* > WLP *wala ??, warla* 'trust, ..., feeling of approval, proud, happy, ...;' PNK *WALLA* 'fun, joke,' *WALLA.RA* 'joious, funny, droll, witty, intelligent;' GUP *waala.ng* 'very good, lovely,' *walu.cu* 'very good, lovely, wonderful,' *warla.nya.warla.nya* 'person who gets things done quickly and properly;' GYA *walay* 'being good at working or getting food ...;' BGU *wala* 'well, thoroughly.'

5.150. pNY (D) **warli* > NYA-S *warli.rr* 'big lump;' PIN *warli.ly.warli.lya* 'large

hail stones about the size of a golf ball.'

5.151. pNY (D) **wa(r)li-* > NYA-S *warli-(rn)* 'hold, detain, touch.' -W *wali-rni* 'to hold, grab, ...; to arrest, to detain;' WLP *warla* 'stopping, blocking, preventing.'

5.152. pPN- **wArli* > WLP *warli.na, warli.rna (?)* 'resentful, aggrieved, upset, angry, grumpy, wild;' YAN *warli.warli-ma-ntharra* 'bothering; annoying; misbehaving.'

5.153. pPN- **wA(r)li* > KAU *WADLO.WORTA* 'slow, lazy, idle;' PIT *wali.rrhi* 'tired.' *warli.rrimarru* 'lazy.'

5.154. pPN- **wA(r)li* > NYA-S *wali.wali* 'women dancing;' WLP *warli.rti-warli.rti* 'initiation dance;' YAN *a-wala.ny.pa* 'ceremonial dance style employed by women.' *wala.pa* 'men's public songs and dances;' DYI *wala.wala-y* 'dance (shake-a-leg style);' BGU *wali.ny* 'type of corroboree.'

5.155. pPN- **wArlka-* > NYA-S *warlka-(rn)* 'kick with feet like a shovel;' GUM *waalka-* 'knock off, brush with hand.'

5.156. pPN- (E) **wArlku* > YAN *arlku* 'fish (generic term).' *arlku.jarra* 'Milkfish (*Chanos chanos*);' WMK *walk.alan* 'Milkfish (*Chanos chanos*) ....'

5.157. pPN- **wA(r)lku* > WLP *walku* 'nothing, no, none, absence, absent.' *warlka* 'lie, ... pretence, ... not real, made up ...;' BAY *warlku.ja puni-Y-* 'go wrong way;' DIY *walka.da* 'sadness.'

5.158. pPN- **wArlkurr* > WLP *warlkurr.pa* 'bark, barking, growling, snarling;' PIN *warlkurr-pa* 'barking noise made by dogs ...;' GYA *walngkurri-l* 'to beg, to ask for something; bark of a dog.'

5.159. pPN- **warlkV-* > PIN *warlku.rr.mara kanyi-rnu* 'to keep an animal from escaping (*kanyi- rnu* 'to keep, have, hold');' UMP *walki-* 'stop, prevent.' Residue: WLP *ngarlki* 'protector, blocker, shield.' *ngarlki-rni* 'block, deflect, parry, protect, shield, stand between, intercept, stop, separate.' If these forms are included in the above set, and the reconstruction changed to a **ng*-initial one, this set would be the only example in my data of PIN changing **ng-* to *w-*.

5.160. pPN **wA(r)lkV* > PIN *warlka-rnu* 'to give birth;' GUP *waalk* 'umbilical cord',' *walku.r* 'man's son or daughter,' *walku.r-maarra-ma* 'beget;' YAN *a-walku.ru* 'pregnant woman ...;' BAA *walka.nya* 'orphaned child;' PIT *walka* 'baby, small child.' Evidence for a relationship between 'umbilical cord' and 'baby' or 'child' is also found in (3.369), (3.604) and (4.205).

5.161. pPN- (E) **wArlkV* > GYA *walka.rr* 'black scrub goanna;' PIT *warlku.ja* 'sand goanna.'

5.162. pPN- (E) **wA(r)lkV* > YAN *walki.ja-njarra* 'burning scar marks: heating intensely;' PIT *warlka* 'sun, day.'

5.163. pNYY **wa(r)lpa* > NYA-S *warlpa.rra* 'front thigh muscle; woomera.' -W *walpa.rra* 'spear-thrower, woomera;' WLP *warlpa* '... spear and spear-thrower;' NMA *warlpa.rra* 'spearthrower, woomera;' BAY *walpa.rra* 'spear (plain) (?).' (pNG **warlpa.rra*). This set may be related to that in (3.71), which contains *k-* and *ng*-initial forms. That set also shows a possible semantic relationship between 'thigh' and 'woomera.' Note also the WLP form *wala.ny.pa* 'native pick-axe ...; calf of leg.'

5.164. pPN **wArlpi(rr)* > BAY *warlpa.l* 'steep (bank);' YDN *walmpirr* 'by the side of;' BAA *walpirr.i* 'the bank of a river or creek.'

5.165. pNY (D) **wa(r)lpu* > NYA-S *walpu.rra* 'wide,' -W *walpu.rra* 'wide (as of a

burrow);' WLP *warlpa.lyi* 'flat, spread-out ??.'

5.166. pNY **warlpV* > WLP *warlpa* 'wind, turbulent air, breeze;' PIN *warlpa* 'wind;' KAU *WAITPI* 'wind.'

5.167. pPN- **wArlpV* > NMA *warlpu.ru* 'round - as stone in creek;' YAN *a-walma* 'grind stone (base stone);' YDN *walpa* 'stone; coins.'

5.168. pPN- **wA(r)lpV* > WLP *walpu.rru* 'leaf, ... foliage, bush ??;' PIT *warlpa* 'boughs with leaves.'

5.169. pNY **warlu* > NYA-W *warlu-...-rninya-* 'stretch (intr.);' WLP *warla.yayi* 'spreading out, radiating.'

5.170. pPN- **wa(r)lu* > NMA *warlu* 'snake;' BAY *warli.wurruwara* 'sea snake;' YAN *Wala.lu* '... rainbow serpent,' *warlu.ngkarnarra* '... rainbow serpent;' YIM *wala.ngkar* 'death adder.' (pNG **warlu*).

5.171. pNYY **wa(r)lu* > WLP *wala.lyi.rr.ki* '*Acacia jennerae*, Coonavittra Wattle.' *wali.rri* '*Acacia estrophiolata*, Ironwood; witchetty grub sp.;' KAU *WĀDLA.PARTI* 'a species of grub;' NMA *walu.rn* 'mulga sp.;' BAY *warlu.n* 'mulga.' (pKAN **warlun*).

5.172. pPN- **wA(r)lu* > WLP *warlu* 'fire; ..., cooking fire; heat; hot; fire-light, ...; fire-wood; match, ...; angry, ..., fighter, ...;' PNK *WALLI.RA* 'day, daylight;' GUP *walu* 'sun, time,' *walu.puy* 'day time,' *warli.rr* 'sun;' WMK *aal* 'chips, kindling for starting a fire;' PIT *wala.kaji-* 'cook,' *wala.kathi* 'oven.'

5.173. pPN **warlung* > GUP *warla.kurr* 'broad, wide;' BNJ *walung* 'wide.' Further work on semantic shift may reveal a relationship between this set and that in (5.176).

5.174. pNY **warlV* > NYA-S *warli* 'gutter, small eroded channel;' PNK *WALLU* 'space between two objects, gap ...;' NYU *WALLU* 'an interval or open space between two points or objects ....'

5.175. pPN- **wa(r)lV* > NYA-W *wala.nya* 'male Racehorse Goanna:' WLP *warlu.ra* '*Nephruurus levis*, gecko, Dtella;' UMP *wali* 'tree goanna.'

5.176. pNY **wa(r)lV* > NYA-S *warla.pa* 'flat;' PIN *walu* 'flat rock surface ...;' NYU *warlu, warla* 'flat country, plain.' See also (5.173).

5.177. pPN **wArlV* > NYA-S *warli.ny.warli.ny* 'devil;' WMK *waal-waal* 'name given as substitute for proper name when someone is away or dead;' YDN *wala* 'ceased;' GUM *waali-* 'die.'

5.178. pPN- **wA(r)lV* > NMA *warla.rnu* 'woman's fighting stick;' BAY *warlu.pura* 'walking stick;' GUP *wali.ya* 'digging stick:' YAN *na-wala* 'branch of tree:' PIT *wala.ngarra* 'curved throwing stick.'

5.179. pNYY **warmpi* > KAU *WAMPI, WAMPI.TTI* 'wing of a large bird; for instance, an eagle;' GUP *warmba.rr* 'wing (bird).'

5.180. pNYY **wa(r)na* > WLP *warna* 'poisonous snake ...,' *warna.yarra* 'Rainbow Serpent ...;' PIN *warna.mpi* 'water snake; ... mythical snake ...;' NMA *wana.ngarti* '2 foot long black snake, poisonous;' BAY *Warna.mankura* 'Water Serpent.' (pKAN **warnamankura*).

5.181. pPN **wA(r)na* > NYA-S *warna.yiti* 'water,' -W *wana.yiti* 'water; rain;' PIN *wana.njunu* '... water running down a creek bed,' *warna.n-pa* '... path made by flowing water in sand or earth;' BAY *warna.n* 'rain;' WOI *wane.wan* 'river, creek.'

5.182. pNYY **warni-* > KAU *WORNE-NDI* 'to fall; be born;' PNK *WORNI-TI* 'to

fall.' *WORNI.KKI-TI, WORNI-TI* 'to fall, climb;' BAY *warni-Y-* 'fall, come off.'

5.183. pPN- **wArnku* > PNK *WARNKO* 'small snake;' NYU *warnak, warnku* 'upper arm.' *WAN-GO* 'the upper part of the arm from the elbow to the shoulder: a species of snake ...;' NMA *warnku.rla* 'elbow;' YAN *warnka.rr* 'crooked, of body parts; twisted ....' (pNG **warnku*). See set (3.220) for a discussion of the relationship between 'elbow' and 'crooked.' A further relationship with 'snake' is corroborated by the GYA relfex of **jurrung* 'snake,' which means 'corner, elbow,' and indirectly by the set in (3.685).

5.184. pPN **wA(r)npa* > WLP *warnpa* 'deep sleep, ...; oblivious, unaware, vague;' BAA *wanpa* 'silly, ignorant.' *wanpa-ma-* 'to forget, to be ignorant, ...'

5.185. pYUR **WARNPI* > KAU *WĀRNPI* 'one having lost his father; fatherless; orphan;' PNK *WARNPI* 'one bereft of a near relative.'

5.186. pPN **wArnta* > NYA-S *warnti.ji* 'spiny tailed goanna.' -W *warnti.ji* 'a lizard ... with a ... serrated tail;' NMA *warnti.ji.ri* 'sleepy lizard;' GUM *wanta.rr.ka* 'blue-tongue lizard.'

5.187. pPN **wA(r)nta* > WLP *wanta* 'sun, sun-light, ..., heat from sun; year; day.' *wantu.rr-wantu.rr.pa, warntu-warntu.rr.pa* 'hot, warm;' BAA *wanta-* 'to burn (intr), to light a fire (tr),' *wanti-* 'to burn (tr).'

5.188. pNY **wa(r)ntV* > NYA-W *warnta.ra-ka-, warntu.ru-ka-* 'to carry on the shoulder ...;' NYU *WĀNDA.NG* 'to wear or carry on the back.'

5.189. pPN- **wA(r)nu* > NYA-W *warnu* 'digging stick;' PIN *wana* 'women's digging stick;' KAU *WĀDNA* 'a stick for climbing ...;' NYU *wan, wana* 'digging stick, staff;' NMA *wana* 'woman's fighting stick;' DIY *wana* 'digging stick.' (pWK **wana*).

5.190. pNY **wa(r)nV-* > NYA-S *wani-(ny)* 'live, lay, sit, stay;' WLP *warna-warna-nguna-mi* 'dwell, live ... only of dead people;' PNK *WA.NNI-TI* 'to lie [down].'

5.191. pPN **wArnV-* > PNK *WARNI.RRI-TI* 'to be hanging, suspended;' WOI *warna-* 'climb up.' A relationship between 'climb' and 'hang' is also seen in (3.230), (3.259) and (5.260).

5.192. PNY (D) **warra* > NYA-W *warri.ji* 'thin, reduced (of a mother after childbirth);' WLP *waarr.pa* 'thin, frail, emaciated,' *warra.parra.pi* 'little bit, light, thin layer of, slight.'

5.193. pPN- **warra-* > NYA-W *warra-* 'to clean out, gnaw clean, tear off ...:' GYA *warra-wayju-l* 'to purify (by smoking) the things of dead people ... (*wayju-l* 'to burn');' WOI *WORRE.BULLY, WORRE.WORK* 'clean.'

5.194. pPN- **waarra* > WLP *warra.la.la* 'prolonged call, sustained call;' KAU *WARRA* 'throat; voice; speech; word; language, etc.;' NYU *WARRA.NG-A.N* 'to tell; to relate; to bid; to desire;' NMA *warra.rn* 'message;' BAY *warra-L-* 'sing;' DIY *warra.pa-* 'relate a story to.' (pKAN **warra-*).
Residue: UMP *waanta* 'story, news, newspaper;' YIM *waata-l* 'say, tell.'

5.195. pPN **wArra* > NYU *warra.j* 'fighting spears;' WOI *warra-warra* 'spear, stick.'

5.196. pPN **wArra* > PNK *WARRA* 'out, far away; absent;' WOI *WARRI.TWIRRATE* 'far;' PIT *warrha.ra* 'far.'

5.197. pPN- **wArra* > NYA-W *warra.rn.ji.rri* 'everywhere;' WLP *warri-kirdi-kirdi, warru-kirdi-kirdi* ... 'around, in a circle ..., everywhere, surrounding .....'

Residue: DIY *warda.yarri* 'where.'

5.198. pPN- **wArra* > WLP *warra.mpal-kiji-rni* 'knock down, knock over;' PNK *WARRU-TU* 'to throw about;' DIY *warra-* 'throw, drop.' (pWK **warra-*).

5.199. pPN- **wArra* > NYU *warra.ny* 'yams,' *WARRA.N* '... a species of yam ...;' GYA *warra.puka* 'species of wild yam.'

5.200. pPN- **wArra* > NYA-S *warra.rn* 'open country;' WLP *warra.ja* 'visible, uncovered, ...; public, ...;' PIN *warra.rn-pa* 'swamp, with or without water ... open clear flat area;' WMK *we'-ar* 'wide, open (of space);' PIT *warrha* 'wide.'

5.201. pPN- **wArra* > WLP *-warra* 'some, several, many, ... crowd of, ...;' NYU *warra.ng* 'three,' *WARH-RA.NG* 'numeral three;' DYI *warra.nyungkul* 'three.'

5.202. pNY **wArra* > WLP *warra.ny-warra.ny.pa* 'forgetting, losing, deprived of, without ... ??;' KAU *WARRI.NYA* 'one bereft of his father ...;' PNK *WARRI.YI* 'a father bereft of his child.'

5.203. pPN **wArra (E)* > YAN *warra.manja* 'short cut; shortest route;' BAA *warra* 'side, direction,' *warra-warra* 'close together, side by side.'
Residue: WLP *warri.ri* 'close, ..., beside, short distance, short way ...;' PNK *WATTA.KA* 'side of the abdomen, flank.' The WLP form is probably borrowed from Arandic *arrere* (K. Hale, p.c.).

5.204. pPN (E) **wArran* > YAN *a-warra.ki.warra.ki* '... stone axe, ...; fighting pick, ...;' GUM *warran.warran* 'battle axe.'
Residue: PIT *wara.mata, wara.mparta* 'tomahawk.' The rhotic in PIT differs from the one seen in the above forms.

5.205. pPN **wArrany* > NYA-W *warta.rra.piny* 'flying fox;' YAN *a-warra.nyuka*

'Black Flying Fox (*Pterops gouldii*);' YDN *warra.pal* 'flying squirrel;' WOI *warrany* 'glider.'
Residue: NMA *wara.murrungka* 'flying fox.' NMA's rhotic differs from those above.

5.206. pPN **warring* > NYA-S *warri* 'cold,' -W *warri* 'cold;' PIN *warri* 'cold; winter season ...;' BNJ *waring* 'cold; winter.'

5.207. pPN- **wArrki* > NYA-S *warrki-(rn)* 'crawl ..., feed around ..., movement of running ....' -W *warrki-rni* 'to creep; to crawl;...; slither (of a snake); to flow quietly (of water);' NMA *warrka.yi-lku* 'to drag it along;' YAN *warrka-ma-ntharra* 'pulling; dragging,' *warrka-ntharra* 'crawling ....'

5.208. pPN (E) **warrkun* > DYI *warrkiny* 'boomerang;' BNJ *warkun* 'crooked.' A relationship between 'crooked' and 'boomerang' is also seen in (3.220), which contains the PIN forms *karli* 'boomerang ...' and *karli-karli* 'crooked,' and in (3.427).

5.209. pNY **warrkV* > WLP *warrku-pi-nyi* 'scratch dust (as dogs after urinating), kick up dirt;' PIN *warrku.pu-ngu* 'to scratch the ground; used of dogs ...;' KAU *WĀRKI* 'a number of holes together, made by animals, as dogs, etc..'

5.210. pPN **wArrkVny* > NYA-W *warrki.jipi.li* 'incapacitated (as blind, deaf, mute or lame);' PIN *warrki-rnu* 'to swear;' GUP *warku'-yu-n* 'annoy, tease, worry (trans.), ... exorcise ...;' YAN *warrki* 'greedy;' GYA *warrki* 'can't come close because of relationship,' *warrngka-l* 'to groan, suffer because of pain and/or sickness;' BGU *warrku* 'bad, to be bad,' *warrku.ma-* 'to dirty (water), to hinder,' *warrku.rra-* 'to be tired, to be bad;' GUM *warrkuny* 'left-handed (person).'
Residue: GUP *wargu.gu, warwu.wu* 'sorrow, sadness, grief.' GUP has a different rhotic phoneme than that seen in the forms above.

5.211. pPN **wArrma* > PIN *warrma.l.ju-nu* 'to creep up on prey from behind;'

WEM *warrma.ngin* 'behind you,' *warrma.ntak* 'behind me.' Note also the set in (5.213), which is phonologically similar to this one. The meanings in the two sets are nevertheless different enough to justify having two sets.

5.212. pP **wArrma* > GYA *warrma* 'type of tribal dance, corroboree;' YDN *warrma* 'song, dance at corroborree.' It is possible that one of these languages has borrowed this form from the other.

5.213. pNY (D) **warrma(r)la* > NYA-W *warrmal-ka-nginyi* 'to hunt game en masse;' WLP *warrmarla* 'group of men, ...; soldiers, warriors ...; game of chess;' PIN *warrmarla* 'a group of men ... on a revenge expedition.' See also the set in (5.211).

5.214. pPN- **wArrpa* > NMA *warrpa* 'far away,' *warrpa.warni-ku* 'to remove oneself, to withdraw, to get far from ;' GUP *waarrpa.la* 'avoidance relationship;' BGU *warrpa* 'next to, close, alongside.' (pNG **warrpa*).

5.215. pNYY **wArrpa* > PNK *WARPU.RU* 'all, the whole;' GUP *warrpa.m* 'all, every.'

5.216. pPN **wArrpu-* > PIN *warrpu-rnu* 'to pluck fruit; to withdraw a spear from a wound;' WEM *werrpa.na-* 'to pull out, to catch (a fish).'

5.217. pPN- **wArrpu-* > NYA-S *warrpu-ji-(n)* 'set off, start walking;' PNK *WARPA-TA* 'to jump, dance about, frisk;' DIY *warrpa-* 'canter.'

5.218. pNYY **warru* > NYA-S *warru* 'dark,' *warru.karti* 'night,' -W *warru.karti* '(last) night,' *warru.kulu* 'darkness or dim light ...; twilight;' NMA *warru* 'black, dark, out - of fire;' GUP *warra.w'* 'shade.' (pNG **warru*).

5.219. pNYY **warru* > KAU *WARRU* 'out; without; outside;' GUP *warra.ngul*

'outside, naked.'

5.220. pNY **warru* > NYA-S *warra.lariny* 'centipede;' PIN *warra.warra* '... white man: originally a white witchetty grub;' KAU *WARRU.MBA* 'a species of grub.'

5.221. pNY **warru* > WLP *wardu* 'trusting, depending on, counting on;' PNK *WARRU* 'true.'

5.222. pPN- **wArru* > PNK *WARRALTYA* 'emu;' PIT *warru.kaji* 'emu.'

5.223. pPN- **wArru-* > NYA-W *warru-pi-ni-...-a* 'to go away, to depart, to "pull out";' DIY *warra.ra-* 'leave (behind).'

5.224. pPN **wArru(l)* > NYA-S *warra.pa* 'green feed, tall grass.' -W *warru.ly* 'green grass, green foliage;' WLP *warri.pinyi, warru.pinyi* '*Panicum australiense*, ... grass sp.;' NMA *warra.pa* 'grass - generic;' BAA *warru* 'swamp cane grass.' (pNG **warrapa*).
Residue: UMP *watul* 'razor grass, rushes sp..'

5.225. pPN **warrum* > WLP *warru.ra* 'wrong skin, wrong-way marriage partner ...;' KAU *WARRA.NGKO* 'ill; sick;' NYU *warra/werra* 'bad,' *WARRA* 'bad;' YAN *warri.rra-ntharra* 'spoiling things for others; making bad for one's kinspeople;' YIM *warra* 'bad, very;' YDN *warra* 'done the wrong way;' BNJ *waram* 'left-hand side or direction;' WOI *warru.bak* 'stinking;' DIY *warra.warra.pa-* 'disparage, run someone down;' PIT *warrhu.wa* 'rotten,' *warrhu.wa-* 'smell (Vintr).' See (3.3) for a list of sets exhibiting relationships between 'negative' concepts.

5.226. pPN- **wArrU(n)* > NYA-S *warri.ny.ku.ra* 'plain kangaroo,' -W *warri.ngku.ru* 'red kangaroo;' WLP *warru* '*Petrogale lateralis*, Black-footed Rock-wallaby, Black- flanked Rock-wallaby, Striped Rock Wallaby;' PIN *warru* 'wallaby;' PNK *WARRU* 'kangaroo;' NYU *warr, warru, wurra* 'female kangaroo,'

warra.ng 'nail-tailed wallaby, wurrung,' *WARRU* 'a female kangaroo;' BGU *warran* 'brush-tail wallaby;' PIT *warrha.putha* 'kangaroo.'

5.227. pNYY **warrV* > KAU *WARRU.KADLI* 'the native dog untamed;' GUP *waarra.ng* 'dingo, wild, undomesticated.'

5.228. pNY **warrV* > WLP *warru, warri* 'around, ... all around, ...;' PNK *WARRI. WARRÉ.RI* 'about, hither and thither.'

5.229. pPN (E) **waarrV* > BNJ *waari-* 'to carry, to take, to wear;' WOI *warro.nggabo-* 'carry.'

5.230. pPN **wArrV* > WLP *warri-rni, wayi-rni* 'seek, search, look for, try to find;' KAU *WARRE-NDI* 'to look for: to seek,' *WARRI.APPE-NDI* 'to seek: pick up: find;' DYI *warra.y.ma-l* 'find, meet;' WOI *WOORU.NDERONEIT* 'pick up.'
Residue: NYU *warti.ny* 'seeking, looking for.'

5.231. pPN- **wArrV* > WLP *warra.parnu* 'edible lizard sp.;' YAN *a-warri.rri* 'Island Goanna poss. Freckled Monitor (*Varanus tristus orientalis*).'

5.232. pNYY **warta* > PNK *WORTA.TTI* 'south east coast and country;' BAY *warta.ntu* 'east,' *warta.ntu.ya* 'northwards.' (pKAN **wartantu*).
Residue: GUM *warrii* 'east, to sea.'

5.233. pNY **warta* > WLP *warda.rra.nji* 'frog sp.;' NYU *wort* 'edible frog (various).'

5.234. pNY **wa(r)ta* > NYA-W *wata.ngaji* 'phallic stick;' WLP *warda* 'handle,' *wati.ya* 'tree, ..., shrub, plant; wood; stick, ..., branch; spear;' PIN *wati.ya, warta* 'tree, stick, branch, wood;' KAU *WATTO* 'branch ...;' NMA *warnta* 'tree, stick, axe handles.' (pNG **warnta*).

5.235. pPN- **wArta-* > WLP *warta.rda.rr-marda-rni* 'hold back, ..., delay, restrain, hinder,' *warta.rdi* 'busy, ..., prevented, delayed, impeded;' KLY *WADAI-* 'prevent, stop (from doing wrong).'
Residue: BAA *warta.rti-* 'to fence, to work on a fence.'

5.236. pPN- **wA(r)ta* > WLP *wanti.rr.ki* 'stone-knife, flint,' *warnti* 'lance, stabbing spear,' *warta-rda.parra, warti-rda.parra* 'spear;' PIN *warta.rru* 'the head piece of a spear;' NYU *wanta.nginy* 'spearing, killing;' YAN *a-warnta.mantha* 'stone tool; stone knife ...; spearhead ....'

5.237. pPN- **wArtapV* > WLP *wardapi* '*Varanus gouldii*, Gould's Monitor, Sand Monitor, goanna;' YAN *wartapa* 'goanna (generic).'

5.238. pNY **warti* > NYA-S *warti* 'well! we've done that!,' -W *warnti-kaniny* 'partly finished, half-done;' PIN *warta.l.pi* 'ready now, finished, that is enough.'

5.239. pNY **wa(r)tu-* > NYA-S *wartu-(rn)* 'straighten,' -W *wartu-rnu* 'to stretch, to straighten;' WLP *wardi-rni* 'straighten, stretch (out), ... stretch oneself, straighten up;' PIN *wartu-rnu* 'to stretch, after sitting in one's position for a time;' PNK *WARTU.WARTU.RRI-TI* 'to stretch one's limbs;' NYU *wata.jiti* 'straight upright (... refers to a sitting postion).'

5.240. pPN- **wArtu* > NYA-S *warta.ji* 'dingo,' -W *warta.ji, warta.kaji* 'dingo, wild dog;' GUP *wartu* 'dog;' YAN *warta.li* 'dingo (generic).'

5.241. pYUR **WARTU* > KAU *WARTO* '... wombat;' PNK *WARTO* 'wombat.' Wirangu, a member of the Nhangka subgroup, has *wartu* 'wombat,' suggesting that the second vowel should be reconstructed as *u*.

5.242. pNY **wartV* > PIN *wartu.rnu.ma* 'flying ant type;' NYU *WARDA.N* 'a large species of long-winged buzzing fly.'

5.243. pNY **wartV* > NYA-S *wartu.wartu* 'cover,' -W *warti-pi-ni* 'to cover (as with blanket); to wrap up;' WLP *warda.warda, warta.warta* 'scrub, good cover ...; under cover, keeping out of sight ...;' PIN *warnta* 'blanket;' NMA *warti-ku* 'to cover oneself with - as with cover.' *warti.puntharri* 'blanket.'

5.244. pPN- **wa(r)tV* > GUP *wata* 'wind;' YAN *wartu.lungkayarra* '... strong dry season wind ....'

5.245. pPN **wArtV* > GUP *warta* 'unmarried girl, young married women, no child.' *warta.'ngani* 'younger brother or sister;' BAA *waati.ja, warri.ki* 'younger sister.'

5.246. pPN- **wArtV* > NYA-S *warnta-(rn)* 'growl,' -W *warnta* 'an argument, quarrel; chastisement;' WLP *warntu.rr.pa* 'cursing;' WMK *waa'-an* 'tell, blame, talk about abusively.'

5.247. pPN- **wArtV* > NYA-W *warti.rti* 'headache;' GUP *warda.ngga, warnda* 'head;' GYA *wantu* 'hat;' DIY *warda* 'corroboree headdress.'

5.248. pPN **wA(r)tV* > NYA-S *wartu-karri-(ny)* 'die,' *wata.rr.kulu* 'accidently, by mistake.' -W *wata* 'wrong way; off the track,' *wata.rr.ku* 'mistakenly, unintentionally, accidentally;' PIN *warta.rr.ku* 'ignorant, forgetful ...;' NMA *wanta* 'mad, crazy;' BAY *wanta.wari* 'crazy, heedless,' *wanta.warra* 'silly;' YAN *warnti-ma-ntharra* 'lying; telling lies,' *warta.n.ka-yarra* 'frightened,being,' *warta.pi-ma-ntharra* 'sad, feeling; morose, being; bad, feeling,' *warti* 'bad; naughty; foolish;' KLY *WATI* 'bad, evil,' *wati-nga* 'bad;' WMK *wet* 'bad;' GYA *watu* 'wrong, incorrect; children of an incorrect marriage;' BAA *wanta-* 'to forget (tr),' *wantaa.li* 'bad (song word);' DIY *wada.nganyju* 'left hand,' *wata* 'not.' (pKAN **wantawarri*). See (3.3) for a list of sets exhibiting relationships between 'negative' concepts.

5.249. pPN- **wA(r)tV* > NYA-W *warnti-pi-ni* 'to let fall, drop;' WLP *wanti-mi*

'fall ...; fall over ...;' PIN *wartu.ngara-ngu* 'to lie face down ...; to fall face down - euphemism for drunkeness and death;' NYU *werti.ny* 'descending, setting, sinking, falling;' YDN *wanta-N* 'fall, drop;' BGU *warta-* 'to fall, to be born.' *warta.lma-*, *warta.ma-* 'to drop, to knock over.' This set may be ultimately related to that in

5.250. pPN- **wA(r)tV* > WLP *warnta.rla* 'away ..., in opposite direction .... crooked; wrong ...;' NYU *wart* 'away.' *wort* 'direction away from the speaker:' DIY *wadi.tha* 'distant.'

5.251. pPN **wA(r)tVn* > WLP *warnta* 'cross-ways, across;' PIN *wati* '... across:' KLY *WADO.GAM* 'the other side;' WEM *-watan* 'across.'
Residue: NYU *WOT-YA.N* 'on the other side.' It is not clear whether this form has an apical or laminal medial stop.

5.252. pPN **waru* > WLP *waru.ngka* 'deaf ...: stupid .... forgetful ...; crazy ..., unknowing, unconscious ..., bewildered ....' *waru.ngka-ma-ni* 'lose, forget;' NMA *wara.wara.rri-ku* 'to get lost;' YAN *wara.nga-ntharra* 'losing; mislaying.' *wara.ngkarrpirna* 'deaf; foolish,' *waru.ngka* 'deaf person;' BNJ *wara-* 'to lose.' See (3.3) for a list of sets exhibiting relationships between 'negative' concepts.
Residue: NYA-S *wari.nyin* 'disgusted, not pleased;' YAN *ari.yarirr-injarra* 'losing one's way ....' This form may be from a reduplication **yariyari.*

5.253. pPN **waRu* > BAY *waru.waru* 'for a long time;' BNJ *waraa*, *waraa.y*, *waraa.y.pimpa* 'for a long time, all the time;' DIY *warru* 'long ago.'

5.254. pNYY **waru* > WLP *waru.rru* 'dark, ...; night, ..., evening;' GUP *waru.mu.k*, *waru.munha* 'dark.'

5.255. pNYY **waru* > WLP *wardi.nyi* 'happy, joyful ...;' BAY *waru.tharta* 'happy.'

5.256. pNY **waru* > NYA-S *waru.ka* 'morning fire,' -W *waru.ku-karri-nyi* 'to

stand by a fire in order to get warm;' WLP *waru.ka* 'fire in clump of grass, warming fire;' PIN *waru* 'fire, firewood, heat.'

5.257. pPN- **wAru* > WLP *waru.nju.rr.pa* 'spreading out, branching out;' WMK *we'-aram-an* 'spread out, scatter.'

5.258. pPN- **wAru(ny)* > WLP *waru.ngka-waru.ngka* '*Varanus gilleni*, Pygmy Mulga Monitor;' BGU *waruny* 'black goanna.'

5.259. pPN **warV* > WLP *waru.jarri, wari.jarri* 'wind, windy weather, ...;' KAU *WARRI* 'wind;' PNK *WARRI* 'wind (n.);' NYU *WARH-RA.L* 'whirlwind;' BNJ *wari.may* 'cyclone, severe storm.'

5.260. pPN **wArV* > WLP *wara.ly.pa, waa.ly.pa* 'hanging downwards,' *wari, waru* 'onto, up on, up,' *waru.kuny.pa* 'welling up, rising;' PIN *wara.ly.ju-nu* 'to hang up;' WMK *war mat-an* 'go up;' GUM *waru* 'top.' A relationship between 'climb' and 'hang' is also seen in (3.230), (3.259) and (5.191).

5.261. pPN **warVny* > NYA-S *waru* 'swathe of falling rain;' WLP *wara.rl.pa* 'sheet of rain seen in the distance ...;' PIN *wara.l-pa* 'falling rain seen from a distance;' GUP *war-yu-n* 'urinate;' YAN *wara.ma* 'flood; flood water,' *wara.rr* 'mud,' *wari* 'whirlpool ...;' YDN *wara.pa* 'creek,' *waray* 'major river;' BNJ *wareeny* 'saliva, froth, foam;' GUM *waara* 'foam, saliva;' WEM *warə.nja-* 'to wade in water.' Residue: BAY *waRu.Ta(Ta)* 'marsh.' It is not clear whether BAY has medial *-r-* or *-rr-*. In the former case, it could be included in the above set.

5.262. pYUR **WATTI* > KAU *WATTE* 'middle; midst;' PNK *WATTI, WATTI.RI* 'middle.'

5.263. pNY **watV* > WLP *wati-ngka-rla* 'very big group of people, crowd of people, ...;' NYU *watu.lya* '? a crowd.'

5.264. pPN- **wAwa(y)* > PNK *WAWA.NTA* 'right away, for a long period;' DYI *waway* 'too soon.'

5.265. pPN **wAwin* > GUP *waawa* 'older or younger brother:' WEM *wawin* '(your) elder brother.'

5.266. pPN- **wawu* > WLP *wawu.lya* 'clever at fighting, artful dodger, ...:' UMP *aw'a.na-* 'dodge it – as spear.'

5.267. pP **wAwu* > WMK *aw* 'fond of ...;' GYA *wawu-* 'wish, want, need, love, like.'

5.268. pPN **wAwu(rr)* > WLP *wawu.ny.pa* 'feathers, down, fur:' WEM *wawurr* 'soft feathers ....'

5.269. pPN **wAwV* > PNK *WAWI.RRI-TI* 'to ask, seek, look for;' YDN *wawa-L* 'see, look at:' WOI *wawa* 'look out.'

5.270. pPN- **waya* > NYA-S *waya.rti* 'tortoise,' -W *waya.rti* 'turtle;' GUP *waya.pa* 'turtle:' UMP *ayi.nyu* 'green, small turtle sp..'

5.271. pPN- (E) **wAya* > YAN *waya.tha-ntharra* 'finishing; completing; concluding;' BGU *waya.rra* 'enough, finished.'

5.272. pPN **wayan* > KAU *WAIE.TA* 'root generally;' BNJ *wayan-kir* 'root of tree or plant,' *wayan.jar* 'root.'

5.273. pPN **wAya(n)* > KAU *WAI.NE-NDI* 'to fear; be afraid;' PNK *WAII* 'afraid, fear;' NYU *waya.rn* 'afraid, frightened, dead,' *WYE.N* 'to fear; to dread; to be afraid;' NMA *waya.ka-lku* 'to frighten ,' *waya.karri-ku* 'to be frightened, ... to be shy;' YDN *wayan* 'sorcerer;' WOI *wayi.gaith* 'dead;' BAA *wayu-* 'to be sorry, to

grieve over someone.' (pNG **waya.(S)-(L)-*). See (3.3) for a list of sets exhibiting relationships between 'negative' concepts.

5.274. pNYY **wayi* > NYA-W *wayi* 'a particle, used to imply a contradiction to one's own or another person's statement.' *wayi* 'an interrog. particle:' NMA *wayi (particle)* 'might, potential, see if you can:' BAY *wayi* 'yes-no question introducer.'

5.275. pNY **wayi* > WLP *wayi.l.pa* 'agreeing, settling, accepting, willing;' KAU *WAIA.RNDA. WAIA.RNANTA* 'well; ably; very well;' PNK *WAI-ERI* 'right, correct.' *WAIE.RI-TI* 'to be right, in good health.'

5.276. pPN- (E) **wAyi-* > KLY *WAI-* 'put, place, send ...;' YDN *wayi-L* 'put in/on.'

5.277. pPN **waa(y)ju-* > YAN *waya-ntharra* 'lighting up with paperbark torches;' UMP *aaji-* 'cook it, burn it, light it;' WMK *ath-an* 'light a fire:' GYA *wayju-l* 'to cook food; to burn something;' YDN *waju-L* 'burn, cook;' BGU *wathu-* 'to cook;' BAA *wanja-* 'to cook in ashes;' PIT *waji-* 'cook,' *wathi.la-* 'make fire.' The languages in this set which allow glide-stop clusters are inconsistent regarding the presence of *-y-*.

5.278. pPN **wAyku* > NYU *WAUGA.T* 'a few;' WOI *waigu.rrk* 'little.' *WAIKO.RONG* 'short, low;' DIY *waka* 'small, little.'

5.279. pPN (E) **wAypV-* > YAN *wapa-ma-ntharra* 'flying ...;' YDN *waympa-N* 'fly;' BAA *wampi-* 'to fly,' *wampi-nya-* 'to blow away, ... (tr.).' This set may be ultimately related to that in (5.90). However, these forms share the notion of 'fly' and are therefore kept separate.

5.280. pPN **wAyu* > KAU *WAYU* 'a tree similar to the stringy-bark tree;' WOI *wayu.t* 'stringybark.'

5.2 *wi-

5.281. pNY **wija* > NYA-S *winyja* 'bone,' -W *winyja* 'bone;' WLP *wiji.wiji* 'faint, thin, whispy;' KAU *WITYA.RNE-NDI* 'to grow thinner; wither; fade.' *WITYO* 'the thin bone of the hindleg of a kangaroo. ...; anything piercing another object: as a pin ....'
Residue: NYA-W *wiji.ny* 'narrow;' NYU *WI-YUL* 'thin; slight; wasted.' This is the only evidence in my data for a change from a medial stop to a glide in the NYU dialects.

5.282. pPN- **wija-* > YAN *wija.l-ma-ntharra* 'bird catching fish ...; spearing a fish;' WMK *wij-an* 'catch (e.g. fish), pull out ....'
Residue: NYA-W *wiya.rr(a) ya-* 'to go fishing.' My data contain no further evidence that NYA-W weakens medial stops to glides.

5.283. pPN **wIja* > WLP *winja* 'baby, small child, toddler;' WEM *withe.yuk* 'small, little.'

5.284. pPN **wIja* > WLP *winji, winji.rri* 'spring, permanent water, ...;' PIN *wiija* 'a container of water which is taken on a journey and left in a spot for drinking on the return journey;' BAA *wiija-* 'to drink, to drink spirits.'

5.285. pPN **wIja* > WLP *yija.lyi, yiji.rli* '..., joints of cooked meat;' PIN *yiji.rli* 'a piece of meat;' GUM *wijii.rr* 'meat, flesh.'
Residue: KAU *ITYA* 'flesh, or muscular parts of the body.' The transcription of this form may represent */yija/*. However, I have no further examples of KAU changing **w-* to *y-*.

5.286. pPN- **wIja* > GUP *wiyi.ka* 'oil, petrol, melted fat;' BGU *witha* 'fat (noun).'

5.287. pPN **wIji* > WLP *wiji.ni* 'sore, wound, lesion;' PIN *wiju.rru.ly-pa* '... a spear wound ...;' BGU *withi.ny* 'a sore;' PIT *withi* 'sore, wound.'

5.288. pPN- **wIji* > WLP *wiji* '*Ctenophorus isolepis*, Military Dragon.' *wiji.n.pa* 'goanna sp., lizard sp.;' PIN *wiiji* 'lizard type;' YAN *a-wij.ku* ' Mournful Tree Monitor, (*Varanus tristus*) ....'

5.289. pPN- **wIji* > NYA-W *wiji* 'sinew; 'string';' WLP *winji.rr-winji.rr.pa* 'sinewy, tough (as of tendons or rubber bands) ...;' WMK *inth-an* 'to spin string from fibre ....'

5.290. pNYY **wijirr* > WLP *wijirr.ki* '*Ficus platypoda*, Native Fig;' BAY *winyjirr* 'wild fig.' (pKAN **winyjirr*).
Residue: UMP *yiijan* 'fig tree.' My data contain no further evidence that UMP assimilates **w-* to the following vowel.

5.291. pPN (E) **wIju* > WEM *with-with* '... long stick with a small knob, a toy ...;' WOI *with-with* 'toy throwing stick;' BAA *withu* 'a twig, a pliable stick.'

5.292. pPN (E) **wIju* > YAN *wiji* 'all inclusively; everyone; completely; everything;' BAA *withu.lu, withu.nya* 'all, everything.'

5.293. pPN- **wIjV* > WLP *wiji.ji* 'complaining, protesting;' GUP *winy'-cu-n* 'antagonise, annoy;' WMK *wiinth* 'anger.'

5.294. pPN- **wIjV* > NYA-S *winyja.winyja* 'die away from home,' *winyju.rr* 'spirit;' WLP *winji.rri* 'bodily liquids from corpse ...;' PIN *winja.rn-pa* '... body function which is not functioning correctly because of pain or sickness;' UMP *wija* 'something dead.'

5.295. pPN- **WIKA* > KAU *WIKA* 'a fishing net;' KLY *IGA.L(I)* 'string of coco-nut

fibre used in catching turtle, or fishing.'

5.296. pPN- **wlka* > WLP *wiki.ny.pa* '.... narrowing, ..., thin part, ...;' PNK *WIKU.LLU* 'narrow;' GYA *yika* 'little sliver of something ...;' YDN *wiki* 'thin.'

5.297. pPN- **wlkV* > GUP *wika.rra* 'tall;' YDN *wiki* 'big.'

5.298. pPN **wlkVn* > NYA-S *wika* 'fire, firewood,' -W *wika* 'fire or firewood;' GUM *wiikun* 'hot, warm.'

5.299. pNYY **wil* > NYA-W *wil-pi-ni* '... to shake the head in expressing negation;' PIN *wil.wil.pu-ngu* 'to shake the dirt from clothes, blankets, etc.;' GUP *wil.wil-yu-n* 'tremble from fear, joy, hunger, nerves.'

5.300. pNY **wila* > NYA-S *wili.ya* 'light rain after thunderstorm, summer rain;' PIN *wila* '... a great quantity of water lying on the ground,' *wila-rnu* 'to dampen,' *yila* 'water- surface or rain water.'

5.301. pNYY **wila-* > WLP *wili.l-ka-nyi* 'drag along, pull along, ...;' GUP *wila.ng'-thu-n* 'look out, drag out.'

5.302. pPN- **wlla* > WLP *wila.na* '*Egernia kintorei*, Great Desert Skink,' *wili.rni* '*Varanus gilleni*, Pygmy Mulga Monitor;' BAY *wili.ji*, *wili.ka* 'blue tongue lizard;' WMK *wel* 'Blue-tongue lizard (*Tiliqua scincoides*).'

5.303. pPN **wllka(rr)* > PNK *WILGA* 'domesticated wild dog; any domesticated animal;' WEM *wilkarr* 'dingo.'

5.304. pYUR **WILLU* > KAU *WILLO* 'one whose elder brother has died ...;' PNK *WIDLU.YU* 'one whose elder brother is dead.'

5.305. pPN (E) **wllpi* > BAA *wilpi* 'humpy;' PIT *wilpi* 'humpy, hut.'

5.306. pYUR **WILTA* > KAU *WILTA* 'hard; fast; correct;' PNK *WILTU.RRU* 'fast, tied.'

5.307. pNY **wilu* > PIN *wilu.rarra* 'west;' NYU *wiil, wilu, wila* 'north.'

5.308. pYUR **WILU* > KAU *WILTO* 'a species of eagle ...:' PNK *WILLU* 'a species of eagle.'

5.309. pPN- **wIlV* > PNK *WILLU.RU* 'long, tall;' BAY *wili.ri* 'wide;' YAN *wila.la* 'wide: broad.' (pKAN **wiliri*).

5.310. pNY **wilya* > WLP *wilya.rn.ku* 'big leafy tree, shady tree. ...:' KAU *WILYA* 'foliage; young branches: brushwood.'
Residue: PIT *wirla.parra* 'scrub.' PIT has a laminal lateral in its inventory, so an apical is unexpected here.

5.311. pNY **WILYA* > PNK *ILLA* 'not hitting or not killing the game aimed at;' NYU *WIL-YA.N* 'to miss; not to hit.'

5.312. pYUR **WILYA* > KAU *WILYA.RU* 'one who has gone through all the initiatory ceremonies; a fully grown-up man;' PNK *WILYA.LKI.NYE* 'a youth of about eighteen years, who has gone through the ceremonies of circumcision and tattooing ....'

5.313. pNYY **wilyiwilyi-* > NMA *wilyi.wilyi.ma-lku* 'to wash it;' BAY *wilyi.wilyi-L-* 'wash.' (pKAN **wilyiwilyi-L*).

5.314. pPN (E) **wIma* > BAA *wimi-* 'to play;' DIY *wima* 'song, corroboree, ceremony.'

5.315. pPN- **wIni* > NYA-S *yini* 'name;' PIN *yini* 'name;' NMA *yini* 'name;'

BAY *yini* 'name;' YAN *na-wini* 'name ....'

5.316. pP **wini(l)* > UMP *wini-* 'be frightened;' YIM *yinil* 'afraid;' GYA *yinil* 'fear.'

5.317. pPN **winja* > NYU *winyja* 'where?,' *WINJA.L, INJA.L* 'where;' BNJ *yinyjaa* 'which?, what?,' *yinyjaa.kan* 'when,' *yinyje* 'how?;' WEM *winja* 'where?,' *winja.tuk* 'which one?;' BAA *winja* 'where? which?,' *winji.ka, winjii.ka* 'who?;' DIY *winhtha* 'when;' PIT *winhtha* 'where.' (pKAR **wintha*).

5.318. pPN- (E) **wInkan* > YAN *nta-winkan* 'side, of body/face, your;' GYA *yinkan* 'ribs, side.'

5.319. pPN- **wiinti* > NYA-W *winti.ri* 'white sand; beach;' UMP *wiinti* 'wet; wet sand.'

5.320. pNY **winya* > NYA-S *winya* 'full,' -W *winya* 'full (of liquid);' NMA *winya* 'full - space completely occupied, sated.' (pNG **winya*).

5.321. pNY **winyja* > NYA-W *winyja.rr.ka* 'Barn or Screech Owl;' KAU *WINTA* 'a species of owl;' PNK *WIN-TA* 'a species of owl;' NMA *winyja.rna* 'mopoke-like bird ....' Adnyamathanha, a member of the Yura subgroup along with KAU and PNK has *wintha* 'owl,' indicating that the medial cluster in KAU and PNK is laminal rather than apical.

5.322. pP **wInyV* > WMK *winy.nyang* 'afraid;' GYA *yinyi.l* 'fright, fear.'

5.323. pNYY **wipi* > WLP *wipi-mi* 'extend out, stretch out, radiate, ...; ..., open out, hold out, straighten out, unfold, ...;' NMA *wipi.ri* 'long and thin;' BAY *wipi.ri* 'long.' (pKAN **wipirri*).

5.324. pNYY **wipu* > NYA-S *wipu* 'tail;' WLP *wipu.wu ?* 'tail bone ?;' PIN *wipu* 'tail ...;' GUP *yipa.rra* 'tail half of shark.'

5.325. pNY **wIpu* > NYA-S *wipu.wara* 'small lizard;' PNK *IBI.RRI* 'a small species of lizard.'

5.326. pNY (D) **wira-* > NYA-W *wiri.ly parnpi-ni* 'to flick water off the fingers:' WLP *wira.l.pa, wura.l.pa* 'shoving away, moving away, sending, tossing away;' PIN *wira.l.pu-ngu* 'to throw water around.'

5.327. pPN- **wIra* > NYU *YIRA.KAL* 'quickly:' YAN *wira.rra* 'rapid speech: impatient: hurrying into an activity.'

5.328. pPN- **wIra* > WLP *wiri.lyi.rr.pa* 'twisting, snapping;' GUP *wir.wir-yu-n* 'rotate, hang around,' *wir.wir.mara-ma-* 'stir;' YAN *wiri.nta-yarra* 'circling; going around;' YDN *wira-N* 'be twisted, bent, stirred up.' *wiri.wiri* 'crooked.'

5.329. pNY (D) **wIra* > NYA-W *wira.ju* 'Rufous Owl;' WLP *wiri.ngarri* '*Tito alba*, Barn Owl.'

5.330. pPN **wIrang* > NYA-W *wiri.ny-pi-ni* 'to light spinifex or grass ... in order to burn off;' WLP *yiri.wurru.nyu* 'fire-brand, torch;' PNK *WIRA-TA* 'to make the fire up, trim it;' WEM *wiring* 'hot coals.'

5.331. pNYY **wiri* > PNK *WIRRU.RU* 'tall, slender;' NYU *WIRI.L* 'slender; wasted; slight; thin;' GUP *wir'-yu-n* 'be, become thin.'

5.332. pNYY **wiri* > NYA-W *wiri.ji* 'only, nothing but, merely;' NYU *-wer* 'suf[fix] to kin term, indic[ating] that relative ref[erred] to is deceased;' GUP *wiri.nggic.wiri.nggic* 'lacking, not having.'

5.333. pPN- **wIri* > WLP *wiri* 'big, ...; large, ...; strong, ...; important, ..., leader, ...; adult, ...; elder, ...;' PIN *wiri* 'grey; old person;' YAN *wiri.ji* 'dugong, old bull.'

5.334. pNYY **wi(r)la* > WLP *wirli* 'footprint, track;' PNK *WIDLA* 'path, road;' GUP *wili.rr.k-thu-n* 'to make tracks when walking, crawling.'

5.335. pPN- **wI(r)la* > NYA-S *wirla.rra* 'moon.' -W *wila.rra* 'new moon; month;' NMA *wila.rra* 'moon;' BAY *wirla.rra, wila.rra* 'moon, month;' KLY *ILA.DI* 'shine, of moon only.' (pNG **wila.rra*, pKAN **wirlarra*).

5.336. pNYY **wi(r)liwi(r)li* > NYA-S *wirli.wirli.ngi* 'fishing with string and rod.' -W *wili.wili* 'fishing line;' NMA *wirli.wirli* 'fish hook;' BAY *wirli.wirli* 'fishing line.' Borrowing may have occurred among the languages in this set.

5.337. pPN **wIrlpa* > BAY *yirlpi, yilypi* 'waist;' BAA *wirlpa* 'waist.'

5.338. pPN **wI(r)lu* > NYA-S *wirlu.ru* '... southern stone curlew.' -W *wilu.ru* 'Stone Curlew ...;' PNK *WELU* 'curlew;' NMA *wilu.marra* 'stone curlew ?:' BAY *wirlu.mayu* 'curlew;' GUP *wirla* 'curlew;' WEM *wil* 'curlew.' (pKAN **wirlumayi*). Residue: NYU *wily* 'curlew.' We would expect NYU to have an apical lateral corresponding to those in the other Nyungic languages.

5.339. pNY **wirna* > NYA-S *wirna* 'damp, wet,' -W *wirna* 'wet sand;' NYU *wirn-wirna.liny* 'swimming.'

5.340. pNYY **wi(r)ni* > WLP *wirni.nininy-pardu* 'small spear,' *wirniny-wirniny.pa* '*Psoralea balsamica*, tree sp.; small spear;' PNK *WINNA* 'large spear, fishing spear;' GUP *yini.nya* 'type of barbed spear.' See also (5.431).
Residue: KAU *WINDA* 'a large spear ....' This form is classified as residue because its transcription suggests it contains a medial stop.

5.341. pPN **wI(r)npV* > NYA-S *wirnpa* 'whistle,' -W *winpa.l-pi-ni* 'to whistle;' WLP *wirnpi.rli-mi* 'whistle;' KAU *WINBI.RRA* 'whistle; pipe; flute;' BAY *winpi.rri-* 'whistle.' (pKAN **winpirri-*). Gadhang, a language from the coast of New South Wales, has *winpa-* 'whistle.' thereby allowing us to reconstruct at the pPN level. Residue: PNK *WINMI.RRI-TI* 'to whistle.' I have no further evidence that PNK weakens medial stops to nasals.

5.342. pNYY **wI(r)nti* > WLP *yinti-rni* 'pour (into), pour (out), tip out;' PIN *yinti-rnu* 'to dribble, drip, pour;' PNK *WINDU-TU* 'to dripple, trickle down;' NMA *yinti-ku* 'to drip, to flow out : ... to descend, to land ...;' BAY *yirnti.kala-L-* 'pour.'

5.343. pNY **wi(r)nV* > NYA-S *winu* 'thirsty,' -W *winu* 'thirsty;' WLP *wiirn.pa* 'thirsty, hungry, starving, ...; .... too weak to talk;' NYU *wen, wena, wening, winaj* 'dead.' *wen-* 'die.' *wern* 'dead, disembodied,' *wirn* 'the human spirit, spirits, ghosts of men,' *WINA.TDING* 'dead.'

5.344. pPN **wIrra* > WLP *wirri* 'watercourse, ...' *wirri-wirri* 'damp, wet, moist;' PIN *yirra.rla* 'open pool water; wet, watery, damp,' *yirri.rl.pi* 'wet, damp state of bush after rain or dew;' GYA *yirri* 'running water;' WEM *wirra-* 'to run, to flow.' *wirra.ka-* 'to swim.'

5.345. pPN **wIrra* > WLP *wirri.rl.pa, wirri.l.pa* 'dizzying; be overcome by sleep;' KAU *WIRRA.RE-NDI* 'to be tired; fatigued; lazy;' NYU *wirra.rt* 'hungry;' NMA *wirra.ku* 'sick, sore;' GUP *wirr* 'nothing, none;' YAN *wirri.jarlkurru* 'exhausted;' WOI *werri.gai* 'dead.' See (3.3) for a list of sets exhibiting relationships between 'negative' concepts.

5.346. pPN **wIrra* > NYA-S *wirri.lya* 'rough, bully,' -W *wirri.lya, wirri.ly(i)* 'angry;' WLP *wirri-pi-nyi* 'disobey, ignore, ...;' PIN *wirri.lyi* 'anger to the point of taking up spears to fight;' PNK *WIRRI.RRI-TI* 'to storm, rage;' WOI *WIRRA.WAY*

'argue.'

5.347. pPN **wIrra* > WLP *yirra-pi-nyi, yirri-pi-nyi* '... hunt with dogs;' PIN *yirri.ju-nu* 'to sool a dog on to prey;' WEM *wirre.ngən* 'dog;' WOI *wirri.ngan. yirra.ngin* 'dog, dingo.'

5.348. pPN- **wIrra* > GUP *yirra.l.ka* 'place of birth;' YAN *wirri.yarra* 'one's own country; one's spirit home.'

5.349. pNY **wirri* > KAU *WIRRI* '... scapula;' PNK *WIRRI* 'shoulder;' NMA *yirri.ka* 'shoulder blade.'

5.350. pNY **wirri* > WLP *wirri.rti-wirri.rti* 'shaking head;' KAU *WIRRI.RAE-NDI* 'to quiver; tremble; shake.'

5.351. pPN- **wIrri* > KAU *WIRRAI.TYA* 'dust; dust pillar caused by a whirlwind;' PNK *WIRRI-TI* 'to blow;' NYU *WIRRI.T* 'south-east wind;' PIT *wirri.wirri* 'whirlwind.'

5.352. pPN **wIrri-* > WLP *wirri.nji.rl.pa* '... hanging down, moving downwards;' BAY *wirri-Y-* 'hang;' PIT *wirri-* 'sink.'

5.353. pPN- **wIrrka* > PIN *wirrka.ngu* 'young sapling from which a short spear can be made;' BGU *wirrki* 'stick.'

5.354. pPN **wIrrku* > GUP *wirrku.rl* 'young woman usually unmarried;' WOI *wirrgu.rr.k* 'old woman,' *wirrk-wirrk* 'old woman.'

5.355. pPN (E) **wIrrku* > BGU *wirrku* 'on one's side;' BAA *wirrka.rra* 'alongside, next to, adjoining.'

5.356. pPN **wIrrkV* > KAU *WIRKU.TTA* 'diligent; active; quick; brisk;' WMK

erk.am 'quickly, straight away;' WEM *werrka-* 'to hurry,' *werrki* 'quickly! hurry up!.' *werrku.werrku.wa-* 'to move with frenzied speed.'

5.357. pNY **wirrpi-* > NYA-S *wirrpi.rli-pi-(n)* 'blow water out of mouth in a thin stream.' -W *wirrpi.rli-pi-ni* 'to spray water (eg., with the mouth or with a hose): to spray up (of waves);' NYU *YIRRBI.N* 'to sprinkle.'

5.358. pPN- **wIrrpi* > PNK *IRBI* 'information; news; message;' YAN *wirrpi* 'message stick.'

5.359. pPN **wIrru* > NYA-S *wirru.rntu* 'kidney;' YAN *wirri.ny.mirri* 'liver of shark/stingray;' BAA *wirru* 'kidney.'

5.360. pPN- **wIrru* > WLP *wirri.ya* 'boy ...; male ...;' DYI *wirru* 'husband.'

5.361. pPN **wIrrupa* > KAU *WIRUPPA* 'a species of small cockatoo;' BAA *wirrupa* 'quarrian, cockatiel.'

5.362. pNYY **wirrV* > NYA-W *wirru.n.wirru.n* 'Rainbow Bird;' BAY *wirra.ji* 'storm bird;' GUP *wirri.r'.wirri.r* 'rainbow bird.' (pKAN **wirraji*).

5.363. pNYY **wirrV* > NYA-W *wirri.ly.wirri.ly* 'scowling, frowning, wrinkled;' GUP *wirr.wirr.mirri* 'wrinkled.'

5.364. pNYY **wirrV-* > PIN *wirru.pu-ngu* 'to throw out, discard ...;' GUP *wirri.gu'-yu-n* 'throw stone at something.'

5.365. pPN **wIrrV* > NYA-S *wirru.rru* 'quickly, fast;' KAU *WIRRI.LLA* 'quickly; hastily; fast;' NMA *wirru.ru* 'fast, hard - as of boomerang throw;' WEM *wirrə.ka-* 'to hurry, to run.'

5.366. pNY **wirta* > PIN *wirta.pi* 'spinal column;' PNK *WIRTI* 'the lower part of

the spine.'

5.367. pNYY **wirta-* > NYU *werta.kiny* 'rising, ascending;' NMA *wirti.wirta-lku karri-ku* 'to hang;' BAY *wirti.tha-...-* 'hang up.'

5.368. pNYY **wi(r)ta* > NYA-S *wirnti.ngirriny* 'carpet snake.' -W *winti.ngirriny* 'Carpet Snake:' WLP *yinta.jirr.ki. yirnta.jirr.ki* '*Morelia bredli. Morelia spilota.* Centralian Carpet Python:' GUP *witi.c* 'python.'

5.369. pNYY **wi(r)ta* > WLP *winti.rl.ka* 'boy, lad;' BAY *wirta* 'boy, young fellow.' (pKAN **wirta*).

5.370. pNY **wi(r)ta* > WLP *wirnta.li, wurnta.li* 'at a distance, away, somewhere else;' PNK *WITU.LLU* 'away.'

5.371. pNY **wi(r)ta* > WLP *wirnta.rr.pa* 'competely out of, destitute, ... out of house and home.' *wita.ngka.rra* 'crevice, ..., hole with narrow entrance;' NYU *wirt* 'empty.'

5.372. pPN **wi(r)ta-* > WLP *wirti.rla* 'peering, peeking;' BAA *wita-* 'to look at, to watch surreptitiously.'

5.373. pPN- **wI(r)ta* > NYA-S *yiti.ny.karra* 'line of hills, cars, etc.:' NMA *yirti.ngkarra* 'in line, file:' DIY *wita* 'lined up, in a row.'

5.374. pNY **wi(r)ti-* > NYA-S *yirti-ji-(n)* 'point;' WLP *witi* 'pointing, indicating;' NMA *yirti.nyja-lku* 'to indicate, point it out.'

5.375. pPN **wIrtu* > NYA-S *wirtu* 'big,' -W *wirtu* 'great, large; very, greatly;' KAU *WITTE* 'large; much; quick; very; ably;' YAN *wirti* 'senior person; older brother/sister; boss ...;' BAA *wirtu* 'old, big, important.'

5.376. pPN- **wirtV* > KAU *WITO* 'reed;' PNK *WITU* 'reed;' YAN *wirnta.wirnta* 'River Cane Grass (*Chionachne cyathopoda*).' *wirta* 'water reed corms (generic).'

5.377. pPN **wIrtV-* > NYA-W *wirti.rri-mi-* 'to drag; to lead;' PIN *yita.rri-nu* 'to drag;' BAA *wirtu-* 'to push. to scrape along.'

5.378. pNYY **wiru-* > NYA-S *wiri.rr* 'scratch marks where something has climbed a tree,' -W *wiri.rr-pi-ni* 'to make a scratch on, to scrape ...;' PNK *WIRRU-TU* 'to scrape, chip;' GUP *wiri.ny-cu-n* 'scrape, shave, ...'

5.379. pNY **WIRV* > PNK *WIRRU.PPU* 'row, line;' NYU *WIRI.NG* 'straight; in a right line.'

5.380. pPN **wiRV(R)* > KAU *WIRRA* 'wood; forest; bush;' PNK *WIRRA* 'scrub, bush;' BNJ *yiriir* 'undergrowth, small trees.'
Residue: WOI *yerrin* 'scrub, bush.' This form cannot be included in the above set until we have more evidence that WOI changes **w-* to *y-*.

5.381. pPN **wItu-* > NYA-S *yiti.l.ma-(rn)* 'chase;' BAA *witu-witu-la-* 'to chase after.'

5.382. pPN **wIya* > NYU *wiya.rn/we.rn* 'spirit, ghost, devil;' WOI *wia.guny* 'dead.'

5.383. pPN- **wIya* > WLP *wiya.l-wiya.l.pa* 'hard (of person), stubborn, tough, ...;' PIT *wiya.rrhu* 'hard.'

5.384. pPN- **wIyV* > NMA *wiya.nu* 'hunting;' PIT *wiyu.wima* 'successful (in hunting),' *wiyu.yaka* 'unsuccessful (in hunting).'

5.3 *wu-

5.385. pPN (E) **wuja* > YAN *nta-wutha.ri* 'hip, your; groin, your;' BNJ *wuthi.mpiny* 'groin.'

5.386. pPN (E) **wUja* > YAN *nta-wunja.l* 'under arm hair, your.' *wutha.ri* '... hair string belt;' UMP *wuuja* 'body hair;' WMK *wooth.am* 'feathers of some birds ...;' BNJ *wuyi* 'pubic hair.'

5.387. pPM **wUja* > WMK *wunth.ar* 'all in one group or mob;' BGU *wuja* 'a lot, many.'

5.388. pPN- (E) **wUja-* > YAN *wunji.ni-njarra* 'swimming; diving;' UMP *uutha-* 'swim.' *wutha.y* 'swimming underwater;' WMK *woj-woj-an* 'float, drift on water (either person, animal or log).'

5.389. pPN **wujang* > NYA-S *nguja.rna* 'fine grass with edible seed;' YAN *wuju.rl* 'grass (generic);' WMK *wuth* 'grass type;' GYA *wuju* 'sponge made from grass, used as a sop for eating honey ...;' BGU *wuthun* 'grass;' BNJ *wuthang* 'grass (generic).' Residue: WMK *wunth* 'brush for extracting honey from a tree.'

5.390. pPN- **wUju* > NYA-S *wuju* 'gorge;' YAN *na-wuthu.lu* 'hole bored into widest end of harpoon to rest harpoon point.' *na-wuthu.warr* 'cave entrance;' YDN *wuju* 'throat.'

5.391. pPN (E) **wUju* > WMK *wunj wunj* 'medium-sized boys;' WEM *wuthu* 'man, male.'

5.392. pPN- **wuju(rr)* > WLP *wuju.wuju* 'dark, black, ...;' YIM *wuthurr* 'night;' GYA *wujurr* 'darkness, night.'

5.393. pPN **wŪjV* > BAY *wuthu.rta-Y-* 'lie on one's stomach;' YAN *wunthu.lirri-njarra* 'protruding abdomen, having; not used of pregant women;' WEM *wujə.p-uk* 'pregnant (lit. 'belly-hers'),' *wuju.p* 'stomach, belly.' (pKAN **wuthurta-Y*).

5.394. pPN- **wuka* > GUP *wuka.rli.rr* 'turtle shell;' UMP *wuka.pa* 'clam shell.'

5.395. pP **wuka-* > YIM *wuku.rr-* 'follow, look for;' GYA *wuku.rri-l* 'follow; weave; make a fence; imitate;' YDN *wuka-L* 'creep up on.' This set may be related to that in (5.408). UMP *wiika-* 'follow' may also belong here, although the change in V_1 would have to be corroborated.

5.396. pP **wŪka* > YDN *wuka.mU* 'firefly;' DYI *wuki.yam* 'firefly.'

5.397. pPN- **wŪki-* > NYA-S *wuku.rt.wuku.rt.karra-ma-(rn)* 'swing something;' YDN *wuki-N* 'shake, swing.'

5.398. pPN- (E) **wŪkV* > YAN *a-wuku.lhu* '... Perch;' WMK *wuungk.am. wung.alinam* '... adult Barramundi or Giant Perch (*Lates Calcarifer*).'

5.399. pPN (E) **wula* > UMP *wulu* 'hot, warm; summer;' YIM *wulu.ngkurr* 'thunder, lightning, light, flame;' GYA *wula* 'flames;' WOI *wulun* 'hot weather.' These forms may be related to the **k*-initial forms in (3.652). However, more evidence of the weakening of **k-* to *w-* in YIM is needed before the sets can be combined. Alternatively, if the above YIM form can be shown to be a borrowing, the remaining forms could be added to (3.652).

5.400. pPN- **wŪla-* > GUP *wulu* 'hair of dead *dhuwa* person;' WMK *ol* 'drop down, or recede, to be reduced;' GYA *wula-y* 'to die; to become unconscious;' YDN *wula-N* 'die;' DYI *wula-y* 'vanish, get lost;' BGU *wula-* 'to die, to go out (of fire), to get low (of water in waterhole).'

5.401. pPN- **wUlku* > PIN *wulku.manu* 'general term for women ...;' GYA *wulngku* 'song;' YDN *wulngku* 'female song-style.'

5.402. pP **wUlku* > GYA *wulku* 'fig;' YDN *wulku* 'fig tree.' Borrowing may have taken place in this set.

5.403. pPN (E) **wulpi* > YAN *wulpa-ntharra* 'thudding; pounding; resounding;' WMK *wolmp* 'very noisy (from talking);' BNJ *wulpi-* 'to make noise.'

5.404. pPN- **wUlu* > WLP *wulu* 'low down, not straight up, horizontal, sideways;' YAN *wulu.rru.ngku* 'prone position; lying position on stomach ....'

5.405. pPN (E) **wUlung* > YAN *nta-wulung.arnta* 'shoulder, your;' WOI *WULUNG* 'shoulder.'

5.406. pP **wulu(y)* > WMK *wol* 'blowfly;' YDN *wuluy* 'little march fly.'

5.407. pNYY **wulya* > NYA-S *wulyu* 'really sick person; tense;' BAY *wulha.wulha.rri-Y-* 'weaken.'

5.408. pPM **wUnga-* > YDN *wunga.pa-N* 'hunt game;' BGU *wunga-* 'to chase.' The set in (5.395) may be related to this one.

5.409. pP **wUngka* > WMK *wuungk* 'one of the special mourning songs sung by old ladies ... ; a growling song sung by old people ...;' GYA *wungka* 'cry of a woman in distress;' YDN *wungka* 'female mourning style.'

5.410. pNY **wungku* > NYA-W *wungku* 'windbreak;' NMA *wungku* 'windbreak.' It is possible that one of these forms is borrowed.
Residue: NYA-S *wungku-ji-(n)* 'make a whirlwind.' Although this form is a phonologically plausible cognate, its meaning differs somewhat from those of the

above forms.

5.411. pNYY **wungkV* > KAU *WONGGA* 'west;' GUP *wung'ku.rr* 'west.'

5.412. pPN- (E) **wunja(n)* > YAN *wuntha* 'cool; pleasant; non-poisonous; friendly; well disposed to;' WMK *wony.ang* 'wrinkled, bad condition (people, food);' GYA *wunjan* 'no personality, no style, not a pleasure to be with.'

5.413. pPN- (E) **wUnku(n/nh)* > YIM *wunkuunh* 'tomorrow, morning;' GYA *wunku.wingku* 'morning,' *wunkun* 'tomorrow.'
Residue: YAN *wungku.wungku.lampa* 'morning, in the.' This form could be included in the above set if more evidence of nasal assimilation to a following stop in YAN were found.

5.414. pPN- **wunta-* > NYA-S *wunta* 'burnt country,' -W *wunta* 'newly-burnt country ...;' UMP *unta-* 'burn (intr.).'

5.415. pPN- **wuntu-* > NYU *WUNDU.N* 'to stare; to wonder; to look at a person in order to recognise him;' UMP *wuntu-* 'look for, seek.' (pP **wuntu-*).

5.416. pPN- **wUntu* > NYU *wuntu* 'hair string,' *WUN-DU* 'human hair, made into a ... string ...;' YAN *wuntu.l-ma-ntharra* 'cutting hair.'

5.417. pPN- (E) **wUnya* > YAN *wunha.ka* 'younger brother; ...; younger sister; ...;' WMK *wuny* 'older brother.'

5.418. pPN- (E) **wUpa* > YAN *wupa.rirri-njarra* 'sleepy, being; tired, being,' *wupa.wupa.rarra* 'dopey;' WMK *woop.an* 'slow-walking, dreamy, half-sick (could be laziness or sickness).'

5.419. pPN- **wupa(r/y)* > NYA-S *wupa.rtu* 'small,' *wupa.rtu.pani* 'infant, baby,'

-W *wupa* 'daughter, son,' *wupa.rtu* 'small;' UMP *wupuy* 'young, as of birds,' *wupuy, wupuyu* 'child, brother's son;' YDN *wumpar* 'baby, marsupial in pouch.' See also (3.604).

5.420. pNY **wupi* > NYA-W *wupi* 'emu feathers;' KAU *WOPPA* 'feather;' PNK *WOPPA* 'bunch of emu feathers ....'

5.421. pPN- **wUpi* > GUP *wuup-thu-n* 'smoke;' YAN *ma-wupi.n* 'long stemmed smoking pipe.'

5.422. pPN (E) **wupu(R/n)* > GYA *wupun* 'hump, as on a Brahman bull;' BNJ *wumpur* 'gall, lump on tree.'

5.423. pPN- **wUpV(l)* > WLP *wupu.n.pa* 'hot, scorching, burning;' YAN *wupa-ntharra* 'cooking;' GYA *wumpul* 'hot;' YDN *wumpul* 'hot.'

5.424. pPN (E) **wUpV(l)* > YAN *wupu.rr* 'plentiful supply of food; environment rich in natural food resources;' GYA *wupul* 'many;' GUM *wumaa.ka* 'many, a lot, several.'

5.425. pPN- **wUra* > NYU *WURA.K* '*Macropus elegans*: a species of kangaroo;' BGU *wura* 'doe kangaroo.'

5.426. pPN- **wUra* > NYA-W *wura.n.pirri(lu)* 'hastily, quickly, ...;' WMK *wur* 'quickly.'

5.427. pPN **wU(r)la* > KAU *WODLA.LLA* 'water rush,' *WODLI.PARRI* 'the Milky Way, which the natives believe to be a large river;' GUP *wula.n* 'deep sea, ocean,' *wurla'* 'man's blood;' YAN *na-wula.ngi* 'river;' GUM *wuluu.ki* 'bathe, bogey.'

5.428. pPN **wu(r)lu* > WLP *wurli.ya, wirli.ya* 'foot;' NYU *wuli.j, wurli.j* 'calf of

the leg;' NMA *wulu.karli* 'thigh;' BAY *wulu* 'thigh;' GYA *wulu* 'ankle, shin;' YDN *wulu* 'shin;' BNJ *wulu* 'ankle, foot of tree, tree trunk.' (pNG **wulu*, pKAN **wulu*).

5.429. pPN- **wU(r)lV* > NYU *WUL-LA.JERANG* 'the Pleiades;' GUP *wurlu.rr.k* 'meteor, shooting star;' YAN *nalu-wul.wari* '... Seven Sisters; Pleiades.'

5.430. pPN- **wU(r)na* > GUP *wuurn* 'flying ant;' YAN *a-wuna.wiji* 'White Ants.'

5.431. pPN- **wU(r)ni* > WLP *wurni.nininy-pardu* 'small spear;' YAN *wun* 'simple spear; often called a toy spear.' See also (5.340).

5.432. pPN- **wu(r)nta* > WLP *wunta, yunta* 'wind-break, shelter, bough-shelter;' KAU *WORTA.BOKARRA* 'north-west wind; tempestuous weather;' BAY *wurnta-L-* 'cut, blow down (wind);' UMP *wunta* 'wind;' WMK *wunt* 'wind.'

5.433. pPN- **wU(r)nta* > NYA-S *wurnta* 'shield;' NYU *wurnta* 'shield.' *WUNDA* 'a shield;' YAN *ma-wuntu.puntu* 'shield ....'

5.434. pPN- **wU'rra* > WLP *wurru.parta.parta* 'down wind ;' YAN *a-wurru.mpurru* 'wind; wind from off the sea ....' *wurra.rumu* 'north wind in dry season;' WMK *wuu'-an* 'blow.'
Residue: GYA *wuru.nurru* 'whirlwind.' GYA has a different rhotic than those seen above.

5.435. pPN- (E) **wU'rra* > YAN *wurra* 'in the water; underwater ...,' *wurru.l.wurru.l, wurru.n.kurru.n* 'brackish water ...;' WMK *wo'uw* 'river, salt water.' YAN *wurrun.kurrun* could be a reduplication of a **k*-initial form, with weakening.
Residue: YDN *wuruu* 'major river.' This form disagrees with those above in regards to the rhotic.

5.436. pPN- **wurrka* > NYA-S *wurrku* 'sore, pain, sick,' -W *wurrku* 'sick, ill;' PIN *wurrku.li-rnu* 'to be concerned, to think continually about a person who is sick or absent;' YIM *wurrkaa-* 'suffer;' GYA *wurrka-l* 'hurt, ache.'

5.437. pPN (E) **wUrrka* > YAN *wurrku.rl* 'unripe;' WOI *wurrwa.rrin* 'green.'

5.438. pPN- **wUrrpa* > GUP *wurrbu.na* 'go to sleep;' YDN *wurrmpa* 'asleep.'

5.439. pPN **wUrru* > NYA-S *wurru.ly* 'bushes, leaf;' WOI *wurru.wurt* 'brush.'

5.440. pPN (E) **wUrru* > YAN *wurru.kurru* 'level; smooth;' WOI *wurru.k* 'flat, level.' The YAN form may be a reduplication of a **k*-initial protoform, with weakening of **k-* to *w-*.

5.441. pPN **wUrrV* > WLP *wurru.ly.ku* 'hot, warm;' YAN *wurri.njapu* 'firewood, of a poor quality,' *wurru.ja-njarra* 'catching fire;' WEM *wurrə.jil* 'a magic fire.'

5.442. pPN **wUrrV-* > GUP *wurr-thu-n* 'pull out;' KLY *URI.MAI-* 'draw from sheath;' GUM *wurraa-* 'pull out, unfasten.'

5.443. pPN **wUrrVng* > NYA-S *wurra-(rn)* 'tell,' -W *wurra-rna* 'to report, tell, say; to warn ...;' WEM *wurrɛ.ka-* 'to speak,' *wurru* 'mouth, lips;' WOI *wurrung* 'language, mouth, lips.'

5.444. pNY **wurta* > NYA-S *wurta* 'baby emu;' NMA *wurta, wurta-wurta* 'emu chick.'

5.445. pNYY **wu(r)ta-* > NYU *WURTA.MAR* 'to beat; to strike;' GUP *wut-thu-n* 'hit.'

5.446. pPN- **wUrta* > KAU *WORTA.TURTI* 'the upper arm;' GUP *wurdu.y* 'armpit, underarm;' KLY *UDU* 'the arm; upper arm.'

5.447. pNY (D) **wurtV* > NYA-S *wurtu.ngu* 'can't talk so have to use hand signals;' WLP *wurdi.ny.pa* 'hand-signing.'

5.448. pPN (E) **wuru* > BNJ *wuru* 'neck;' GUM *wuuru* 'neck, throat, windpipe.'

5.449. pNY (D) **wuru* > NYA-S *wuru* 'pile, heap, mob,' -W *wuru* 'heap ...:' PIN *wuru.lu* 'all.'

5.450. pP **wUyngu(l)* > WMK *ooyng.orpan* 'Carpet Snake or Carpet Python ...:' YDN *wungul* 'carpet snake.'

5.451. pPN (E) **wUyu* > YAN *wuyu* 'mark; track; wake, of boat;' WMK *woy.an* 'road, track.'

5.452. pPN (E) **wuyu(R)* > YAN *wuyu.wuyu* 'greedy;' BNJ *wuyuur* 'thief.'

5.453. pPN- **wuuyV(n)* > NMA *wuyu.ngu* 'hollow place in tree ...: hollow;' UMP *uuyin* 'hole, burrow;' WMK *uuy.an* 'hole.'

Chapter 6

Analysis of Cognate Sets

Any large collection of putative cognate sets is a valuable resource for resolving issues other than those which we have set out to study. Although the main focus of this project is the history of initial velars, the data presented in Chapters 3, 4 and 5 contain evidence pertaining to a number of hypotheses regarding other aspects of the reconstruction of pPN. In Section 6.1, I examine several issues involving consonants. In Section 6.2, I discuss common problems in the reconstruction of the second vowel, and present statistical evidence that vowel assimilation is an important process in Pama-Nyungan languages.

6.1 Consonant Changes

This section presents seven aspects of consonantal change in the Pama-Nyungan family. In 6.1.1, I discuss the changes which affect initial velar consonants. Section 6.1.2 looks at weakening of medial consonants. In Sections 6.1.3-6.1.7, I re-examine, in light of the data seen in the preceding chapters, several issues which have been discussed in the literature, including the assimilation of initial velar glides and nasals to the following vowel, prenasalization of medial stops, the development of triconsonantal

clusters, and questions regarding the presence or absence of a laminal lateral and a retroflex apical series in the protolanguage.

6.1.1 Initial Velars

In this section, I discuss the changes which appear to have occurred to initial velars in the languages under study. The section is divided into six subsections, one for each of the following changes: **k-* > *ng-*, **k-* > *w-*, **k-* > ∅, **ng-* > *w-*, **ng-* > ∅, **w-* > ∅. Each subsection contains a list of the languages which undergo the change, the reference numbers of the cognate sets exhibiting the change, and a table of the environments in which the change occurs.

6.1.1.1 **k-* > *ng-*

The change from **k-* to *ng-* is a widespread one, as can be seen in the following table, which gives, for each language exhibiting the change, the number of occurrences and a list of the relevant cognate sets:

(6.1)

Lang.	#	Examples
NYA	12	3.25, 3.27, 3.32, 3.67, 3.165, 3.315, 3.349, 3.357, 3.401, 3.444, 3.466, 3.561
WLP	17	3.138, 3.165, 3.239, 3.349, 3.357, 3.359, 3.378, 3.385, 3.435, 3.543, 3.545, 3.680, 3.684, 3.700, 3.713, 3.816, 3.824
PIN	7	3.90, 3.165, 3.348, 3.413, 3.495, 3.722, 3.816
KAU	6	3.32, 3.95, 3.280, 3.499, 3.543, 3.591
PNK	5	3.331, 3.540, 3.591, 3.656, 3.722
NYU	13	3.30, 3.83, 3.95, 3.102, 3.315, 3.341, 3.364, 3.369, 3.568, 3.754, 3.765, 3.772, 3.824
NMA	5	3.27, 3.315, 3.349, 3.543, 3.751
BAY	5	3.17, 3.341, 3.364, 3.662, 3.815
GUP	7	3.234, 3.247, 3.371, 3.399, 3.433, 3.477, 3.829
YAN	14	3.18, 3.37, 3.87, 3.164, 3.192, 3.368, 3.373, 3.379, 3.381, 3.423, 3.642, 3.670, 3.740, 3.821
UMP	2	3.4, 3.778
WMK	14	3.71, 3.266, 3.313, 3.373, 3.440, 3.485, 3.499, 3.519, 3.551, 3.580, 3.667, 3.670, 3.801, 3.807
GYA	9	3.61, 3.126, 3.368, 3.397, 3.505, 3.562, 3.714, 3.726, 3.730
YDN	6	3.112, 3.340, 3.443, 3.561, 3.663, 3.763
DYI	3	3.59, 3.115, 3.140
BNJ	4	3.175, 3.364, 3.505, 3.535
GUM	3	3.107, 3.385, 3.772
WEM	5	3.3, 3.158, 3.207, 3.601, 3.637
WOI	4	3.284, 3.377, 3.603, 3.693
BAA	6	3.297, 3.331, 3.349, 3.501, 3.765, 3.811
DIY	4	3.71, 3.179, 3.786, 3.801
PIT	5	3.115, 3.223, 3.424, 3.663, 3.786

KLY, YIM and BGU are the only languages for which I have no evidence of this change. All of the other languages appear to undergo the change to some extent. The table below shows, for each language, the number of occurrences of **k-* > *ng-* before each vowel.

(6.2)

Lang.	_ I	_ A	_ U
NYA	2	8	2
WLP	1	8	8
PIN	1	3	3
KAU	0	3	3
PNK	0	1	4
NYU	0	8	5
NMA	0	3	2
BAY	0	3	2
GUP	2	3	2
YAN	1	9	4
UMP	0	1	1
WMK	1	4	9
GYA	1	3	5
YDN	1	2	3
DYI	0	3	0
BNJ	0	2	2
GUM	0	2	1
WEM	0	3	2
WOI	0	2	2
BAA	0	3	3
DIY	0	2	2
PIT	1	2	2

The lack of examples before *i* is most likely due to the relative rarity of forms beginning with *ki-* or *kii-*. For DYI, my data contain examples of this change preceding only *a*; however, the small number of relevant sets makes it impossible to posit a generalization at this point.

6.1.1.2 **k- > w-*

The table below gives the examples of **k-* weakening to *w-* seen in Chapter 3.

(6.3)

Lang.	#	Examples
NYA	15	3.42, 3.51, 3.52, 3.143, 3.267, 3.394, 3.423, 3.427, 3.437, 3.445, 3.446, 3.489, 3.689, 3.724, 3.744
WLP	19	3.68, 3.84, 3.117, 3.206, 3.230, 3.302, 3.348, 3.361, 3.397, 3.427, 3.445, 3.550, 3.562, 3.667, 3.708, 3.744, 3.746, 3.750, 3.805
PIN	7	3.114, 3.178, 3.365, 3.381, 3.442, 3.552, 3.750
KAU	6	3.38, 3.365, 3.397, 3.399, 3.733, 3.779
PNK	6	3.178, 3.242, 3.250, 3.404, 3.435, 3.446
NYU	6	3.22, 3.65, 3.370, 3.445, 3.572, 3.666
NMA	5	3.166, 3.178, 3.219, 3.665, 3.674
BAY	8	3.31, 3.267, 3.468, 3.546, 3.723, 3.744, 3.780, 3.811
GUP	10	3.41, 3.43, 3.370, 3.381, 3.425, 3.426, 3.458, 3.471, 3.592, 3.744
YAN	38	3.13, 3.15, 3.20, 3.41, 3.51, 3.135, 3.139, 3.230, 3.244, 3.304, 3.381, 3.477, 3.484, 3.485, 3.488, 3.490, 3.497, 3.503, 3.523, 3.525, 3.538, 3.575, 3.602, 3.647, 3.660, 3.664, 3.665, 3.680, 3.689, 3.717, 3.733, 3.739, 3.744, 3.783, 3.784, 3.807, 3.816, 3.824
KLY	3	3.117, 3.182, 3.366
UMP	10	3.13, 3.20, 3.50, 3.59, 3.117, 3.178, 3.396, 3.506, 3.733, 3.744
WMK	8	3.59, 3.98, 3.160, 3.182, 3.503, 3.577, 3.586, 3.830
GYA	3	3.44, 3.72, 3.206
YDN	14	3.32, 3.176, 3.264, 3.364, 3.376, 3.397, 3.511, 3.513, 3.546, 3.638, 3.668, 3.714, 3.742, 3.830
DYI	8	3.52, 3.68, 3.185, 3.230, 3.259, 3.561, 3.728, 3.731
BGU	5	3.230, 3.292, 3.491, 3.541, 3.550
BNJ	8	3.117, 3.137, 3.230, 3.259, 3.375, 3.377, 3.543, 3.660
GUM	4	3.53, 3.117, 3.259, 3.755
WEM	9	3.43, 3.153, 3.397, 3.409, 3.424, 3.427, 3.453, 3.499, 3.739
WOI	11	3.127, 3.156, 3.160, 3.364, 3.402, 3.651, 3.673, 3.716, 3.744, 3.756, 3.765
BAA	9	3.45, 3.133, 3.161, 3.230, 3.239, 3.264, 3.407, 3.437, 3.668

This change appears in all languages except YIM, DIY and PIT. It occurs especially often in YAN. The environments in which the change occurs are shown in the following table:

(6.4)

Lang.	_ I	_ A	_ U
NYA	6	5	4
WLP	3	8	8
PIN	1	4	2
KAU	2	2	2
PNK	3	3	0
NYU	1	3	2
NMA	0	3	2
BAY	0	2	6
GUP	2	4	4
YAN	0	11	27
KLY	0	3	0
UMP	1	6	3
WMK	0	4	4
GYA	0	3	0
YDN	1	5	8
DYI	0	5	3
BGU	0	2	3
BNJ	0	6	2
GUM	0	3	1
WEM	4	2	3
WOI	1	4	6
BAA	2	6	1

As with the change from **k-* to *ng-*, there are few examples of this change preceding *i*. In NYA, however, there are more instances of **k-* > *w-* before *i* than there are before *a* or *u*. My data contain no examples of this change occurring before *u* in PNK and KLY. Again, there are too few sets involved to warrant a rule to this effect.

6.1.1.3 **k-* > ∅

Four of the languages in this study, YAN, KLY, UMP and WMK, sometimes drop initial consonants, although none of them is a completely initial-dropping language. My data contain evidence that all four of these languages drop initial **k*.

(6.5)

Lang.	#	Examples
YAN	19	3.23, 3.25, 3.33, 3.56, 3.60, 3.64, 3.86, 3.94, 3.100, 3.133, 3.206, 3.238, 3.240, 3.264, 3.285, 3.322, 3.323, 3.356, 3.367
KLY	30	3.2, 3.59, 3.172, 3.214, 3.216, 3.347, 3.352, 3.408, 3.412, 3.416, 3.448, 3.456, 3.457, 3.460, 3.482, 3.502, 3.504, 3.551, 3.559, 3.610, 3.632, 3.634, 3.667, 3.671, 3.714, 3.746, 3.767, 3.780, 3.786, 3.834
UMP	9	3.79, 3.230, 3.364, 3.424, 3.426, 3.526, 3.642, 3.668, 3.670
WMK	34	3.7, 3.11, 3.24, 3.28, 3.69, 3.71, 3.122, 3.134, 3.154, 3.188, 3.196, 3.312, 3.349, 3.350, 3.368, 3.372, 3.391, 3.398, 3.400, 3.408, 3.440, 3.456, 3.498, 3.507, 3.540, 3.579, 3.600, 3.642, 3.662, 3.665, 3.668, 3.794, 3.800, 3.831

This change is very common in KLY and WMK, and occurs to a lesser extent in YAN and UMP. As seen in the following table, **k-* is dropped before all three vowels in KLY, UMP and WMK.

(6.6)

Lang.	_I	_A	_U
YAN	0	19	0
KLY	4	6	19
UMP	2	3	4
WMK	5	16	13

In YAN, however, this change is found preceding only *a*.

6.1.1.4 **ng-* > *w-*

The weakening of **ng-* to *w-* is much less common than that of **k-* to *w-*, as can be seen in the following table:

(6.7)

Lang.	#	Examples
NYA	3	4.61, 4.173, 4.203
WLP	3	4.61, 4.87, 4.171
PNK	3	4.87, 4.107, 4.198
GUP	3	4.22, 4.130, 4.249
YAN	7	4.64, 4.174, 4.188, 4.195, 4.225, 4.245, 4.250
KLY	3	4.16, 4.55, 4.89
UMP	2	4.150, 4.208
WMK	9	4.17, 4.144, 4.148, 4.150, 4.194, 4.208, 4.225, 4.227, 4.252
YIM	2	4.161, 4.208
GYA	8	4.89, 4.99, 4.101, 4.151, 4.161, 4.208, 4.225, 4.260
YDN	7	4.42, 4.134, 4.182, 4.194, 4.208, 4.213, 4.225
DYI	4	4.22, 4.182, 4.191, 4.242
BGU	3	4.73, 4.208, 4.260
WEM	5	4.4, 4.99, 4.124, 4.191, 4.252
WOI	3	4.174, 4.200, 4.209

Most of the western languages show very few or no instances of this change. It would not be surprising if further study shows that the NYA, WLP, PNK and GUP examples in my data are not in fact true cognates. The change is also relatively rare in the eastern languages, although there are irrefutable examples such as that seen in (6.8):

(6.8) WLP *nguna-mi* 'lie ...: sleep ...;' NYU *ngurni.ny, ngurnti.ny* 'lying, lying down;' UMP *wuna-* 'lie, sleep, stay the night;' WMK *wun-an* 'lie down, live, stay; ... stative verb ... to be;' YIM *wu-naa-* 'lie, exist;' GYA *wuna-y* 'to lie down; to sleep; to have; state of being;' YDN *wuna-N* 'lie, sleep, live;' BGU *wuna-* 'to lie down.' (4.208).

In Fitzgerald (1991), I presented putative cognate sets showing a change from **ng-* to *w-* in nine eastern languages, UMP, WMK, YIM, GYA, YDN, DYI, BGU, GID (BNJ), and WEM. The number of examples ranged from six for YDN, DYI and BGU to 22 for WMK (Fitzgerald 1991:19). Although the present study covers a much larger set of data, it shows fewer examples of this change than did my previous work. There are a number of reasons for this. In Fitzgerald (1991), I focussed on *ng*-initial

forms, and considered *w*-initial data for only those languages which were suspected of undergoing this change, namely those listed above. In the present study, *w*-initial forms are included for all languages, and comparison shows that some of the forms attributed to **ng-* in the previous study are more likely to be cognate with *w*-initial forms, and thus reflect **w*-initial protoforms. An example of such a set is given in (6.9):

(6.9) NYA-S *waku.jarta* 'upper arm,' -W *waku.jirti* 'shoulder;' WLP *waku* 'arm; upper arm; arm, wing, front leg, foreleg;' BAY *waku.ny* 'armpit;' GYA *waku.mpa* 'spreading branches of tree; biceps, or upper arm.' *wakuy* 'arm;' BNJ *wangany* 'armpit;' BAA *wangka.rra* 'upper arm near shoulder.' (5.39).

In Fitzgerald (1991:60), the GYA forms in this set were included in a set going back to pPN **ngakVl*. Putative cognates included YIM *ngaakuul* 'arm, especially upper arm' and WLP *ngaku.ly.ka* 'armpit.' Because *w*-initial forms for western languages such as NYA, WLP and BAY were not included in that comparison, the resemblance between the forms in (6.9) was not known. In light of the expanded dataset, however, it seems more likely that the GYA forms do reflect a **w*-initial root.

In addition, the data in Fitzgerald (1991) did not include *k*-initial forms. In some cases the addition of these forms in the present study indicates that *w*-initial forms previously thought to descend from **ng*-initial protoforms are more likely to reflect **k*-initial forms. Consider the following set:

(6.10) WLP *kirli.l.kirli.l.pa* '*Cacatua roseicapilla*, Galah;' UMP *ili.nyu* 'galah;' WEM *wilə.k-wilə.k* 'galah;' BAA *kila.mpa* 'galah;' DIY *kila.n.kila* 'galah;' PIT *kila.nyji, kili.nyja* 'galah,' *ngili.nyja* 'galah.' (3.424).

In Fitzgerald (1991:112), the PIT and WEM forms were included in a set with a reconstruction of pPN **ngIli*. The data used in the present study, however, point to

a protoform with **k-*.

The following table summarizes the environments in which the change from **ng-* to *w-* appears to occur:

(6.11)

Lang.	_ I	_ A	_ U
NYA	1	1	1
WLP	1	2	0
PNK	0	2	1
GUP	0	2	1
YAN	1	1	5
KLY	0	3	0
UMP	0	1	1
WMK	0	4	5
YIM	0	1	1
GYA	0	4	3
YDN	0	2	5
DYI	0	1	3
BGU	0	1	2
WEM	0	2	2
WOI	1	0	2

Again, there are very few examples of this change preceding *i*, and it is not possible to make any firm generalizations concerning the other two vowels.

6.1.1.5 **ng-* > ∅

Although there is some evidence that all four of the quasi-initial-dropping languages in this study sporadically lose **ng-*, this is a rare change compared to the loss of **k-* and that of **w-*.

(6.12)

Lang.	#	Examples
YAN	3	4.22, 4.36, 4.130
KLY	4	4.14, 4.54, 4.98, 4.260
UMP	4	4.11, 4.99, 4.192, 4.233
WMK	6	4.16, 4.65, 4.73, 4.186, 4.262, 4.267

As seen in the following table, my data contain no examples of this change occurring before *i*:

(6.13)

Lang.	-I	-A	-U
YAN	0	3	0
KLY	0	3	1
UMP	0	1	2
WMK	0	3	3

As with the loss of initial **k*, YAN appears to drop initial **ng* only before *a*. The other three languages lose **ng-* before both *a* and *u*.

6.1.1.6 **w-* > ∅

The loss of **w-* is more common than that of **ng-*, but less common than that of **k-*.

(6.14)

Lang.	#	Examples
PNK	3	5.311, 5.325, 5.358
YAN	3	5.28, 5.147, 5.156
KLY	6	5.20, 5.52, 5.295, 5.335, 5.442, 5.446
UMP	10	5.5, 5.66, 5.89, 5.135, 5.266, 5.270, 5.277, 5.388, 5.414, 5.453
WMK	15	5.20, 5.23, 5.25, 5.43, 5.44, 5.46, 5.101, 5.172, 5.267, 5.277, 5.289, 5.356, 5.400, 5.450, 5.453

Note that PNK is included in this table; it has three apparent examples of the loss of **w-* before **i*. It is quite possible, however, that *I*-initial forms in the PNK transcription actually represent *y*-initial forms and **w-* has changed to *y-*. If so, then

these examples belong in Section 6.1.2.2 below. The change occurs most frequently in WMK. The table below shows that both KLY and WMK exhibit two occurrences of this change before *i*:

(6.15)

Lang.	- I	- A	- U
PNK	3	0	0
YAN	0	3	0
KLY	2	2	2
UMP	0	7	3
WMK	2	10	3

Again, YAN seems to drop **w-* only before *a*.

6.1.1.7 Summary

In this section, I will briefly summarize for each language the changes discussed above. Note that for all the languages, my data contain numerous examples of the retention of each initial consonant. In most cases, the changes are sporadic, and no environment can be determined which would allow us to predict when an initial consonant will be retained and when it will be changed or dropped.

NYA, WLP, PNK and GUP weaken **k-* to *ng-* and to *w-*. NYA and WLP also exhibit a small number of cases in which **ng-* appears to change to *w-*. PNK may lose initial **w*.

PIN, KAU, NYU, NMA and BAY also seem to weaken **k-* to *ng-* and to *w-*, but they do not undergo the **ng-* > *w-* change.

The YAN and WMK data contain examples of each of the changes discussed above. For YAN, the changes affecting **k-* occur relatively frequently, while those affecting **ng-* and **w-* are rarer. The same is true for WMK, except that the loss of

**w-* is fairly common. The data indicate that YAN loses initial velar consonants only before *a*.

For KLY, the most common change is the loss of **k-*. A small number of examples of **k-* and **ng-* changing to *w-* and of the dropping of **ng-* and **w-* are also found. KLY does not weaken **k-* to *ng-*, perhaps because it is more likely to drop initial **k* than to weaken it.

UMP appears to drop all three initial velars, although **ng-* is lost less often than are **k-* and **w-*, and the **k-* > *w-* change is attested fairly often. My data contain just two examples of **k-* becoming *ng-* and two examples of **ng-* changing to *w-*.

YIM appears to retain **k-* in all cases. Only two instances of **ng-* weakening to *w-* are found in the YIM data; future work may show that they are borrowings.

GYA, YDN, DYI, WEM and WOI undergo all of the changes except for those involving the loss of an initial consonant.

The BGU data include a relatively small number of cases in which **k-* or **ng-* becomes *w-*. BGU does not appear to change **k-* to *ng-*, nor does it drop initial consonants.

In BNJ, GUM and BAA **k-* is seen to weaken to *ng-* or to *w-*, but **ng-* appears to be retained.

The only change seen in DIY and PIT is that of **k-* to *ng-*. Both languages retain **ng-*.

6.1.2 Medial Lenition

Medial lenition, or weakening, is not as common as initial lenition, and for some languages in this study, the cognate sets reveal no examples of this type of change. However, it does occur in a number of languages. In this section, I summarize the evidence for medial lenition as seen in Chapters 3, 4 and 5. The section is divided into three subsections discussing the weakening of stops to nasals, of stops to glides and of nasals to glides.

6.1.2.1 Stops to Nasals

My cognate sets include attestation for the weakening of **-p-* to *-m-*, of **-j-* to *-ny-* or *-nh-*, of **-t-* to *-n-*, and of **-k-* to *-ng-*. An example is seen in (6.16):

(6.16) YDN *kijam* 'ants, ringworm;' BNJ *kiiny* 'ant (generic);' GUM *kiiny* 'ant.' (3.389).

Evidence for the lenition of medial stops to nasals is seen in the following sets:

(6.17)

Lang.	#	Examples
GUP	8	3.188, 3.195, 3.506, 3.532, 5.23, 5.121, 5.293
YAN	3	4.225, 5.18, 5.167
WMK	4	3.398, 3.461, 5.398, 5.412
YIM	2	3.421, 5.63
GYA	4	3.421, 3.505, 3.522, 5.63
BGU	2	3.45, 5.9
BNJ	4	3.389, 3.608, 4.185, 5.39
GUM	3	3.389, 5.124, 5.424

6.1.2.2 Stops to Glides

In Chapters 3, 4 and 5, we find instances of the weakening of **-p-* to *-w-*, of **-j-* to *-y-*, and of **-k-* to *-w-*. An example is given in (6.18):

(6.18) NMA *kuka.y* 'come here!;' UMP *kuuku.'u* 'from here;' BGU *wuku* 'to here, this way;' BNJ *kuway* 'come here!.' (3.491).

Attestation for this change is given below.

(6.19)

Lang.	#	Examples
GUP	6	3.180, 3.467, 3.617, 4.107, 5.52, 5.286
YAN	2	3.455, 5.277
WMK	2	3.453, 4.228
GYA	3	3.834, 4.86, 5.134
YDN	3	3.459, 3.613, 4.228
DYI	2	3.488, 5.15
BGU	2	4.190, 5.12
BNJ	4	3.390, 3.469, 3.491, 5.386
WOI	2	3.172, 5.437
BAA	2	3.172, 4.180

6.1.2.3 Nasals to Glides

Although a change from **-ng-* to *-w-* is possible, my data contain examples only of **-m-* weakening to *-w-* and of **-ny-* weakening to *-y-*. The following set is an example of the latter change:

(6.20) GYA *nganyil* 'haze, mist;' BNJ *ngayaan* 'greyish haze of falling rain.' (4.83).

As seen in the following table, this change is attested only in YAN and BNJ.

(6.21)

Lang.	#	Examples
YAN	2	5.91, 5.119
BNJ	4	3.155, 3.408, 4.47, 4.83

Single instances were noted for other languages in the study, but correspondences between nasals and glides can be considered matchings for only YAN and BNJ.

6.1.3 Assimilation of Initial Velars to V_1

The occurrence of *i* following initial velars is rare compared to that of *a* and *u*. In fact, some languages do not allow such combinations. In this section, I present evidence that a number of languages assimilate initial **w-* to a following *i*. An example of the change is seen below:

(6.22) NYA-S *yiti.l.ma-(rn)* 'chase;' BAA *witu-witu-la-* 'to chase after.' (5.381).

NYA has fronted **w-* to *y-* preceding *i*.

Chen (1992:23) finds evidence of this change in YIM and GYA, but my data indicate that it is much more widespread. The following table lists the examples from my data of **w-* changing to *y-* in ten languages:

(6.23)

Lang.	#	Examples
NYA	4	5.315, 5.373, 5.374, 5.381
WLP	5	5.285, 5.330, 5.342, 5.347, 5.368
PIN	7	5.285, 5.300, 5.315, 5.342, 5.344, 5.347, 5.377
NYU	2	5.327, 5.357
NMA	5	5.315, 5.342, 5.349, 5.373, 5.374
BAY	3	5.315, 5.337, 5.342
GUP	3	5.324, 5.340, 5.348
YIM	1	5.316
GYA	5	5.296, 5.316, 5.318, 5.322, 5.344
BNJ	2	5.317, 5.380

Although my data contain just one case of this change in YIM, it is included as a matching because of the further examples in Chen's data.

Assimilation of **w-* to *i* is not especially common, but it does appear to occur in most of the western languages in this study, as well as in YIM, GYA and BNJ. It may also occur in PNK (see Section 6.1.1.6). A similar fronting of **ng-* to *ny-* may occur sporadically; I noted single occurrences in a number of languages during the cognate search, and a few instances can be found in Fitzgerald (1991). However, only BAA has two examples (4.170 and 4.175) of such a change in the present study.

6.1.4 Prenasalization

Prenasalization is a change in which a homorganic nasal is inserted before a medial stop, rhotic or glide, as in the following cognate set:

(6.24) NYA-S *kangku.ji* 'eldest sister.' -W *kangku.ji* 'elder sister;' WLP *kaku* 'elder sister, senior sister:' PIN *kangku.ru* 'a male's or female's elder sister;' DIY *kaku* 'elder sister;' PIT *kaku* 'older sister.' (3.39).

Here, NYA and PIN have a homorganic nasal-stop cluster corresponding to a stop in the other languages. Although it is sporadic, this change is common in Pama-Nyungan languages, and is discussed in detail by O'Grady (1990e) and by O'Grady and Fitzgerald (1995:456). Further examples can be found throughout O'Grady's work, as well as in Hendrie (1990), Fitzgerald (1991) and Chen (1992). In this section, I summarize the evidence for prenasalization found in Chapters 3, 4 and 5.

The following table lists the cognate sets in which prenasalization occurs:

(6.25)

Lang.	#	Examples
NYA	23	3.27, 3.39, 3.165, 3.321, 3.328, 3.454, 3.489, 3.616, 3.780, 4.23, 4.121, 4.141, 4.148, 4.191, 5.18, 5.48, 5.140, 5.238, 5.246, 5.249, 5.281, 5.294, 5.368
WLP	27	3.21, 3.317, 3.337, 3.438, 3.473, 3.489, 3.606, 3.779, 3.783, 3.806, 4.10, 4.189, 5.33, 5.52, 5.236, 5.246, 5.249, 5.250, 5.251, 5.283, 5.284, 5.289, 5.294, 5.368, 5.369, 5.370, 5.371
PIN	12	3.39, 3.303, 3.317, 3.478, 3.618, 3.766, 3.777, 3.784, 4.145, 4.187, 5.243, 5.294
KAU	8	3.327, 3.346, 3.618, 3.762, 3.777, 4.150, 5.51, 5.127
PNK	5	3.331, 3.622, 3.777, 3.784, 4.141
NYU	9	3.45, 3.176, 3.497, 3.761, 3.765, 3.784, 3.785, 4.150, 5.236
NMA	11	3.26, 3.315, 3.316, 3.347, 3.453, 3.472, 3.771, 3.780, 5.140, 5.234, 5.248
BAY	13	3.313, 3.328, 3.464, 3.470, 3.481, 3.761, 3.777, 4.17, 4.144, 4.154, 4.253, 5.248, 5.290
GUP	5	3.475, 3.616, 4.130, 4.146, 5.24
YAN	16	3.27, 3.314, 3.503, 3.784, 3.807, 3.809, 4.5, 4.147, 4.150, 4.265, 5.236, 5.248, 5.376, 5.386, 5.388, 5.393
UMP	9	3.186, 3.307, 3.526, 3.802, 4.17, 4.150, 4.184, 5.11, 5.135
WMK	25	3.6, 3.28, 3.40, 3.169, 3.186, 3.446, 3.456, 3.464, 3.468, 3.472, 3.801, 4.123, 4.144, 4.148, 4.150, 4.227, 4.265, 5.10, 5.44, 5.135, 5.289, 5.293, 5.387, 5.391, 5.403
YIM	5	3.49, 3.184, 3.777, 3.802, 5.51
GYA	17	3.49, 3.61, 3.194, 3.196, 3.338, 3.467, 3.534, 3.622, 3.702, 4.102, 4.189, 5.51, 5.158, 5.210, 5.247, 5.401, 5.423
YDN	27	3.20, 3.23, 3.32, 3.58, 3.186, 3.291, 3.376, 3.438, 3.463, 3.469, 3.481, 3.608, 3.777, 3.806, 3.808, 4.42, 4.227, 5.34, 5.51, 5.65, 5.164, 5.249, 5.279, 5.401, 5.419, 5.423, 5.438
DYI	9	3.196, 3.230, 3.486, 3.621, 3.731, 3.804, 4.93, 4.226, 5.24
BGU	7	3.323, 3.376, 3.464, 3.468, 3.807, 4.6, 4.193
BNJ	14	3.7, 3.36, 3.301, 3.331, 3.340, 3.492, 3.499, 3.771, 3.776, 3.809, 4.150, 5.15, 5.136, 5.422
GUM	3	3.8, 3.177, 3.616
WEM	2	3.398, 3.623
WOI	4	3.765, 3.773, 4.24, 4.257
BAA	14	3.319, 3.327, 3.331, 3.765, 3.774, 4.6, 4.10, 4.145, 4.261, 5.39, 5.131, 5.248, 5.277, 5.279
DIY	8	3.7, 3.501, 3.809, 4.7, 4.93, 4.121, 4.146, 5.14
PIT	7	3.318, 3.319, 3.456, 3.809, 4.150, 4.254, 5.49

Prenasalization occurs to some extent in all the languages under study, except for KLY, which does not permit nasal-stop clusters. The sets include examples of **-p-* > *-mp-*, **-j-* > *-nyj-* or *-nhth-*, **-t-* > *-nt-*, **-rt-*> *-rnt-*, and **-k-* > *-ngk-*. In addition, **-rr-* > *-nt-* and **-r-* > *-rnt-* in a number of cases.

6.1.5 Triconsonantal Sequences

Pama-Nyungan languages can be divided into two groups, those that allow triconsonantal medial sequences and those that do not. Such sequences are usually made up of a nonnasal resonant followed by a homorganic nasal-stop cluster. A comparison of the two types of languages shows that these sequences are found in two types of correspondences. Consider the following cognate set:

(6.26) KAU *WAMPI, WAMPI.TTI* 'wing of a large bird; for instance, an eagle;' GUP *warmba.rr* 'wing (bird).' (5.179).

In this set, we see a correspondence between a nasal-stop sequence and a nonnasal resonant- nasal-stop sequence. A different type of correspondence is found in the following set:

(6.27) WLP *warlkurr.pa* 'bark, barking, growling, snarling;' PIN *warlkurr-pa* 'barking noise made by dogs ...;' GYA *walngkurri-l* 'to beg, to ask for something; bark of a dog.' (5.158)

Here, a nonnasal resonant-stop sequence corresponds to the triconsonantal sequence. O'Grady and Fitzgerald (1995) argue that the former correspondence arises when the protoform contained a triconsonantal sequence. In these cases, those languages which cannot have three medial consonants drop the first element. The latter cor-

respondence is the product of prenasalization of the stop in an ancestral nonnasal resonant-stop sequence.

The cognate sets in this dissertation include a number of examples of triconsonantal sequences. Three of these (3.69, 5.68 and 5.179) reflect protoforms with a triconsonantal sequence. The majority, given in the following list, are the result of prenasalization: 3.58, 3.61, 3.230, 3.291, 3.526, 3.534, 3.702, 3.731, 4.42, 4.102, 4.130, 5.65, 5.158, 5.164, 5.210, 5.401, 5.403 and 5.438. Both groups of sets support the analysis proposed by O'Grady and Fitzgerald (1995).

6.1.6 Laminal Lateral

Recall from Section 1.2 that many Pama-Nyungan languages have only an apical lateral, and that Dixon is not sure whether proto-Australian (or, in our terms, pPN), had a laminal lateral. Dixon (1980:157) hypothesizes that, if the proto-language, had a laminal lateral, it became *j* or *l* between vowels and *ny* or *l* before consonants. In addition, O'Grady, Hendrie, Chen and Fitzgerald have all used the laminal lateral in their reconstructions. Preliminary work on this question (Fitzgerald (1997)) indicates that pPN did indeed have such a lateral. Eleven languages with a laminal lateral are compared to ten without. The eight languages[1] shown in the following table appear in both Fitzgerald (1997) and the present study, and they all lack a laminal lateral. Matchings are given for intervocalic *ly*, for *lyj* and for preconsonantal *ly*. If a language has more than one matching, they are listed in order of frequency.

[1]GID is a dialect of BNJ.

(6.28)

	V _ V	*lyj*	_ C
YIM	*j*		
GYA	*j, lj, l*	*j*	*l*
YDN	*j, l*		
DYI	*j*		*l*
BGU	*j/th*		
GID	*l, j, y*	*l*	*l*
GUM	*l, j, y*		
WEM	*j, l*		

The languages show matchings of *l, j* and/or *y* for intervocalic *ly*. The most common matching for preconsonantal *ly* appears to be *l*, with no evidence of the *ny* suggested by Dixon.

The data in Chapters 3-5 include 20 cognate sets involving both languages with a laminal lateral and those without. The matchings found in these sets are summarized in the following table:

(6.29)

	V _ V		*lyj*	_ C	
GUP	*l*	3.84, 4.44			
	y	3.547			
KLY	*l*	3.87, 3.93			
WMK	*j/th*	3.84, 3.547, 5.84			
GYA	*l*	4.44		*l*	3.90
YDN	*l*	3.87, 5.85	*l* 4.42	*l*	3.89, 3.91
	j	3.546, 3.550, 4.202			
DYI				*l*	3.89
BGU	*j/th*	3.548, 3.550, 5.84, 5.85		*l*	3.91
BNJ	*th*	3.84, 3.545, 3.548, 3.550			
	l	3.87			
WEM	*l*	3.85, 4.201			
WOI				*l*	3.91, 4.43
BAA			*lj* 4.41		

For six of the eight languages seen in (6.28), we have additional evidence for some of the matchings found by Fitzgerald (1997). In addition, the data indicate that intervocalic *ly* is matched by *l* in GUP and KLY, and by *j* or *th* in WMK. In one case, GUP *y* apparently corresponds to *ly*. BAA has one example of *lj* matching *lyj*. In WOI, *l* appears to match preconsonantal *ly*. The number of corroborating sets is small, and further work needs to be done to confirm these matchings.

6.1.7 Retroflexes in proto-Pama-Nyungan

The major difference between the proto-language inventory posited by Dixon (1980:158) and that proposed by O'Grady (1990a:xxi) is that the former excludes a retroflex series while the latter includes one. In an analysis of apical consonants, Dixon (1980:155) finds two types of correspondences, shown in (6.30), between languages with a single apical series and those with two such series.

(6.30)

	Single-apical lgs.	Double-apical lgs.	Correspondence label
a.	t	t	T
	n	n	N
b.	t	rt	RT
	n	rn	RN

Dixon (1980:155) states that the T and N correspondences "occur almost exclusively following /a/ and /i/." and that the RT and RN correspondences "occur almost exclusively following /u/." He takes this as evidence that the proto-language had one apical series, with retroflex allophones following **u* and alveolar allophones following **a* and **i*. He gives only seven cognate sets to support this claim.

The present study contains numerous counterexamples to Dixon's conclusions. In 52 cases, T and N correspondences occur following *u*; an example is given in (6.31):

(6.31) PIN *kutu* 'continually ... continuing action;' WMK *ngoont.an* 'keep on and on;' DIY *nguda* 'continuous.' (3.801).

The exceptions are listed in the following table, in which they are sorted according to $C_1V_1C_2$:[2]

(6.32)

$C_1V_1C_2$	Exceptions
kU(n)t-	3.586, 3.587, 3.589, 3.591, 3.695, 3.799, 3.800, 3.801, 3.802, 3.804, 3.805, 3.806, 3.807, 3.809
wU(n)t-	5.414, 5.415
kUn-	3.572, 3.574, 3.568, 3.573, 3.575, 3.593
ngUn-	4.208, 4.210, 4.218
kUl-	3.508, 3.510, 3.511, 3.517, 3.519, 3.518, 3.520, 3.522, 3.525, 3.527, 3.530, 3.532, 3.534, 3.538, 3.539, 3.540, 3.541, 3.542, 3.543, 3.654, 3.663
ngUl-	4.196, 4.200
wUl-	5.399, 5.400, 5.401, 5.403

In each of these sets, we find an alveolar consonant following *u* in both single- and double-apical languages. This is contrary to Dixon's observation that T and N correspondences "occur almost exclusively" after *i* and *a*.

My data contain 60 counterexamples, such as that seen in (6.33), to the second half of Dixon's claim.

(6.33) NYU *karna.ny* 'true, trustworthy,' *karni* 'It's true!,' *KARNA.YUL* 'it is true; it is a fact;' WMK *kan-kan.am* 'truly, really;' YIM *kanaa* 'alright, okay.' (3.243).

These exceptions are summarized in the following table:

[2]Although Dixon does not discuss apical laterals, there is no reason to believe that correspondences involving them would differ from those involving nasals or stops. Thus, I include cognate sets with apical laterals in my group of counterexamples.

(6.34)

$C_1V_1C_2$	Exceptions
kA/Ir(n)t	3.307, 3.312, 3.313, 3.316, 3.320, 3.330, 3.331, 3.438, 3.440, 3.441
ngA/Ir(n)t	4.143, 4.148, 4.144, 4.150
wA/Ir(n)t	5.235, 5.246, 5.249, 5.247, 5.251
kA/Irn	3.243, 3.247, 3.248, 3.254, 3.257, 3.259, 3.262, 3.264, 3.265
wA/Irn	5.186
kA/Irl	3.214, 3.215, 3.217, 3.221, 3.223, 3.224, 3.225, 3.228, 3.230, 3.235, 3.242, 3.423, 3.424, 3.426
ngA/Irl	4.108, 4.172
wA/Irl	5.149, 5.154, 5.155, 5.156, 5.158, 5.159, 5.161, 5.164, 5.167, 5.170, 5.172, 5.173, 5.175, 5.177, 5.335

In each case, a single-apical language has an alveolar corresponding to a retroflex in a double-apical language. We thus find numerous RN or RT type correspondences following *a* and *i*, and the counterexamples to Dixon's claim far outnumber his supporting cognate sets. Therefore, his conclusion that the proto-language had just one apical series, with retroflex and alveolar allophones as described above, cannot be maintained.

6.2 Assimilation of V_2 to V_1

The vast majority of pPN roots were of the shape $^*C_1V_1C_2V_2(C_3)$ (where C_2 may have been a cluster), and the reconstruction of V_2 has often posed problems for Australianists. In many cases, such as that in (6.35), the quality of the second vowel is clear:

(6.35) NYA-S *kampa-(ny)* 'burn,' *kampa-(rn)* 'cook,' -W *kampa-rna* 'to burn, cook (tr.), roast,' *kampi-nyi* 'to burn (intr.) to be on fire, to cook (intr.);' WLP *kampa-mi* 'burn, be hot, be alight;' PIN *kampa-ngu* 'to burn or heat ...[of] the sun or fire;' KAU *KAMBA-NDI* 'to roast; to boil,' *KAMBA.RE-NDI* 'to be hot ...;' PNK *KAMBA-TA* 'to cook, bake, roast ...;' NMA *kampa-ku* 'to burn, be alight, to cook, to get ripe,' *kampa-lku* 'to burn, light it, to shine - of sun;' BAY *kampa-* 'burn;' YAN *a-kampa* 'sun,' *kampa.mparra* 'bush fire ...;' UMP *kampa.l* 'sun;' WMK *waamp.ar* 'bushfire;' YDN *kampa-L* 'cook kapa-mari style.' (3.98).

Despite the large number of languages represented in this set, and their geographical spread, it is obvious that the pPN root should be reconstructed with **a* in V_2 position.

In other cases, however, it is difficult to determine what the proto-vowel should be. In this section, I first discuss common problems. I then present statistical evidence that assimilation of V_2 to V_1 is an important process in Pama-Nyungan languages.

6.2.0.1 Problems in Reconstruction

One difficulty often encountered in reconstructing the second vowel of the proto-form is that there are two or more analyses which account for the data equally well. Consider the sets in (6.36):

(6.36) a. NYA-S *kapa.lya* 'small dog;' BAY *kapa.rla* 'dog;' YAN *ngapu.rntu.ngu* 'swear word for a dog.' (3.192).

b. NYA-W *kapuly.u* 'soft; dispersing, thinning out (of clouds);' PIN *kapaly-pa* 'soft flexible tender meat after cooking; to make soft, flexible.' (3.187).

In (6.36a), the *a* found in NYA-S and BAY could be the result of assimilation of V_2 to either V_1 or V_3. Alternatively, the *u* in YAN could be due to assimilation to V_3. As for (6.36b), the second vowel in NYA-S may have assimilated to V_3, while that in Pintupi may have assimilated to either V_1 or V_3. In both cases, there is no overwhelming evidence to help us decide which is the best vowel to reconstruct. Ultimately, cognates from more languages could resolve such issues.

Another problem occurs when no analysis will account for the data. This arises in reconstructing the proto-forms for the sets in (6.37):

(6.37) GYA *kuti* 'barramundi;' YDN *kuntal* 'barramundi.' (3.808).

If we want to keep the forms in (6.37) together, there is no way to decide between **a* and **i*; we cannot explain the presence of either vowel by assimilation.

In both of the above situations, we must simply reconstruct *V until additional data are found which will clarify the proper proto-vowel. In other cases, however, it is possible to decide on a reconstruction. Consider the following cognate set:

(6.38) NYA-S *ngapa* 'water,' -W *ngapa* 'water; rain;' WLP *ngapa* 'water, rain, humidity, rain-cloud, water source,' *ngapa.ru.ku* 'blood;' PNK *NGAPPA.LYA* 'saliva;' NYU *ngama.r* 'water hole, a small rock-hole catchment,' *NGAMA.R* 'a hole or pool of water in a rock;' NMA *ngapa.lya* 'boggy - of wet ground ...,' *ngapu.rr* 'foam on water ...;' BAY *ngapu.rra-Y-* 'swim, wash oneself, take a bath,' *ngapu.rra.tha-L-* 'sprinkle water;' YAN *ngapu-njarra* 'bathing; ... going underwater;' GYA *ngapa-l* 'soak, leach;' YDN *ngapa-N* 'bathe;' DYI *ngapa-l* 'immerse in water, soak,' *ngapa-y* 'bathe (Vint.);' DIY *ngapa* 'water;' PIT *ngapu* 'water.' (4.88).

Here we have some forms with *a* and others with *u* in V_2 position. The languages having each vowel are geographically widespread, so it is unlikely that a vowel change occurring in one language has spread through borrowing. In such cases, it is possible to reconstruct **u*, and to assume that *a* is the result of assimilation to V_1. In the following section, I discuss whether this is a valid practice, based on statistical data.

6.2.0.2 Statistical Evidence for Assimilation

Haviland (1979:39) and Dixon (1980:179) note that, in YIM and DYI, respectively, V_1 and V_2 are the same more often than would be expected if their distributions were independent. Both suggest that this is evidence for vowel assimilation. However, neither undertakes a rigorous test to determine whether the frequencies of the vowels are statistically significant. In statistics, the chi-square test is used to test whether the distributions of two variables are independent. In our case, we wish to test whether high frequencies of a given vowel in V_1 position co-occur with high frequencies of the same vowel in V_2 position. In this section, I will first demonstrate the procedure used for the chi-square test using data from BAY.[3] I will then give the results of the chi-square test for most of the other languages in this study.

The first step in the chi-square test is to set up a *null hypothesis*, which states that there is no relationship between the value of V_1 and that of V_2; that is, the two variables are independent. The statistical test will then determine whether the null hypothesis is valid or not.

Next, we count the occurrences of each V_1 /V_2 combination, and arrange the data in a *contingency table*, as seen in (6.39):

[3]For a more detailed explanation of this test, see Butler (1985) or any introductory statistics textbook, such as Mendenhall (1983).

(6.39)

		V_2			Total
		a	i	u	
V_1	a	182	57	88	327
	i	35	35	12	82
	u	90	48	88	226
		307	140	188	635

We then must calculate the frequencies of the vowels which we would expect to occur if V_1 and V_2 were independent; these are referred to as the *expected frequencies*. For each cell in the contingency table, the expected frequency is calculated using the following formula:

(6.40) Expected = (row probability)(column probability)(total)

For example, *a* occurs as V_1 in BAY in 51.50 percent of the total words: the row probability is thus .5150. Likewise, *a* occurs as V_2 in 48.35 percent of words, so the column probability is .4835. The expected frequency for the first cell in the table is obtained by multiplying (.5150)(.4835)(635). The expected frequencies for vowels in BAY are shown in (6.41):

(6.41)

		V_2		
		a	i	u
V_1	a	158	72	97
	i	40	18	24
	u	109	50	67

The next step is to calculate the following for each cell:

(6.42) $$\frac{(\text{Observed} - \text{Expected})^2}{\text{Expected}}$$

The following table shows the BAY figures:

(6.43)

		V_2		
		a	i	u
V_1	a	3.62	3.16	.80
	i	.54	15.84	6.21
	u	3.40	.07	6.65

The value of the χ^2 statistic is obtained by adding together the results of the above formula. For BAY, χ^2 equals 40.29.

Now we must determine the numbers of *degrees of freedom* for our test by using the following formula:

(6.44) $$\text{df} = (\text{number of rows} - 1)(\text{number of columns} - 1).$$

which, in our case, is 4.

The last step before we test the significance of the difference between the observed and the expected frequencies is to choose an appropriate *significance level*, which is the probability (p) of rejecting the null hypothesis when it is actually true. In the social sciences, a five percent level ($p \leq .05$) is commonly used.

Finally, we consult a table of critical values for the chi-square distribution. If the value of our χ^2 statistic is greater than or equal to the critical value for a five percent significance level and four degrees of freedom, then we can reject the null hypothesis. The critical values for four degrees of freedom and various significance levels are given in (6.45):

(6.45)

	.20	.10	.05	.025	.01	.001
df=4	5.99	7.78	9.49	11.14	13.28	18.47

The value for χ^2 for BAY is 40.29, which is greater than 9.49. We can therefore reject the null hypothesis at a significance level of five percent. This means that, if V_1 and V_2 were truly independent, there would be a less-than-five percent chance that the observed distribution of vowels would occur. In fact, since 40.29 is greater than 18.47, there is actually a less-than-.01 percent chance of mistakenly rejecting the null hypothesis. In other words, we can be 99.9% confident that V_1 and V_2 are *not* independent.

Due to space considerations, I will not give the detailed calculation of the χ^2 statistic for each language in this study. Table 6.1 gives the observed frequencies of each vowel in V_1 and V_2 position, and the total number of words in the sample, for 22 of the 26 languages. The frequencies have been converted into percentages for ease of comparison. An asterisk following a language name indicates that only part of that language's dictionary was used in counting the vowels; in most cases this consisted of forms with initial velars, *yi-* and *nyi-*. WMK was excluded from the statistical test, since it regularly drops V_2. In addition, the three languages for which we have only old data, KAU, WJK and PNK were not included, due to problems in determining their true vowel phoneme inventories and the quality of transcribed vowels. For example, Amery and Simpson (1994) present KAU data taken from both Teichelmann and Schürmann (1840) and Teichelmann (1857). Variant transcriptions of certain words from these two sources exemplify these difficulties. The symbol *o* sometimes alternates with *u*, as in *moka* versus *muka* and *ngarro* versus *ngarru*. At other times, *o* is a variant of *a* as in *waltu* versus *worlto*. Similarly, *e* alternates with *i*, as in *minde* versus *minti*, or with a sound transcribed as *ä*, as in *yärko* versus *yerko*.

Note also that only the three "major" vowels *a*, *i* and *u* have been counted. This is because the chi-square test is unreliable if any of the expected frequencies is less than five, and since *e* and *o* occur relatively rarely in those languages which have them, their expected frequencies are often as low as one.

Table 6.2 shows the expected and observed frequencies for those cases in which V_1 and V_2 are the same, as well as the χ^2 statistic for each language. Percentages have again been given to facilitate comparison between languages. Thus, for example, if there were no relationship between V_1 and V_2 in NYA-S, we would expect there to be 154 words in which both the first and second vowels are *a*. In fact, NYA-S has 178 such words.

Table 6.1: Observed Frequencies of V_1 and V_2 (Counts and Percentages)

	V_1						V_2						Total
	a		i		u		a		i		u		
NYA-S*	344	48.38	165	23.21	202	28.41	319	44.87	193	27.14	199	27.99	711
NYA-W	971	48.12	530	26.26	517	25.62	930	46.09	574	28.44	514	25.47	2018
WLP	1129	33.12	1131	33.18	1149	33.70	1307	38.34	1128	33.09	974	28.57	3409
PIN*	718	45.19	445	28.01	426	26.81	658	41.41	448	28.19	483	30.40	1589
NYU	157	48.01	60	18.35	110	33.64	174	53.21	100	30.58	53	16.21	327
NMA	606	51.26	244	20.63	333	28.15	559	47.25	290	24.51	334	28.23	1183
BAY*	327	51.50	82	12.91	226	35.59	307	48.35	140	22.05	188	29.61	635
GUP*	606	55.75	145	13.34	336	30.91	520	47.84	262	24.10	305	28.06	1087
YAN	907	49.00	301	16.26	643	34.74	859	46.41	484	26.15	508	27.44	1851
KLY*	90	48.39	21	11.29	75	40.32	96	51.61	40	21.51	50	26.88	186
UMP*	292	46.35	104	16.51	234	37.14	305	48.41	160	25.40	165	26.19	630
YIM	154	49.84	62	20.06	93	30.10	168	54.37	69	22.33	72	23.30	309
GYA*	350	52.63	102	15.34	213	32.03	329	49.47	147	22.11	189	28.42	665
YDN	937	40.72	461	20.03	903	39.24	1146	49.80	525	22.82	630	27.38	2301
DYI	347	44.89	135	17.46	291	37.65	386	49.93	181	23.42	206	26.65	773
BGU*	161	42.26	51	13.39	169	44.36	207	54.33	76	19.95	98	25.72	381
BNJ*	281	46.68	122	20.27	199	33.06	302	50.17	151	25.08	149	24.75	602
GUM	235	52.34	74	16.48	140	31.18	239	53.23	100	22.27	110	24.50	449
WEM	167	44.77	91	24.40	115	30.83	193	51.74	105	28.15	75	20.11	373
WOI	321	46.32	135	19.48	237	34.20	324	46.75	197	28.43	172	24.82	693
BAA	649	50.19	286	22.12	358	27.69	670	51.82	341	26.37	282	21.81	1293
DIY	294	56.98	94	18.21	128	24.81	287	55.62	131	25.39	98	18.99	516
PIT	403	52.41	190	24.71	176	22.89	373	48.50	220	28.61	176	22.89	769

Table 6.2: Expected and Observed Frequencies (Counts and Percentages): $V_1 = V_2$

	Expected Frequencies						Observed Frequencies						χ^2
	a		i		u		a		i		u		
NYA-S*	154	21.66	45	6.33	57	8.02	178	25.04	77	10.83	89	12.52	69.80
NYA-W	447	22.15	151	7.48	132	6.54	504	24.98	243	12.04	204	10.11	162.81
WLP	433	12.70	374	10.97	328	9.62	562	16.49	761	22.32	691	20.27	1434.72
PIN*	297	18.69	125	7.87	129	8.12	339	21.33	203	12.78	188	11.83	126.18
NYU	84	25.69	18	5.50	17	5.20	100	30.58	25	7.65	29	8.87	20.76
NMA	286	24.18	60	5.07	94	7.95	323	27.30	95	8.03	142	12.00	75.56
BAY*	158	24.88	18	2.83	67	10.55	182	28.66	35	5.51	88	13.86	40.28
GUP*	290	26.68	34	3.13	94	8.64	345	31.74	86	7.91	144	13.24	157.82
YAN	421	22.74	79	4.27	176	9.51	500	27.01	158	8.54	303	16.37	288.55
KLY*	46	24.73	5	2.69	20	10.75	51	27.42	3	1.61	24	12.90	6.76
UMP*	141	22.38	26	4.13	61	9.68	157	24.92	33	5.24	97	15.40	45.78
YIM	84	27.18	14	4.53	22	7.12	84	27.18	14	4.53	22	7.12	14.08
GYA*	173	26.02	23	3.46	61	9.17	190	28.57	35	5.26	91	13.68	42.27
YDN	467	20.30	105	4.56	247	10.73	529	22.99	159	6.91	359	15.60	144.60
DYI	173	22.38	32	4.14	78	10.09	182	23.54	36	4.66	117	15.14	47.22
BGU*	87	22.83	10	2.62	43	11.29	111	29.13	24	6.30	62	16.27	49.39
BNJ*	140	23.26	31	5.15	49	8.14	161	26.74	43	7.14	79	13.12	45.72
GUM	125	27.84	16	3.56	34	7.57	139	30.96	17	3.79	57	12.69	29.36
WEM	86	23.06	26	6.97	23	6.17	91	24.40	24	6.43	32	8.58	6.96
WOI	150	21.65	38	5.48	59	8.51	165	23.81	63	9.09	86	12.41	48.27
BAA	336	25.99	75	5.80	78	6.03	357	27.61	94	7.27	101	7.81	18.36
DIY	164	31.78	24	4.65	24	4.65	167	32.36	40	7.75	42	8.14	47.13
PIT	195	25.36	54	7.02	40	5.20	215	27.96	79	10.27	65	8.45	43.17

Note, however, that the information in Table 6.2 is not enough to calculate the χ^2 statistic. The observed and expected frequencies for cases in which the values of V_1 and V_2 are different are just as important for the test as those for cases in which the two vowels are the same. Thus, the BAY data given in (6.39) and (6.41), above, show that, although we would expect 72 words in which V_1 is *a* and V_2 is *i* if the vowels were independent, only 57 such words are found.

Comparing the χ^2 statistics in Table 6.2 with the critical values given in (6.45), we find that in all but four cases, we can reject the null hypothesis at a .1 percent ($p \leq .001$) significance level. For BAA and YIM, which have χ^2 values of 18.36 and 14.08, respectively, we can reject the null hypothesis at a one percent ($p \leq .01$) significance level; that is, we can be 99 percent sure that there is a relationship between V_1 and V_2. The χ^2 values for KLY and WEM are significant at only the 20 percent level; this significance level is usually not considered sufficient for rejecting the null hypothesis. Both the KLY and the WEM samples are relatively small, with 186 and 373 items, respectively, and the KLY count is based on incomplete data. It would be worthwhile to repeat the tests on larger data sets (although this may not be possible, especially in the case of WEM) in order to determine whether these facts are having an effect on the outcome.

Although the chi-square test indicates that there is a relationship between V_1 and V_2 in most of the languages studied, it tells us nothing about what type of relationship it is, nor does it imply that the occurrence of a given vowel in one position *causes* its co-occurrence in the other. It could be the case that V_2 is assimilating to V_1, that V_1 is assimilating to V_2, or that some entirely different factor is affecting both V_1 and V_2 in the same way. Given what we know about Pama-Nyungan languages, however, such as the fact that V_1 usually receives primary stress and is therefore less likely to change than V_2, the most plausible account of the relationship between the variables is that V_2 is assimilating to V_1. This is obviously not a completely

regular sound change, as there are still very many forms in which V_1 and V_2 differ. Nonetheless, the tendency noted by Haviland and by Dixon is statistically significant in the great majority of languages studied here, and may well be a characteristic of Pama-Nyungan languages in general.

Note in Table 6.2 that the χ^2 statistic for WLP, with a value of 1434.72, is extremely high. This is strange enough to warrant a closer look at WLP's vowel distribution. In the following contingency table, I give the observed frequencies of V_1/V_2 pairs, with their expected frequencies in parentheses:

(6.46)

		V_2			Total
		a	i	u	
V_1	a	562 (433)	294 (374)	273 (323)	1129
	i	360 (434)	761 (374)	10 (323)	1131
	u	385 (441)	73 (380)	691 (328)	1149
		1307	1128	974	3409

There are three particularly curious facts about the WLP data. The first is that *i* occurs as V_1 with almost equal frequency as do *a* and *u*. A glance at Table 6.1 shows that in all the other languages studied, *a* occurs much more frequently in this position than either *i* or *u*, and *u* in turn is found more often than is *i*. The second is the large differences between the expected and the observed frequencies when V_1 and V_2 are the same; these are quite a bit greater than those seen in the other languages. Finally, compare the expected frequencies with the extremely low observed frequencies when V_1 is *u* and V_2 is *i* and when V_1 is *i* and V_2 is *u*. More study is needed before we can posit a satisfactory explanation for these facts, but perhaps WLP has a co-occurrence restriction against *i* and *u* in adjacent syllables. This could cause a higher degree of assimilation than is found in the other languages. It is also possible that WLP has both anticipatory and lag assimilation between the two positions, with V_1 sometimes assimilating to V_2 as well as the more commonly seen process of V_2 assimilating to V_1.

Chapter 7

Conclusions

Chapter 1 lists much of the comparative work done on Pama-Nyungan languages so far, introduces the languages in this study, and gives pertinent details regarding pPN. In Chapter 2, I briefly review the comparative method and discuss methodology issues. These include problems commonly encountered when applying the comparative method, sources of irregularity, the theory of lexical diffusion and how it can be used to augment the comparative method, the role of the Neogrammarian hypothesis, and the notion of pandemic irregularity. I also detail the method used in the present study.

The 1561 cognate sets which resulted from this study are given in Chapters 3-5. Chapter 3 contains 839 sets going back to **k*-initial etyma, while the 269 sets in Chapter 4 reflect **ng*-initial etyma and the 453 sets in Chapter 5 descend from **w*-initial protoforms. Protoforms are reconstructed for various levels in the Pama-Nyungan family tree; 1200 are for pPN, 54 for pP, 21 for pPM, 114 for pNYY, 155 for pNY and 17 for pYUR. For the pPN-level reconstructions, 638 sets lack putative cognates from the south-east and the protoforms are thus marked "pPN-." The 241 etyma for sets containing only eastern languages are denoted "pPN (E)." Similarly, the 31 pNY reconstructions based on data from just NYA, PIN and/or WLP are

marked "pNY (D)." These augmented labels are not meant to suggest nodes in the family tree, but are rather used to indicate that important groups of languages are not represented in the cognate sets. The reconstructions for these sets may be altered when cognates from these groups are found.

The cognate sets presented in this dissertation are an important resource for the study of phonological change in Pama-Nyungan languages. Several aspects of the data are analysed in Chapter 6. Firstly, the correspondences found among the initial velars are summarized. Secondly, the weakening of medial consonants is examined. I then discuss the bearing that my data have on previously-studied questions. My data provide evidence for the assimilation of initial velar glides and nasals to the following vowel, prenasalization of medial stops, the development of triconsonantal clusters, and the presence of a laminal lateral in pPN. However, my data also contain abundant counterexamples to Dixon's analysis of the number of apical series in the protolanguage. The final section of Chapter 6 presents statistical evidence supporting the hypothesis that assimilation of the second to the first vowel is an important process in the history of many Pama-Nyungan languages.

Many more issues regarding sound changes in Pama-Nyungan languages are not dealt with in this dissertation and must be left for future work. These include questions regarding individual languages or subgroups, such as a possible tendency for KAU to delete the nasal from a homorganic nasal-stop cluster and the development of *rd* in WLP and of *rrh* in PIT and DIY. In addition, tendencies observed on a wider scale must also be investigated. For example, it appears that assimilation of the second to the third vowel is common, as is a change from **CaCu* to *CaCa*. The issues of stem accretion and of a possible relationship between the rhotic *rr* and the apical stops also deserve a closer look. It is also important to determine which languages are diagnostic for $^{*}C_3$. The data in Chapters 3-5 will be useful in the examination of these questions.

In addition to their use for studying sound change, the large number of sets presented here bears testimony to the validity of O'Grady's modifications to the comparative method for Pama-Nyungan languages. Recall from Chapter 2 that, when working with phonologically conservative languages such as those in this study, O'Grady and his students focus their cognate searches on given $C_1V_1C_2$ sequences. O'Grady's recent work, and that of his students, has also taken a top-down approach, using geographically widespread languages. O'Grady's method has been criticized in the past for resulting in groups of forms with widely divergent meanings. However, I purposefully have been fairly conservative regarding semantics and yet have found over 1500 putative cognate sets. Because this is a top-down study involving a large number of languages with similar phonological inventories, we must bear in mind that some of the sets may actually involve forms descended from two or more homophonous etyma. Including a relatively narrow semantic range within each set, and, where necessary, finding corroboration of a relationship in meanings, helps to mitigate this possibility. The majority of sets clearly involve related forms, although it is also possible that some forms are borrowings and are therefore not true cognates. Further work from the bottom of the family tree will eventually eliminate most borrowings from these sets.

As with most comparative studies, one of the aims at the outset of this project was to find regular sound correspondences; in this case the goal was to determine the history of initial velars through such correspondences. But as often happens, the correspondences found here can be classified only as matchings rather than as true correspondences. Thus, we cannot write rules to account for the changes which have apparently taken place. At this stage, we can speak only of *tendencies*: for example, YAN, KLY, UMP and WMK tend to drop initial **k*, but we cannot predict in which forms this will happen. Some of the irregular correspondences found in these sets are likely due to borrowing, and studies of subgroups will help to clarify these cases. However, as seen in Chapter 2, irregularity is now being recognized as

a fact of language change. Although the Neogrammarian hypothesis holds in many instances, there is ample evidence that some changes diffuse through the lexicon over time, resulting in irregular correspondences. My data support such a notion: all of the sound changes discussed in Chapter 6 appear to affect only a portion of the eligible forms. In addition, most of the changes are found not just in individual languages, but in a number of the languages under study. For example, four languages show irregular initial dropping, while 22 languages weaken **k-* to *ng-*. My data therefore provide further examples of pandemic irregularity, confirming Blust's (1996) opinion that the theory of sound change must recognize and account for the fact that similar changes can affect more than one member of a family.

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