Initial *w in Pama-Nyungan

by

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B.A., National Chengchi University, 1988

A Thesis Submitted in Partial Fulfillment of the
Requirements for the Degree of

[redacted]S

MASTER OF ARTS

in the Department of Linguistics

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to the required standard

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Abstract

The main purpose of this work is to provide lexical reconstructions of words with initial **w** in twenty geographically separate Australian languages. It is part of a larger project by G. N. O'Grady to reconstruct as much as possible of the lexicon of proto-Pama-Nyungan covering all possible initial consonants. My reconstructions serve as evidence for relatedness among the twenty witness languages. If cognates are eventually found in non-Pama-Nyungan languages, subsequent reconstructions will contribute to a proto-Australian lexicon. The more limited goal of this research is to provide further corroboration of Hale's hypothesis that Pama-Nyungan is the largest coherent genetic linguistic construct on the Australian continent. It seems that there is ample evidence to support this proposal. Theoretical considerations and the socio-historical situation are also considered. These suggest the need for modifications to the general comparative method and the need to view reconstruction of lexical items within a larger framework, the reconstruction of Australian Aboriginal cultural history.

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Acknowledgements

I wish to thank Dr. Geoffrey N. O'Grady for his guidance from the beginning to the end of my M.A. program. He was the person who initiated my interest in Australian languages. Without his patience and immense knowledge of Australian languages, I would not have been able to accomplish this work. I also appreciate the assistance I received from many Australians during a short term of field work in the summer of 1989. This includes Annette Schmidt from the Australian Institute of Aboriginal and Torres Strait Islanders Studies; Anne Fogitt, from the Department of Education of the Commonwealth Government in Cairns; Michael and Helene Quinn of Kuranda; certainly, the aboriginal people at the Lockhart River Mission; and friends Judy and Rex Groube.

I would also like to thank Dr. B. F. Carlson, Dr. B. P. Harris and Dr. T. E Hukari for their encouragement during my tenure in Canada. As well, Dr. W.H. Alkire has offered enlightening questions from an anthropologist's point of view to broaden my perspective. Evan Williams and Chiharu Uda's assistance in computer programming made printout of the thesis possible. I am particularly indebted to Evan for his kindness in teaching me about computers and life as a graduate student. Mary Mok, Susan Fitzgerald and Yang Wei's proofreading is most appreciated. Finally, I would like to thank the Government of Canada for having given me the opportunity to study here.

Chapter 1

Introduction

1.1 The Australian Aboriginal People and their Languages

Archaeological evidence shows that humans have been on the Australian continent for at least 40,000 years. It is estimated by Birdsell (cited in Dixon 1980:43) that it might have taken around 2,000 years after the arrival of the first immigrants in north Australia for them to spread over the whole continent. Tribal mergers and splits occurred for various reasons such as availability of food resources and developing social systems. Different languages developed as groups split off from each other. Linguistic diffusion was probably an early phenomenon.

Before the European invasion, there were about 200 distinct languages spoken by the 600 Aboriginal tribes in Australia. Tribes were distinguished from one another partly by the differences in their speech. The differences could be minimal, for example, as in the Western Desert where at present there exists the largest dialect chain in terms of geographical coverage. Or the differences could be so great that certain neighbouring tribal languages belonged to different language families. The greatest linguistic diversity is found in the north of the Australian continent. However, all Australian languages are thought to be ultimately related to one another and there is no evidence found to relate them to languages outside the continent.

Two major hypotheses underlie this study. One is that all Australian languages belong to one language family – the 'Australian family'. The other

hypothesis groups Pama-Nyungan languages together, separated from another 26 non-Pama-Nyungan language families at a level below proto-Australian. The term 'Pama-Nyungan' is derived from the words for *Aboriginal person* from languages at the north-east and south-west extremities of the area of the family. The first hypothesis is proposed by Dixon (1980) and the second by Hale (1964). These proposals will be discussed in Chapters 3 and 4.

1.2 O'Grady's Comparative Work within the Pama-Nyungan Family

This study of initial ***w** in Pama-Nyungan is part of a large endeavour whose purpose is to cover all possible initial consonants in proto-Pama-Nyungan. The purpose of this greater work is to further corroborate Hale's (1964) hypothesis that Pama-Nyungan is "the largest coherent genetic linguistic construct in Australia". The initial sound segments in proto-Pama-Nyungan are as follows:

	labial	apical	laminal	velar
stops	p	t	j	k
nasals	m	n	ny	ng
lateral		l		
semi-vowels		r	y	w

O'Grady has worked on initial ***p**, ***m**, and a few high profile items with initial ***j** and ***k**, and he is now working on initial ***ny** and ***y**. Hendrie (1990) has worked on the initial apicals ***t**, ***n**, ***l**, ***r**; Fitzgerald (1991) has worked on initial ***ng**. The remaining initial consonant, ***w**, is the area of my study. The approaches taken are more or less equivalent. For example, the witness languages are selected to cover the widest stretch possible of the Pama-Nyungan territory. In the initial stage of the work, phonologically more conservative languages are chosen. However, the studies of Hendrie and O'Grady differ in the languages chosen and in the number of languages under investigation. Fitzgerald and I have used data from the same twenty languages.

1.3 The Twenty Languages in the Study

Twenty languages from the Pama-Nyungan family within the larger Australian phylum have been chosen. Their selection is based on two considerations: one is to have wide geographical coverage of the four-fifths of the Australian continent which the Pama-Nyungan family covers; the other is to choose the languages that are phonologically the most conservative within their respective subgroups. Following are the languages in the study, and the groups and subgroups to which they belong (based on Oates and Oates 1970). A map produced by Fitzgerald (1991) is placed in Appendix C, where the approximate locations of these laguages are shown.

Groups and Subgroups	Languages	Abbreviations
Nyungic Group		
Marrngu subgroup	Nyangumarta	NYA
Ngarrga subgroup	Warlpiri	WLB
Wati subgroup	Pintupi	PIN
Yura subgroup	Gawurna	GAW
Nyungar subgroup	Nyungar and Wadjuk	NYU and WJK
Kanyara subgroup	Bayungu	BAY
Yuulngu Group	Gupapuyngu	GUP
Pama-Maric Group		
Middle-Pama subgroup	Umpila and Wik-Mungkan	UMP and WMK
Eastern-Pama subgroup	Guugu-Yimidhirr and Gugu-Yalanji	YIM and GYA
Atherton-Pama subgroup	Yidiny	YDN
Yara subgroup	Dyirbal	DYI
Mari subgroup	Bidyara-Gungabula	BGU
Pittapittic Group	Pitta-Pitta	PIT
Bandjalangic Group	Gidabal	GID
Kulinic Group	Wemba-Wemba	WEM
North Darling Group	Bāgandji	BAA
Diyaric Group	Diyari	DIY

Two Nyangumarta dialects are used, Wallal and Strelley. W or S following the abbreviation NYA is used to indicate the source when listing the cognates. Also, the listing of cognates anywhere in this work, particularly in Chapter 5, is given in a set order. This is based on the genetic affiliations and the geographical locations of the languages involved. The first four languages are the Desert Nyungic languages: NYA, WLB, PIN, and GAW. NYA is in the northwest of the continent near the coast, while WLB and PIN are geographically quite close to each other in the central desert. GAW, on the other hand, is to the south-east near where the large city of Adelaide in South Australia is now situated. NYU and WJK are in the southwest of the continent. BAY is about mid-way between NYA and NYU/ WJK. GUP is located in the northeast of Arnhem Land in the Top End of the continent and belongs to the Yuulngu linguistic enclave, surrounded by non-Pama-Nyungan languages. Following the above western and northern languages are the eastern ones: UMP and WMK are on the east and west coasts respectively of Cape York peninsula. A dialect and also a geographical neighbour of Umpila, Kuuku–Yáu is consulted and cognates found in this dialect are included. YIM, GYA, YDN and DYI in the vicinity of the Cairns rain forest region are next in order. BGU is from southeast Queensland. PIT, which is on the border between Queensland and the Northern Territory, comes next into the picture. GID is south of the Brisbane area. WEM is in Victoria, and BAA in southwestern New South Wales. Finally, DIY is in northern South Australia.

WLB and PIN are closely related, and considerable diffusion is suspected to have occurred between them. Similar forms from these two languages will not be taken as a basis for reconstruction, unless there are cognates from another distant language. The term 'proto-Desert-Nyungic' is used to refer to the immediate common ancestor of NYA, WLB, PIN, and GAW. YIM and GYA involve a borrowing situation similar to that between WLB and PIN. 'Proto-Pamic'

refers to the common ancestor of the Middle-, Eastern-, and Atherton-Pama subgroups. Yuulngu languages are more closely related to the Nyungic languages than to those in the east. 'Proto-Nyungo-Yuulngic' is used to refer to the immediate common ancestor of Nyungic and Yuulngu.

1.4 Interrelationships among the Twenty Languages

The question of the interrelationships among the twenty languages is beyond the scope of the present study. Possible interrelationships are suggested by the groups to which cognate items belong. For example, GAW, although located in the southeast, lines up as one of the Desert Nyungic languages. O'Grady (p.c.) has a lexicostatistic test list which shows the interrelationships among seven of the twenty languages based on a revised Swadesh 100 word list. The result of his study is the following:

Pairs of Languages	Percentages of Shared Cognates
GAW – PIN	28
GAW – BAY	21
GAW – NYA	15
GAW – GUP	12
GAW – UMP	11
GAW – GID	10
PIN – BAY	19
PIN – NYA	22
PIN – GUP	13
PIN – UMP	12
PIN – GID	13
BAY – NYA	11
BAY – GUP	14
BAY – UMP	9
BAY – GID	8
NYA – GUP	7
NYA – UMP	8
NYA – GID	9
GUP – UMP	7
GUP – GID	9
UMP – GID	4

O'Grady, Hale and Wurm use the following criteria for subgrouping in their 1966 lexicostatistic classification of Australian languages:

71-100%	dialects of a language
51–70	languages of a subgroup
26–50	subgroups of a group
16–25	groups of a family
under 15 [sic]	different families

Based on the same criteria, we can see the interrelationships among the 7 languages in question. GAW and PIN would be in the same subgroup. However, according to Oates and Oates (1970) they belong to the same group but not to the same subgroup. GAW, PIN, BAY and NYA are in the same group; that is, the Nyungic group. The rest of the languages supposedly belong to different groups but not to different families. However, the percentages under

15%, strictly speaking, point to their belonging to different families! (they supposedly all belong to the Pama-Nyungan family.)

A schematic presentation of the interrelationships among the twenty languages based on the family tree model in historical linguistics is attempted by O'Grady (p.c.) based on the cognate density shown in various studies, e.g., O'Grady's, Hendrie's, Fitzgerald's and the present study. This chart is inserted in Appendix D.

1.5 Implications for Future Research

The next stage of work could go in several directions. One would be to compare the results from comparisons at the level of Pama-Nyungan with languages of the Top End belonging to the other 26 families descended from proto-Australian. In the process, more proto-Australian reconstructions will turn up. This will add to the ones already traced by O'Grady (1966), Dixon (1980), Blake (1977, 1988), Evans (1988) and others.

O'Grady's project in comparing all initial consonants in Pama-Nyungan focuses mainly on reconstructions of the lexicon. Equally important is the comparison of the grammatical structures of the languages involved to provide more evidence of the relationships established by lexical reconstructions. The Pama-Nyungan versus non-Pama-Nyungan classification is supported by sufficient evidence. However, the grammatical comparison involving the reconstruction of case markers and pronouns done by Blake suggests some revision for the subgrouping of a few languages; for details, see Chapter 3. What all this means is that this preliminary classification of Australian languages into Pama-Nyungan and numerous other families still needs further work which will probably involve some amendments to the lower-level subgroupings.

Another project would be to work on the semantic correlations proposed by

O'Grady. A continent-wide pattern of polysemy (see Evans and Jones 1991) is seen in some of O'Grady's cognate sets; for example, consider his claim concerning the semantic relatedness of *egg, brain* and *water* (O'Grady 1990c). This type of work on semantics requires a greater understanding of Australian Aboriginal culture and theory of semantics. Joint work combining the findings of archaeology, anthropology and linguistics should provide a broader perspective in this area.

One could also go further within the Pama-Nyungan family, selecting the phonologically less conservative languages to learn more about language change within the subgroups under investigation. O'Grady's (1966) "Proto-Ngayarda phonology" and Hale's (1964, 1976a,b,c) studies of Pamic languages are examples of this type of work. Or, one can increase the number of languages under study. Ideally, this work should lead also to a diachronic sociolinguistic study, and could perhaps lend insights into the reconstruction of Australian Aboriginal cultural history.

1.6 Pan-Australian Level of Comparison

As mentioned above, the next stages of work should include comparisons of the findings within the Pama-Nyungan family with the non-Pama-Nyungan languages. Dixon (1980) claims to be doing a pan-Australian comparison because of his refusal to recognize the validity of the subgrouping into Pama-Nyungan and non-Pama-Nyungan languages. He has reconstructed a proto-Australian phoneme inventory, some pronoun roots, some proto-Australian verb roots together with conjugation markers and tense inflections, some interrogative roots, and several case suffixes, including the characteristic ergative, locative, dative and accusative forms. However, many of Dixon's 'proto-Australian' features are in fact limited to Pama-Nyungan (Evans and Jones 1991:6).

Reconstructions can be directed towards different levels of comparison. The more reconstruction done at the subgroup level, the fuller is the picture. The next level of comparison is that between or among groups. The final stage is comparisons at the family level. When reconstructions of proto-Australian develop to a mature stage, an etymological dictionary modelled on the *American Heritage Dictionary*, for example, can be produced for the Australian languages.

Blake (1977, 1988) has worked on pan-Australian level reconstructions for nominal case markers and pronouns. He assumes a subgrouping of Pama-Nyungan and non-Pama-Nyungan languages. He has worked on the common pronominal roots of the non-Pama-Nyungan languages and sees them as inherited features. In doing that, he brings Tiwi and Jingili into the 'Australian family' (Evans and Jones 1991:9).

Evans and Jones review some recent works at the pan-Australian level and point out that these works have established that some of the defining features of Pama-Nyungan are due to innovation, many of the common features of non-Pama-Nyungan are due to retention, and finally, various non-Pama-Nyungan 'families' are collapsed into subgroups.

Evans (1988) takes data from both Pama-Nyungan languages and non-Pama-Nyungan languages to prove his thesis concerning initial laminalization involving the merger of initial apical stop and apical nasal with laminal stop and laminal nasal respectively. This development is unique to the Pama-Nyungan languages. Non-Pama-Nyungan languages on the other hand retain the archaic initial apicals.

The above are examples of reconstructions of linguistic systems at a pan-Australian level. The time depth of these reconstructions may throw light on the reconstruction of Australian cultural history. Further discussion of this point follows.

1.7 Correlations Between Anthropological, Archaeological and Linguistic Evidence

McConvell (1990:3) points out that in Australia, both linguistic and archaeological work have achieved great success. Meanwhile, both fields have been ignoring each other's research methods and findings. In his opinion, anthropology is a bridge between archaeology and linguistics. Models of social, cultural, and linguistic change can hopefully be constructed with a joint venture of these disciplines. He deems some linguists to be too cautious to look into providing linguistic evidence to Australian prehistory.

> ...this may be true of the Pleistocene (and even this is debatable), it certainly is not true of the Holocene, particularly the last 5000 years (McConvell 1990:3).

He lays out some issues in Australian prehistory to which a combination of linguistic and archaeological evidence can contribute. Following are some of his points.

The first issue that McConvell discusses concerns the time depth of proto-Pama-Nyungan and proto-Australian. One of his points is that in Australia, the theory that the center of dispersal must be the area of greatest divergence (Australia's tropical north) will not work. He argues that the Pama-Nyungan expansion into the bulk of the continent from the north could not have coincided with the initial colonization by humans. The entire Australian continent has been occupied by humans for at least 40,000 years. The remote desert of Central Australia has been inhabited for over 20,000 years. It is therefore impossible to regard the Pama-Nyungan language family as a 40,000-year-old subgrouping based on the knowledge we have about the rates of language change around the world. Pama-Nyungan is clearly around 4000 years old (O'Grady, p.c.). The ancestor of the Western Desert languages is much younger even than that.

McConvell argues that Pama-Nyungan expansion has been from the east and "... failed to make inroads into the northern-central peripheral region". The northern languages could have been descendants of the languages of refugees, some of whom would have been driven into north Australia in the period of inundation of 9000 BP to 8000 BP. These people used to live on the landbridge between Australia and New Guinea which was probably fertile grassland and lakes supporting a high population density. The advancing waters drove some of these people speaking dissimilar languages into north Australia. This can probably explain why the prefixing non-Pama-Nyungan languages share some typological similarities with the Papuan languages. And these similarities should point to a very distant past.

O'Grady (1959) did a study to see the effects of the introduction of circumcision and subincision on languages in Western Australia. He proposes that the Western Desert language, which is the language of the new rite, spread over a large area in the western half of the continent by reason of its prestige value. Eventually, the linguistic boundary of Western Australian and other languages coincided with the circumcision boundary. For example, Gawurna is located on the southern border of the circumcision boundary that stretches across the continent vertically (for detailed lines of the boundary, see O'Grady 1959). This language is more closely related to the Western Desert language than to a geographical neighbour – Yaralde – whose speakers have not acquired the practice of circumcision.

Evans and Jones (1991) propose a similar scenario to O'Grady's study, but with a larger geographical span. Based on a number of arguments, they propose that the Pama-Nyungan homeland was in the area stretching between the Roper River across the Barkly Tableland into North-Western Queensland. Pama-Nyungan spread with a new technology which was associated with a particular set of rituals. The initiates were inducted in Pama-Nyungan. This

linguistic expansion was driven by "ceremonial prestige and changed patterns of spouse-exchange as Pama-Nyungans demanded payment in wives for their sons, leading to the export of Pama-Nyungan to new households" (Evans and Jones 1991:23).

The above discussion indicates how linguistics, anthropology and archaeology can work together in contributing to the reconstruction of Australian cultural history. Also, it shows that vocabulary comparisons play an important role in this work. After all, vocabularies give the most data concerning the life of the people (Wald 1978:394). O'Grady (p.c.) has a cognate set which can show the association between vocabulary and the material culture:
NYA **paru** *spinifex (this plant is rich in wax or resin)*; WJK **BARRO** ... *the tough-topped Xanthorea or grass tree, from which the strongest resin, the* **KADJO**, *exudes; that which the natives use for fastening on the heads of their hammers...*; UMP **pa?u** *wax, as of ear* (the WJK item is capitalized to remind the reader that it was transcribed before the advent of phonemic theory)

We cannot be very sure about the cognacy of the UMP item, since the glottal stop in this language can come from sounds other than **r**, namely **rr**, **t** or **p**. Cognates from the other Pamic languages should resolve the matter.

Sapir (1916:444) says that in studying culture elements, the more a word extends in its geographical distribution, the older the word is and the older its associated concept. With a cognate set like the above, if we can increase our confidence that the UMP item is a cognate of the other two by obtaining cognates from other Pamic languages, we will be able to say that this root comes from an ancient time and is retained in three geographically far apart but related languages.

There are many more topics for future research than I could present in this introduction. Australianists from all fields can derive satisfaction from the fact that their topics of research contribute to the reconstruction of Australian Abo-

riginal cultural history. It is apparent that joint work in various fields will provide a fuller picture of Australian Aboriginal culture.

1.8 Topics Covered in the Present Work

In the chapters to follow, the following topics are discussed : in Chapter 2, the phonologies of the twenty languages in the study are presented. In Chapter 3, the comparative method is discussed, and the approach taken in this study is presented. In Chapter 4, comparative work that supports the Pama-Nyungan hypothesis is reviewed. Linguistic diffusion in Australia and its implications for Australian comparative linguistics are discussed. Chapter 5 gives the cognates found in initial **w**'s of the twenty languages. Chapter 6 provides the conclusion.

Chapter 2

Phonology

2.1 Introduction

In this chapter, the phonologies of the twenty witness languages included in my comparison are introduced. These languages are phonologically conservative representatives of the particular subgroups of Pama-Nyungan to which they belong. The few minor phonological changes that took place among them are discussed below. O'Grady (1990a:xxi) posits a phoneme inventory of proto-Pama-Nyungan. There is also a phoneme inventory of proto-Australian posited by Dixon (1980:158). O'Grady's inventory is the basis of my reconstruction.

2.2 Orthography

The normal maximal system of consonant phonemes in Australian languages includes six stops and six matching nasals (see tables of the inventories of the twenty languages in Appendix B). Of the twenty languages examined in my study, BAY, PIT, and BAA are of this type, as are probably also the imperfectly recorded GAW and WJK (these languages were transcribed in the 19th century before the advent of phoneme theory). Inventories of lateral phonemes range from four (matching the coronal stops and nasals) in BAY, PIT, BAA, DIY and probably GAW and WJK, down to one, an apical alveolar, found in nine eastern Pama-Nyungan languages. Dixon (1980:146-147) correctly points out that the distribution of the various systems is largely predictable on the basis of their geographical location.

The minimal Australian consonant system includes just four stops, four nasals, and one lateral as found in GYA, YDN, DYI, and GID.

Rhotic phonemes typically are two in number in Australian languages: a flap/trill and a continuant. This holds true for fourteen of the languages in this study.

All of the languages in this study have two glides, /**y**/ and /**w**/.

Thus we need a system of orthography that can cover the maximal consonant inventory. The orthographies employed in the twenty source languages vary in minute ways. A standardization of them is made to maintain consistency. However, with a written language like GUP, its established orthography is followed. The glottal stop in GUP is represented with an apostrophe, and the vowels are written as the following: **e** represents **ii**, **ä** represents **aa**, **o** represents **uu**. The retroflexes are represented as **t̲**, **n̲**, **l̲**.

For GAW and WJK, their original transcriptions are not only followed but also capitalized. The purpose of this is to remind the reader that they were recorded in the 19th century before the advent of phoneme theories. There are no modern records of them, which makes it difficult to work out the distinctive features involved for the two languages.

Voicing is not contrastive in most Australian languages. And, if it is for some languages, it is only a recent development by regular phonological change (Dixon 1980:215). In the west, the voiceless allophones predominate while in another large number of languages, the voiced predominate (Dixon 1980:138). However, in this study, GUP and DIY have a voicing distinction.

Throughout this work, the symbols **p**, **t**, **k** are used in preference to **b**, **d**, **g**. Symbols for the other three stops are **rt** for apico-postalveolar, **th** for laminal interdental, and **j** for laminal palatal. Corresponding to these three places of articulation, the nasals are written as **rn**, **nh**, **ny**. The velar nasal ŋ is written as **ng**, except in GUP, where, following the established orthography, ŋ is used.

In BAY, PIT, BAA, DIY and probably GAW and WJK, which possess a maximal lateral system, there are two apical laterals and two laminal laterals; **l**, **rl** symbolize the former and **lh**, **ly** the latter.

The flap/trill is represented as **rr** and the continuant as **r**. Eastern languages generally have two rhotics, but three languages in this study have only one rhotic. They are GID, UMP and WMK. GID is said to have had two rhotics until they merged together as **rr** (O'Grady, p.c.). For UMP and WMK, a glide **r** is presumed to have changed into a glottal stop intervocalically. Finally and probably preconsonantally ***rr** > UMP **y** (O'Grady 1976:61). Another type of rhotic appears in WLB. It is a retroflex apico-postalveolar flap; the symbol used for it is **rd**. PIT is also special in having three rhotics where the alveolar flap **rr** and trill **rrr** are distinct phonemes. Dixon (1980:145) points out that a number of languages which have three rhotics form a geographical bloc in South Australia. Austin (1981:24) treats the trill in DIY as an allophone of /**d**/.

The semi-vowels are represented with **w** and **y**.

Most Australian languages have only three vowel phonemes. They are written as **i**, **a** and **u** in this work. In this study, there are four languages that have more than three vowels: /**e**/, /**o**/ appear in NYU, WMK and WEM; **ə** is unique to WEM; GID has /**e**/ but no /**o**/.

Overall, about half of the Australian languages have distinctive vowel length. In my study, thirteen of the languages have distinctive vowel length, but GAW, NYU, WJK, GYA, DYI, PIT and DIY are without a vowel length distinction. Long vowels are written as **ii**, **aa**, **uu**.

The above is a brief introduction to the consonant and vowel systems of the witness languages in this study. Two tables by Fitzgerald (1991) that are adopted by the study are given in Appendix B. A discussion of phonological changes relevant to this study and a presentation of the phoneme system of proto-Pama-Nyungan proposed by O'Grady and of proto-Australian by Dixon

appear in the coming sections.

2.3 Phoneme Systems of the Proto-Languages

2.3.1 The Phoneme Inventories

Roots are reconstructed by assuming that phonological changes affected an established proto-phoneme system. For this work, the phoneme inventory of proto-Pama-Nyungan proposed in O'Grady (1990a:xxi) is used. Table 2.1 gives the inventory.

Table 2.1: O'Grady's PPN Consonant Inventory

	alveolar	retroflex	alveopalatal	labial	velar
stop	t	rt	j	p	k
nasal	n	rn	ny	m	ng
lateral	l	rl	ly		
rhotic	rr				
semi-vowel		r	y	w	

Vowels in PPN were short ***i, *a, *u** and long ***ii, *aa, *uu**. In this system, there are two apical series, alveolar ***t, *n, *l, *rr** and retroflex ***rt, *rn, *rl, *r**. Dixon's (1980:158) proto-Australian system, given in Table 2.2, does not recognize a retroflex series.

Dixon's reconstruction is based on both Pama-Nyungan and non-Pama-Nyungan languages. He believes that there is no grouping of Pama-Nyungan versus non-Pama-Nyungan under the proto-Australian node. However, his proto-Australian consonant inventory should hold for proto-Pama-Nyungan as well.

The two systems differ mainly in that there is only one apical series in Dixon's analysis. Dixon argues that the retroflex apicals are allophones occurring after

Table 2.2: Dixon's pA Consonant Inventory

	apical	laminal	dorsal	labial
stop	d	j	g	b
nasal	n	ny	ŋ	m
lateral	l	(ly)		
rhotic	rr,r			
semi-vowels		y	w	

the vowel **u**. However, there are counter-examples which are discussed in section 2.3.2.3 below. Furthermore, Dixon is not very certain about the existence of the laminal-alveopalatal ***ly**. Note also that O'Grady considers ***r** a retroflex semi-vowel. Otherwise, the two systems are equivalent.

2.3.2 Exemplification of Some Regular Sound Correspondences

In this section, some sound correspondences found in this work will be compared with those recognized by Dixon.

2.3.2.1 Laminals

Some modern Australian languages have more than one laminal series. Dixon (1980) concludes that pA had only one laminal series. He bases this on the following instances of complementary distribution:

1. **DH, NH** are followed by **/u/** or **/a/**, not by **/i/**;

2. **J, NY** are followed by **/i/**, not by **/u/** or **/a/**.

Examples of this distribution are given below (from Dixon 1980:153).

double-laminal language	single-laminal language	label or gloss
Yinggarda	Dyirbal	
ny	**ny**	**NY**
nyina-	**nyina-**	*to sit*
nh	**ny**	**NH**
nhurra	**nyurra**	*you all*
Ngarluma	Gugada	
j	**j**	**J**
gunyji(rri)	**guji(da)**	*one*
dh	**j**	**DH**
gudharra	**gujarra**	*two*

Dixon and O'Grady agree that **DH** and **NH** are allophones of **J** and **NY**. I assume this relationship in my reconstructions. Hence whenever there are correspondences like the above, the reconstructions ***j** and ***ny** are used.

My data supports Dixon's conclusion with one exception:
PPN *wIji(ny); WLB **wijini**; PIT **withi**; BGU **withiny** *a sore.*

PIT and BGU are double laminal languages while WLB is a single laminal language. The DH correspondence shows up before /**i**/ rather than the expected /**u**/ or /**a**/.

2.3.2.2 Laterals

As mentioned above, O'Grady proposes two laterals in the proto-Pama-Nyungan consonant system, whereas Dixon is not sure whether ***ly** can be reconstructed for the proto-Australian consonant inventory. Finally, Dixon (1980:157) proposes that there are two laterals in the proto-system. He thinks intervocalic ***ly** may have become **j** or **l** in eastern languages. Preconsonantal ***ly** may have become **ny** or **l**, he feels.

Dixon draws support from O'Grady's (1966) study of proto-Ngayarda phonol-

ogy. Proto-Ngayarda had four laterals. Yinyjibarndi has preserved the stop and nasal contrast. The two laminal laterals ***lh** and ***ly** have become **th** and **j**. ***lh**, which occurred only intervocalically, merged with **dh** in the same position. ***ly** dropped preconsonantally and merged with **j** medially and finally.

Dixon (1980:158) surmises that a similar development took place between pA and the present-day eastern languages. Fitzgerald (1991) provides some correspondences which very much agree with Dixon's hypothesis. She finds that in some of her sets of cognates, intervocalic ***ly** becomes **j** or **l** in some languages, and preconsonantally ***ly** > **l**.

Based on the above findings, it seems reasonable to suggest that ***ly** is part of the PPN consonant inventory. My own sets of data on the other hand do not contain any correspondences that can contribute to resolving the controversy. **ly** always corresponds to **ly**. In these cases, I reconstruct ***ly**.

2.3.2.3 Apicals

As with laminal stops and nasals, some Australian languages have one apical series **t**, **n** and **l**, while others have two: **t**, **n**, **l** and **rt**, **rn**, **rl**. Against O'Grady, Dixon argues that the retroflex apicals were not present in the proto-Australian consonant system (though the two comparativists are referring to different levels of the proto-language). Dixon (1980:155) has found the following sound correspondences (no example is given by Dixon for the **D** correpondence):

double-apical languages	single-apical languages	label or gloss
Western Australia	Eastern Queensland languages	
n	**n**	**N**
d	**d**	**D**
ngana	**ngana**	*we all*
jina	**jina**	*foot*
rn	**n**	**RN**
rd	**d**	**RD**
gurnrdu (written as **gurndu**)	**wundu**	*penis*
gurn-ga	**gun-ga**	*raw*

Dixon assumes the following pattern:
RN and RD occur almost exclusively following /**u**/; N and D occur almost exclusively following /**a**/ and /**i**/.

The same pattern holds for **rl** and **l**; i.e., RL occurs only following /**u**/ and L occurs only following /**a**/ or /**i**/.

Again, my cognate sets seem to follow the patterns with stops and nasals, except number 1. of the following three cognate sets. However, there are more cases that do not fit the pattern for correspondences between **rl** and **l**. The exceptional cases follow:

1. PPN ***wa(r)nta+**: NYA W **warnti+pi+ni** *to let fall, drop*; WLB **wanti+** *to fall*; YDN **wanta+n** *fall down, drop.*
2. PEPN ***wA(r)lkV**: GYA **walka.rr** *black sand goanna*; PIT **warlku.ja** *sand goanna* (The periods indicate fossilized morpheme boundaries throughout this work).
3. PPN ***wIrlu**: BAY **wirlu.mayu** *curlew*; WEM **wil** *curlew, the stone curlew.*

NYA is a double apical language, and YDN is a single apical one. The first set shows that following the vowel /**a**/, **-rd-** in a double apical language corresponds to **-d-** in a single apical language. This particular kind of correspondence, according to Dixon, would only occur after the vowel /**u**/. In the other two cases **RL** correspondences occur following /**a**/ and /**i**/ rather than /**u**/.

O'Grady (1990d:251) has a similar case which indicates discrepancy:
NYA W **parnti+R+**, PIN, BAY **parnti+L+** *smell, sniff*, WLB **parnti+Y+** *to smell, give off an odour*, GID **panti+** *to sniff*.

In the above set, retroflex **-rnt-** occurs after the vowel /**a**/. Also, it does not occur in a language such as GID which does not have any retroflex apicals. Facts like these convinced O'Grady that there were retroflex apicals in the ancestral language.

Fitzgerald (1991:17-18) gives three examples of RD correspondences occurring after /**a**/, two examples of D-type correspondences occurring after /**u**/ and one example of the L correspondence occurring after /**u**/. In addition, Fitzgerald mentions that she has found similar counter-examples in Hendrie (1990), and in O'Grady's recent works.

It is most likely that the proto-language had retroflex apicals. In Chapter four, retroflex sounds are proposed in my reconstructions when this seems appropriate. In cases where it is not clear whether there should be a retroflex in the reconstruction, ***(r)t**, ***(r)n** and ***(r)l** are used.

It should be noted that O'Grady (1990e:125) includes NYA, GAW, PIN, BAY, WLB, GUP and WEM as languages which maintain distinctive retroflex and alveolar series of apical consonants. The distinctions can be maintained in reconstructions when the above-mentioned languages are present in the cognate sets.

2.4 Phonological Changes

Generally speaking, there are, in any given subgroup of Pama-Nyungan, languages which are phonologically quite conservative. The most radical innovations occur in some Cape York languages which have features thought to be quite unAustralian before Hale's work. Hale (1964 and 1976a,b,c) is able to show the regular phonological changes that these languages have gone through and to demonstrate their status as Australian languages. He shows that they are not only Australian but, in fact, also Pama-Nyungan.

Otherwise, most Australian languages seem to follow a conservative phonological pattern. In this section, the phonological changes relevant to my data and work in reconstruction are discussed.

2.4.1 Consonants

2.4.1.1 *wi > yi in YIM and GYA

The dictionaries of YIM and GYA show no words with initial **wi**. O'Grady suggests that there could have been assimilation of ***w** to **y** preceding the high front vowel **i**. The following cognate sets should confirm this relationship:

1. PEPN ***wirrpa**: YIM **yirrpi** *tassel, apron belt, string*; DIY **wirrpa** *pubic tassel.*

2. PP ***wini+**: UMP **wini+** *frightened, be...*; **wini+nyu** *frightened*; YIM **yinil** *afraid, cowardly, frightened, wild*; GYA **yinil** *fear*, **yini+yin+** or **yinyilji** *frightened.*

3. PPN ***wiijil**: NYA S **wiji+rn** *take someone*; YIM **yiithil** *companion.*

There are a few more cognates involving roots with initial **yi** from either YIM or GYA or both. In the above cases, the semantic agreement makes plausible the correspondence of **yi** in YIM and GYA to **wi** in the other languages.

2.4.1.2 Initial *ng> Initial w

There is a matching between PPN initial ***ng** and initial **w** in languages from the east. Fitzgerald (1991:18-20) considers this a non-true correspondence since languages with this matching sometimes reflect ***ng-** as **ng-**. The result of her study with the same twenty languages seen in this study shows that WMK, BGU and WEM have the change ***ng-** to **w** before all vowels. The other languages with this phenomenon are UMP, YIM, GYA, YDN, DYI and GID. All of these languages have instances of ***ng-** becoming **w-** before ***A** and ***U**.

Though the environment for these changes cannot be determined, Fitzgerald points out that this change probably does not occur in a random fashion. Maybe ***ng-** regularly becomes **w-** in some languages. However, borrowing between those languages which have gone through the change and those which have not might have obscured the situation regarding the environment for this change.

Items from the eastern languages which have this change should be compared with the cognate sets which contain these items in this study. The purpose of this comparison is to detect how many of these items, which Fitzgerald determines on a preliminary assumption to have reflected ***ng-**, could be in fact the descendants of ***w-**. On the other hand, some of the sets with initial **w**'s could actually be from ***ng-**.

Examples that illustrate the first kind of situation follow.

Fitzgerald (1991:91) has the following cognate set:

PPN ***ngarra**: NYA **ngarnta-rna** *to block, stop, head back (sheep or cattle), to stand in the way of*; NYA S **nganta-(rn)** *be prevented*; UMP **nga?a.malu** *end,*

that's the finish, that's all; WMK **want+an** *stop (an activity), leave (something or someone)*; GID **warru-warru** *fence, boundary*; DIY **ngarnda.rra** *end, finish*, **nganda.walka** *close, stop.*

Fitzgerald argues that PPN ***rr-** > **-nt** in NYA W, **-ʔ** in UMP, **-nt-** in WMK, and **-rd-** in DIY.

I have included the WMK item **want+an** in the following set:
PPN ***wantV+**: NYA W **wani+nyi** *to remain, stay, stop*, imperative form **wanti+yi**; NYA S **wani+ny** *live, lay, sit, stay*; PIN **wanti+ngu** *to leave, to cease from doing an action, finish*; GAW **WANDE+NDI** *to lie down, exist, be*, **WANDI.APPE+NDI** *to make or allow one to cohabit*; UMP **wana+la** (imperative) *leave it*; YAU **wana+la** *leave (it), be*; WMK **want+an** *stop (an activity), leave (something or someone)*; PIT **wanti** *wait*; GID **wana+** *to leave, to be.*

Phonologically and semantically speaking, the WMK item may belong more appropriately to my cognate set.

An example of a cognate set that I have established which is better considered to reflect ***ng-** is the following:
PEPN ***wuna+**; UMP **wuna+** *lie, sleep, stay the night*; WMK **wuna+** *lie down, live, stay*; YIM **wunaa+** *lie down, sleep, exist*; GYA **wuna+y** *to lie down, to sleep, state of being, to have...*; YDN **wuna+n** *lie down, sleep, exist*; BGU **wuna** *to lie down.*

Fitzgerald (1991:122) reconstructs a PPN root ***nguna-Y-** with cognates which can be added to my set: WLB **nguna+** *to lie, be lying down, to extend horizontally*; PIN **nguna.rn+pa** *arm, branch of tree*; NYU **ngurni.ny** *lying, be lying down*; DIY **nguna** *arm, branch of tree.*

In all of the languages in the first grouping an initial ***ng** could have weakened to **w-**.

There are some other instances of cases like the above; they are illustrated

in Chapter 5.

2.4.1.3 Loss of Final Nasals

In various reconstructions, O'Grady proposes that some eastern languages retain word-final ancestral consonants, whereas the western languages have mostly dropped these. O'Grady (1990e:125) notes that "Capell (1956) considers ***ng** to be a possible word-final consonant in Common Australian, and Wurm (1972) and Dixon (1980) are in accord with this finding".

O'Grady's reconstruction suggests that YIM, GYA, and GID retain final ***l** in nouns and adjectives; UMP, YIM, YDN retain final ***n** in nouns and adjectives; while GID, on the other hand, retains all four final nasals – ***m**, ***ng**, ***n** and ***ny**.

Dixon (1980:244) posits that in most or all Australian languages, words used to be able to end in **m** or **ng**. Eventually, the prohibition on final **m** and **ng** diffused over most of the continent. However, languages from the Cairns Rain Forest area in particular are found to have final peripheral nasals (labials and velars). Among the languages in this study, final **m** is mostly found in YDN. GYA has no final **m**. Final **ng** is said to appear only where final **m** is the strongest. Therefore, in YDN, roots and suffixes can end in **ng**. DYI has only final **m**.

Following is a cognate set that exemplifies the retention of final l in an adjective in YIM and GYA.

PP ***wini+**: UMP **wini+** *frightened, be...*; **wini+nyu** *frightened*; YIM **yinil** *afraid, cowardly, frightened, wild*; GYA **yinil** *fear*, **yini+yin+** or **yinyilji** *frightened.*

However, I have not been able to find any sets of cognates that exemplify the retention of final nasals in UMP, YIM and YDN.

2.4.2 Vowels

Australianists believe that the ancestral languages of Australia had distinctive vowel length. No evidence shows that long vowels were in non-initial syllables of a word (Dixon 1980:212). However, it is not certain which languages retained ancestral vowel length in initial syllables. Dixon (1980:406) points out that GID, YIM and other languages outside this study preserve ancestral vowel length. Hendrie (1990:26), while working with the initial apicals of nine Pama-Nyungan languages, considers UMP, YIM and GID to be diagnostic for ancestral vowel length in the first syllable. O'Grady (1990e:125) considers YIM, UMP, and GUP diagnostic for ancestral vowel length. However, in a recent work with Tryon, O'Grady does not consider UMP and GUP to be diagnostic for this feature. At the same time, he finds WMK to be diagnostic for ancestral vocalic length.

Fitzgerald (1991:22-23) examines the occurrences and correspondences of long and short vowels in initial syllables of UMP, GID, YIM and GUP. She finds that UMP agrees with YIM and GID with respect to the length of V1 and hence considers UMP eligible for being diagnostic of ancestral vocalic length. GUP on the other hand does not appear to agree with the other languages regarding the vowel length of V1. Therefore, she does not take GUP as being diagnostic of ancestral vowel length.

When I searched through my cognate sets with twenty witness languages, I was not able to find any vowel length correspondences in the initial syllable for GUP, UMP, YIM or GID. Roots containing a long vowel in the first syllables from these four languages do not appear in the same cognate set. Therefore, I cannot contribute to the reconstruction of vowel length based on my cognate sets. However, I follow O'Grady's judgements and take UMP, WMK, YIM and GID to be diagnostic of ancestral vowel length in the first syllable. In cases where the length of the first vowel is undetermined, a capitalized letter of that

vowel is used in the reconstruction.

Another thing to be noted regarding vowels in the Australian languages is that the first vowel tends to be stable because it is the first syllable that bears primary stress (Dixon 1980:197). The second vowel, on the other hand, can be assimilated to a preceding consonant or to the vowel in the first syllable, as shown in the example below:

PPN ***waaja+**: WLB **waji.li** *running*; PIN **waji.l+pa** *one who desires another location...* ; BAY **waji.rti** *road, path*; UMP **waatha+ya** *go, walk*; BGU **waja** *to go, to come, to walk*, **waja.na** *to walk about.*

The second vowel in WLB, PIN and BAY could have assimilated to the [+ high] and [– back] features of the preceding consonant, **j**.

Chapter 3

The Application of the Comparative Method to Australian Languages

3.1 Introduction

Instead of leading to a revolution, challenges in the field of historical linguistics seem to have led to modifications and additions to the mainstream theory and practice. Within this field, the Neogrammarian hypothesis is the most controversial. The resulting comparative method is sometimes described as the most powerful methodology in linguistics (e.g., Dixon 1980), but it is often questioned regarding its universality, its replicability and its limits (Hock 1986:preface, Baldi 1990:1). There are many layers within the theory and practice of historical linguistics because of ongoing additions and modifications. The layer which is of concern here is the comparative method. The preliminary goal of the method is to work out the genetic relationships of groups of languages. This task will be the focus in this chapter.

In the sections that follow, the basic assumptions of the comparative method will be briefly discussed. Then, adjustments to its method of application required to account for empirical data will be illustrated with Bloomfield's work on proto-Algonkian and work done on the reconstruction of the Austronesian languages. O'Grady's approach in comparing Australian languages will be discussed in detail, and the modifications to the comparative method that his approach suggests will be focused on. Finally, the result of my own testing of the O'Grady approach will be presented.

3.2 The Basic Assumptions of the Traditional Comparative Method

The two assumptions that underly the comparative method are the hypothesis of genetic relationship and the Neogrammarian hypothesis. The first assumption implies a need to explain obvious similarities among the words and grammars of the languages assumed to be related. These languages are thus taken as having descended from a common ancestral language or a proto-language. The regularity hypothesis makes possible the reconstruction of the proto-language (Jeffers and Lehiste 1979:17).

There is a convenient slogan which states the Neogrammarian hypothesis briefly: sound change is regular and operates without exceptions. Hock finds it necessary to provide a footnote concerning this slogan to avoid misunderstanding. It is quoted below to help clarify the hypothesis:

> **Neogrammarian regularity hypothesis restated**: Change in pronunciation which is not conditioned by phonetic factors is regular and operates without exceptions at a particular time and in a particular speech community, with possible environmental restrictions. Certain changes (including dissimilation and metathesis) are exempt from this hypothesis (Hock, p.35).

O'Grady (p.c.) has put together a number of cognate sets which show the shifts in vowels between proto-Indo-European and various Germanic languages to illustrate the power of the comparative method, and can be summarized as follow:

	PIE	PGmc	Gothic	ON	SWE	OE	NE	OHG	NHG
1.	–	*bain-am	–	bein	ben	bān	bone	bein	das Bein 'leg'
2.	*d^heig^h-	*daig-az	daig-s	deig	deg	dāg	dough	teic	der Teig
3.	*g^haido-s	*gait-az	gait-s	geit	get	gāt	goat	geiss	die Geiss
4.	*kei-	*haima	haim-s	heim-r	hem	hām	home	heim	das Heim
5.	–	*hlaib-az	hlaif-s	hleif-r	–	hlāf	loaf	leip	der Laib
6.	*leit-	*laiθ-az	–	leið-r	led	lāþ	loath	leid	leid
7.	–	*aik-s	–	eik	ek	āc	oak	eih	die Eiche
8.	*oito-s	*aiθ-az	aiþ-s	eið-r	ed	āþ	oath	eid	der Eid
9.	*oino-s	*ain-az	ain-s	einn	en	ān	on.ly	ein	ein(s)
10.	*ēik-	*aig-an-az	–	eiginn	egen	āgen	own	eigan	eigen
11.	*spoi-g-	*spaikōn (PWGmc)	–	–	–	spāca	spoke	speihha	der Speiche
12.	*stoino-s	*stain-az	stain-s	steinn	sten	stān	stone	stein	der Stein
13.	*stroig-	*straik-az	–	–	streck	strāc	stroke	?	der Streich
14.	*deig-	*taikn-am	taikn-s	teikn	tecken	tācn	token	zeihhan	das Zeichen
15.	*kailo-	*hail-az	hail-s	heill	hel	hāl	whole	heil	heil

The above cognate sets show the merger of four proto-Indo-European diphthongs ***ei**, ***ai**, ***oi**, ***ēi** to proto-Germanic ***ai** and its various shifts into several other Germanic languages, and can be summarized as follows:

PIE *ei, *ai, *oi, *ēi	>	PGmc * ai	
	>	Gothic	ai
	>	Old Norse	ei
	>	Swedish	e
	>	Old English	ā
	>	Modern English	o
	>	Old High German	ei
	>	Modern High German	ei=/ai/

These recurrent, systematic sound correspondences form the basis of the regularity hypothesis, and make possible the application of the comparative method. In principle, the method can be applied to a minimum of two languages. Sources of data which are available for the researchers vary in the number of languages involved, the material available, and characteristics of the languages in question. When the method is applied, there might be different approaches used to suit the empirical data. However, the basic assumptions are always followed. This aspect is apparent in the discussions which follow.

The point here is that the comparative method itself is simple, and yet, in practice it can become complicated because of some of the data it confronts. However, this theory is accommodating enough that some of the differences in the procedure of its application can be justified, as long as its core principles are followed. Following are the guidelines of the method set out by Baldi (1990:2-5):

1. A significant percentage of cognates in core vocabulary areas must be demonstrated to establish genetic affinity between languages. [This is also the basis of the reconstruction hypothesis.]

2. Consistent and systematic sound correspondences or matchings between cognate forms in genetically related languages must be found. Exceptions and irregularities are explained, if possible, as subregularities within the framework of the regularity hypothesis.

3. Reconstruction is made possible by the systematic correspondences found. Independently established typological principles can verify reconstructions.

4. Sound changes can be recovered from written data.

5. Analogy of various sorts - phonological, morphological, lexical/ semantic - can (re)condition sound change.

6. The relatability of irregular forms, especially irregular morphological forms, is an index of genetic affinity among languages.

The six criteria, as well as many additional subcriteria and associated methodologies are integrated in the Comparative Method. However, Baldi (1990:5) points out that they are basically phonological and that the Neogrammarian hypothesis is based on phonology.

In the broadest sense, the comparative method should include the comparison and reconstruction of morphology and syntax. However, comparative work in these two areas is not developed to the extent that it is in phonology. Throughout this work, the emphasis will therefore be on phonology.

3.3 Bloomfield's Method in the Reconstruction of Proto-Algonkian

Bloomfield reconstructed proto-Algonkian using data from the four best known Algonkian languages - Fox, Cree, Menomini, and Ojibwa. The four languages are classified as belonging to central Algonkian. On the whole, he considered these reconstructions capable of fitting all the Algonkian languages and was able to view them as Proto-Algonkian. It is on the basis of Michelson's study (see Bloomfield 1946 for a list of Michelson's works) that he made this judgement (Bloomfield 1946:85).

Bloomfield carried out his work to disprove a theory held by many Indo-European scholars, that one cannot reconstruct languages that have no earlier

written record. His comment on this is, "A principle such as the regularity of phonetic change is not part of the specific tradition handed on to each new speaker of a given language, but is either a universal trait of human speech or nothing at all, an error".

Bloomfield's work not only has an important implication for similar work on all unwritten languages, but also has become the basis for all future work in comparative Algonkian (Haas 1969:118). Haas provides an example of comparison that shows Bloomfield's reconstruction to be valid for a western Algonkian language to be compared. This shows that the central languages are relatable to this particular western language, Atsina:

	Atsina (1960)	Atsina (1790)	Proto-Algon.
one	čéɛθiy	kar-ci [kɛɛsay]	*pe.šik-
two	níiθ	neece [niis]	*ni.š-
three	nɛ̌ɛθ	nar-ce [nɛɛs]	*ne?θ-
four	yɛ̌ɛn	ne-an [ni(y)ɛɛn]	*nye.w-

The sound changes are:

Early Atsina k > modern č / #_ V [-back]
Early Atsina s > modern θ

The initial syllable of *four* has dropped in modern Atsina. The changes between Proto-Algonkian (PA) and early Atsina are even more drastic:

PA *p	>	early Ats. k	(modern k before back vowels and č before front vowels).
PA *š	>	early Ats. s	
PA *w	>	n	(in *four* and many other words) (Haas:123)

In comparing the two varieties of Atsina with the reconstructed older forms,

Haas considers that the above four numerals are sufficient to illustrate the nature of sound changes in Atsina. The changes found in Algonkian languages are not as dramatic as those in European written languages in a comparable period of time.

Bloomfield made a decision to limit the comparison to four languages so that the task would be more manageable. This economy characterises his work. It can serve as an example of many approaches in which the comparative method has been applied in different manners to suit the empirical data.

3.4 The Reconstruction Methodology in the Austronesian Language Family

Blust (1990:133-153) gives a summary report on linguistic change and the reconstruction methodology used in the Austronesian language family. The points following are taken from his work.

The German linguist, Otto Dempwolff (see Blust 1990 for a list of Dempwolff's works), was the first to put out a relatively complete reconstruction of early Austronesian phonology that incorporated data from almost all major geographical regions of this language family. He laid the foundations of all future work in the phonological comparison of the Austronesian languages. With a population of about 825 languages estimated by Blust for this language family, it is necessary to find some ways of applying the comparative method to "... conflate the evidence without distorting it" (Blust 1990:137).

Dempwolff is said to have found his methodological inspiration in Hans Vaihinger's philosophy of the "as if". An example of this notion is seen in Galileo's laws of terrestrial motion, which apply only in a complete vacuum. However, the laws are formulated without such an ideal condition being accessible, and hence, without empirical verification. Dempwolff has carried out the reconstruction

with only Tagalog (Philippines), Toba Batak (Sumatra), and Javanese (Java), *as if* they could be representative of all the Austronesian languages. Yet, this decision was made only after he had surveyed "...certain aspects of the historical phonology of over 100 Austronesian languages". He manages to posit over 2,200 reconstructed forms, and his comparative dictionary to this date is still the major collection of reconstructions of the Austronesian languages. There is also supporting evidence available for it in the Austronesian field.

There are of course shortcomings in Dempwolff's approach. For example, many widely distributed cognates are missing because of his restricting to three the number of languages being compared. Also, his reconstructions have covered widely varying time depths. However, as mentioned above, his work is the foundation in the field of Austronesian phonological reconstruction.

Blust makes a further claim of his own that a special extension of the Comparative Method is required for the set of relationships that the Oceanic languages hold (1990:141). His name for it is "reconstruction from the top down". One aspect of this relationship is that the lexically most retentive Oceanic languages have lost original final consonants, while some lexically less retentive languages preserve them. In reconstructing the proto-Oceanic forms, a final consonant must be posited. By doing so, Blust has ensured that the languages that have lost final consonants in the lower node of the tree will be easily attested. Anttilla calls this "inverted reconstruction". He means, for example, that information from proto-Indo-European based on wider comparisons may prove useful in reconstructing proto-Germanic (Anttila 1989:346). This use of inverted reconstruction takes place "...when our target of investigation is a lower node in an otherwise rather well-established family tree". One point that deserves mentioning again is that the "simple" assumption of the regularity hypothesis is still at the bottom line of this approach.

The main point to be presented in this section is that historical linguistics

provides guidelines for research on different language families. At the same time, distinctive or unique problems which arise in the treatment of these different language groups give insights into the development of the field.

3.5 O'Grady's Approach to Cognate Search in Australian Languages

O'Grady is probably the researcher who has most extensively and systematically worked on the search for cognates in Australian languages – mainly in the Pama-Nyungan family, the largest on the continent. The results of his search lead to the further vindication of Ken Hale's 1964 claim that "...Pama-Nyungan is the largest coherent linguistic genetic construct in Australia" (O'Grady 1990a:xiii). There has been abundant comparative work done by many linguists on the Australian languages, both on the lexicon and on the grammar, that can corroborate this claim. Different perceptions are held and different approaches are taken among these many linguists. The focus of this section, however, will be on the specific approach sought out and practiced by O'Grady.

The essence of O'Grady's approach is "seek, and ye shall find" (O'Grady 1991:1). The approach "has evolved with glacial slowness over the past 35 years" (ibid.). Certainly it has been practiced for many years. Before the actual steps of his approach are introduced, his assumptions concerning the Pama-Nyungan languages should be discussed. He sees an "ironclad conservatism" in the descent of most ancestral sound segments in numerous languages of this family (O'Grady 1990g:451). This assumption leads to the selection of the phonologically more conservative languages in the beginning stage of the work. That way, in later stages of the work, the innovative languages are more easily attested through comparison with the conservative ones. Moreover, researchers such as Hale (1976a,b,c) have shown that many of the innovations in these languages are quite recent.

Among the conservative segments, single consonants in intervocalic position and nasal-plus-stop sequences are especially noteworthy. Some unexpected innovations occur, for example, yet only in quite a small number of cases, where a homorganic nasal-plus-stop sequence appears when just an intervocalic stop, rhotic, or glide is expected. Examples of this are found in O'Grady's (1990g) work.

Dixon (1980:218) has also observed this phenomenon of phonological conservatism. He points out that the majority of the 200 or so Australian languages conform to a general phonological pattern. To him, reconstruction of a proto-Australian phonological system is possible because of the striking similarities among the Australian languages. Some languages have undergone changes such as developing a voicing contrast in some places of articulation, or losing initial consonants. The initial-dropping languages have been said to have developed through regular changes from recent ancestors that did have normal Australian phonologies (Hale 1964); for example, all ancestral words began with a consonant, and the majority of roots were disyllabic (Dixon 1980:218).

Through his own experience in handling data sets from the Pama-Nyungan languages, O'Grady has developed an approach that has a sharp focus on data, and yields results with efficiency. One point to be stressed again is that it should be used only with the phonologically more conservative languages. With these, it will be easier to spot cognates.

As a case in point, we can see that proto-Pama-Nyungan (PPN) ***nyukal** *ankle* developed in Kurrama (a Ngayarda language) through ten phonological changes to **nhuurtka** and in Anguthimri (a Pamic language) to **kwe** *foot* through six different phonological changes. By comparison, in conservative languages closely related to the above, the same proto-form developed to **nhukurlka** in Ngarluma (another Ngayarda language) through three stages and to **n(h)ukaw** *foot* in Uradhi (another Pamic language) through two phonological changes only

(O'Grady 1990c:11-12). Thus, at the initial stage of comparison, Ngarluma and Uradhi are the preferred sources.

Following are the steps taken, as stated in O'Grady's (1991) approach:

1. Select a form for possible etymologisation, for example, Diyari **kurnu** *one, singular, alone, another.* The rationale behind this is that since Pama-Nyungan is demonstrably a language family, there exists the possibility of finding a cognate in any other language of the family.

2. Call up terms for *one* in representative Pama-Nyungan languages.

   This in some cases leads us nowhere - we fail to find any plausible cognates. We find, for example, Nyangumarta **waraja**, Warlpiri **jinta**, Pintupi **kuju**, *one*, and so on. Yet at the same time we find new cognate sets that were not the aim of our initial search, such as

Gawurna	**KUMA**	*one*
Wirangu	**kuma**	*one*
Yidiny	**kuman**	*one*

   We still have not found a cognate for Diyari **kurnu**. Some may think the search is completed at this point. O'Grady thinks that it has only just begun.

3. The third step is to call up possible antonyms for *one*, since antonymic semantic shift is all-pervasive in Pama-Nyungan. In this quest, as O'Grady comments, we need guidance from other evidence in Pama-Nyungan - evidence that has accumulated gradually over the years. What we need to know is that the archetypal antonym of *one* in Pama-Nyungan is *nothing.* After O'Grady searched through representative Pama-Nyungan languages at *nothing*, not a trace of a cognate of Diyari **kurnu** was found.

4. The fourth step is to call up further forms for concepts demonstrably relatable to *one* in languages of the world in general and in Australian and Pama-Nyungan languages in particular. These include *alone, by oneself, only, other, the rest, some, few, (close) together, orphan and widow(er).* Once again, nothing turns up.

5. The fifth step is to put out a call for the form **ku(r)nu** in Pama-Nyungan languages in general, irrespective of its meaning. To put it in more general terms, it is to bring together all the relevant possible initial C-V-C configurations of the representative languages. In other words, we focus on one specific C-V-C sequence at a time. My own work can serve as an example. When I started the processing of initial **w**'s in twenty Pama-Nyungan languages, I worked out all the possible W-A-C sequences: **waj-**, **wak-**, **wal-**, **waly-**, **wam-**, **wan-**, **wang-**, **wany-**, **wap-**, **war-**, **warl**, **warn-**, **warr-**, **wart-**, **wat-**, **waw-** and **way-**. Most Australian languages have only three vowel phonemes. The other configurations will therefore be composed of W-I-C, W-U-C.

   An important assumption here is that: "in the phonologically more conservative Pama-Nyungan languages, the first three sound segments in a form, which normally have a C-V-C configuration, are especially resistant to change." (O'Grady 1991:13) This is because the first syllable carries the primary stress, leaving the second or later syllables unstressed and therefore less resistant to change.

6. At the sixth step, we sift through all the forms put together at the fifth step, looking for forms with meanings that are plausibly relatable to Diyari **kurnu** *one, singular, alone, another.*

   For **kurnu**, O'Grady (1991:8-9) came up with the following result:

DIY	**kurnu**	*one*
NYA-W	**kurnu**	*curled up, hibernating; clenched (fist)*
	kurnu+ngu	*at sunrise*
NYA-L	**kurnu.ji+ni**	*roll up (blankets)*
PIN	**kunkun+pa**	*sleep* (with incretion of -k-)
WJK	**GURNU**	*to push, to shove away*
	GUNING	*stingy, unwilling to give* (cf. ENG tightfisted)
NMA	**kurni**	*bent, doubled, coiled–as snake [crossed (legs),closed (hand)]*
YIN	**kurni**	*turned in upon itself, [folded (skin), coiled (rope), (man) huddled up]*
BAY	**kurnukarri**	*thirsty*
	kurnangu	*black*
GUP	**gurnaŋ?**	*night time early in the morning while still dark*
	gunuŋu?	*large snake which cries like a man and is edible*
GID	**kuntan**	*bent, crooked*
	puun	*coil*
	puun kawa	*to coil, roll up* (**kawa+** *to break*)
DAR	**kunim**	*sleep, asleep*
BAR	**kunung**	*camp*
	kuni	*name, name sake*
WAK	**kunu**	*hollow, gully, below...*

The result of O'Grady's **kurnu** search has led him to propose two entirely unrelated proto-Pama-Nyungan roots ***kurnVm** and ***kurnangu**. This is like the proto-Indo-European situation where there are thirteen different roots of the shape ***wer+**.

Initially, the judgements are subjective. Ultimately, the fine tuning of such assemblages will have to be left for people who have more understanding of Aboriginal culture and for theorists of semantic change. O'Grady suggests

that two young Australianists, David Wilkins and Nicholas Evans would be able to undertake this work.

7. Now we have proceeded to the seventh step. At this point, independent evidence, that is, objective proof of a given semantic association, is looked for. In the example above, if the Diyari form is related to the other forms, we seek to associate the meaning *one* to the meanings of the other forms, for example, *curled up.* Supporting evidence found by O'Grady shows up in other cognate sets: Guugu-Yimidhirr **kuma** *doubled up, folded, coiled* can be compared to Gawurna **KUMA**, Wirangu **kuma** and Yidiny **kuman** *one* discussed earlier. Therefore, he posits a relationship between the **kurnu** which means *one* in Diyari and NYA-W **kurnu** which means *curled up...* . As I have said, the comparativists who do not have deep knowledge of Aboriginal culture would have to stop at this point. Either they themselves should search for the semantic association so that they will be able to give explanations for many instances of this phenomenon in Pama-Nyungan languages or they have to wait for others who have a good understanding of the culture.

   Another instance where a supporting semantic association is needed is seen in the following (O'Grady, p.c. and 1990c:14):

BAA	**nguku**	*water*
Ooldea	**ngukurn-p-a**	*egg*

   Independent evidence that can show an association between *water* and *egg* is the following:

NMA, YGN, YGS	**papa**	*water*
ARB	**papu**	*egg*

O'Grady was able to find ample evidence from the lexicon for the above semantic association. The reader is referred to his 1990c work.

After all, numerous obvious cognate sets do turn up. However, if semantic association can be somehow shown to be plausible, more cognates will be secured.

O'Grady also suggests the use of a category of forms called 'residue' in which possibly relatable forms are included in case independent evidence does turn up and relatability is indicated. This category is employed in Chapter 5 of this work where the cognate sets with initial **w** are presented.

3.6 My Own Test of O'Grady's Approach on Twenty Pama-Nyungan Languages

As a beginner, I am more cautious in applying O'Grady's approach. Steps 1-4 are followed at the beginning of my search. Gradually steps 5, 6 and 7 are introduced. Twenty of the Pama-Nyungan languages which have conservative phonologies are selected. Wide geographical coverage is taken into consideration so that languages from east to west and from south to north within the Pama-Nyungan family boundaries can be covered.

I put forward only plausible cognates. Following are the basic assumptions I have followed:

1. Only forms which agree both phonologically and semantically are put together. For example:

1)	PPN ***warring**		
	NYA-W	**warri**	*cold*
	NYA-S	**warri**	*cold*
	PIN	**warri-rri-ngu**	*to become cold*
	GID	**warring**	*cold*
		warring-giny	*winter cold season*
2)	PNY ***wilura**		
	PIN	**wilurarra**	*west*
	BAY	**wilura**	*west*
3)	PPN ***warr**		
	NYA W	**warrwarr**	*tattered, torn*
	WMK	**warrrrr**	*a tearing noise*

2. Basically, cases where the initial consonant has dropped are not taken into consideration. Nor are the ones where the initial ***ng** is weakened to **w-** and initial ***k** weakened to **w-**. In other words, only the straight **w-** initials are considered. As well, only instances with plausible vowel assimilation or dissimilation are included.

3. Cases which involve obscure semantic associations are not considered.

Even following a conservative approach, I have been able to find 194 plausible cognate sets. Among them there are small sets that only include two to six languages and large sets that cover most of the twenty languages. The feeling I get from applying the O'Grady approach is that with the phonological conservatism of the witness languages, it seems to be a sensible way to go about finding cognates. After all, the overwhelmingly numerous matchings found prove the assumption. Finally, my result is able to contribute to the claim of genetic relationship for the Pama-Nyungan languages. Hence, this geographically widespread language family is valid as the largest linguistic genetic construct on the

Australian continent. A grammatical reconstruction that supports this finding will be mentioned in passing. Blake's (1977) book on Pama-Nyungan nominal case markers and his 1988 work on pronouns suggest changes for the subgrouping of a few Pama-Nyungan languages. Yet the integrity of Pama-Nyungan as a language family is recognized.

3.7 Conclusion

In this chapter, the procedures used in the comparison of initial **w** in twenty Pama-Nyungan languages are reviewed by looking at comparative work done with other language groups which, like Pama-Nyungan, do not have earlier written records. These groups include the Algonkian languages and the Austronesian languages. O'Grady's approach in comparing the Pama-Nyungan languages is summarized and tested with the comparison of initial **w**. O'Grady's assumption of phonological conservatism in the Pama-Nyungan languages is verified by the discovery of many cognates within the focus of initial **w** only. The basic assumptions of the comparative method are integrated in O'Grady's approach. His special procedures extend the boundaries of the model to make it sensitive to Australian language data.

Chapter 4

Situations Specific to Australian Comparative Linguistics

4.1 Introduction

In this chapter, some major comparative works done on Australian languages will be reviewed. The central issue is whether O'Grady et al.'s genetic classification (O'Grady, Voegelin and Voegelin 1966), representing the work of Hale, O'Grady and Wurm, should be followed (however, note that the first person to propose a Pama-Nyungan hypothesis was Hale (O'Grady 1990a:xiii)), or Dixon's analysis (1980) in which Australian languages constitute one single language family. The latter scholar considers the placing of the Pama-Nyungan family and the other twenty six families under the proto-Australian node to be incorrect. The other major issue is linguistic diffusion, which is prevalent in Australia and creates problems for the comparison of Australian languages. These topics will be the focus of the discussion that follows.

4.2 The Classification of Australian Languages

The two most well-known classifications of Australian languages are a typological classification done by Capell (1956) and a genetic classification by Hale, O'Grady and Wurm (1966). In Capell's typological classification, he distinguishes suffixing and prefixing languages, where the former group uses suffixes exclusively and the latter has prefixes as well as suffixes. The prefixing languages form a geographical bloc which is the area north of a line running from Dampier

Land in Western Australia to the western coast of the Gulf of Carpentaria. The suffixing languages cover the remaining four-fifths of the continent, including the northeast corner of Arnhem Land (Blake 1990:435-436). In Hale, O'Grady and Wurm's genetic classification, a large subgrouping, the Pama-Nyungan language family, is recognized. Other languages outside this family are seen as forming another 26 phylic families (in Wurm's 1972 revision).

Interestingly enough, Capell's suffixing languages are essentially the Pama-Nyungan languages in Hale, O'Grady and Wurm's classification; the prefixing languages are languages which constitute the other 26 families.

A strong objection to Hale, O'Grady and Wurm's genetic classification comes from Dixon (1980:226) who considers the Pama-Nyungan and non-Pama-Nyungan classification to be typological (or areal), like Capell's. His argument is that the subgrouping is not based on shared innovations and subsequent divergence and that only vocabulary comparisons are considered. However, works done on Australian comparative linguistics after this preliminary classification do support the hypothesis of a Pama-Nyungan subgrouping. Since then, O'Grady has reconstructed many more proto-forms for the Pama-Nyungan group. Alpher (1990) provides reconstruction of Pama-Nyungan verbal morphology. The work of Blake (1977, 1988, 1990) in reconstructing case systems and pronouns of Pama-Nyungan and non-Pama-Nyungan languages provides very strong supporting evidence. Even Dixon himself has provided evidence. He has reconstructed some grammatical features that he claims to be proto-Australian, but most of them are reflected only among the Pama-Nyungan languages. More detailed discussions of these works appear in the next section.

4.2.1 Comparative Works Supporting a Pama-Nyungan Subgrouping

The debate rests on whether there should be a subgrouping of Pama-Nyungan versus non-Pama-Nyungan language families. I will start my arguments for this classification with a consideration of Dixon's distinction between a typological and a genetic classification. To Dixon, a genetic classification must involve "the uncovering of systematic phonological and morphological correspondences, putting forward a hypothesis concerning structural features of the proto-language, and showing the regular ways in which each modern language has developed from the proto-system (1980:251)". The uncovering of systematic phonological correspondences has been achieved in O'Grady's work over the years which has led to the reconstruction of many proto-Pama-Nyungan roots. In fact, as discussed in Chapter 2 and 3 there is a phonological conservatism in the descent of many modern Pama-Nyungan languages which makes phonological correspondences among these languages straightforward (O'Grady 1990g:455). Systematic morphological correspondences are provided by Blake (1977) in the reconstruction of Pama-Nyungan case systems. Hale's (1964) reconstruction of the initial dropping languages from Cape York peninsula provides another systematic change that has taken place. At the same time, these supposed "unAustralian" languages are identified as not only Australian but also Pama-Nyungan. Dixon (1980:193) praises Hale's work on these initial dropping languages as "one of the most spectacular achievements of Australian historical linguistics". Alpher's (1990) comparison of inflected verb forms gives insights into Pama-Nyungan morphological reconstruction as well. On the other hand, Dixon's own reconstruction of supposed proto-Australian verbal conjugations, is assigned to "an origin (proto-Australian) much earlier than the evidence warrants" (Evans 1988:94). His reconstruction of proto-Australian nominal case

markers and pronouns suffers from the same problem, that is, only the non-prefixing languages i.e., Pama-Nyungan languages, were consulted. However, these reconstructions of Dixon's are an important contribution to Australian comparative linguistics.

O'Grady (1990f:209) describes the search for proto-Pama-Nyungan roots so far as revealing only "the tip of the lexical iceberg". His estimate is that the roster of proto-Pama-Nyungan and sub-proto-Pama-Nyungan reconstructions (meaning reconstructions at levels below proto-Pama-Nyungan) will run to a four-digit figure, probably over two thousand. This figure would make Pama-Nyungan comparable to families such as Austronesian, Indo-European, and Algonkian in so far as "the breadth and depth of coverage of the ancestral lexicon" are concerned.

Drawing from varying numbers of languages within Pama-Nyungan, from as few as two to as many as thirty, O'Grady (1990d, f) provides reconstructions of forms with initial ***m**, ***j**, ***k**, and ***pa** in Pama-Nyungan. He has also been systematically doing further lexical comparisons among Pama-Nyungan languages. Many cognate sets compiled from languages that are geographically far apart constitute very strong evidence for a genetic relationship.

O'Grady's (1966) reconstruction of proto-Ngayarda phonology uncovers a number of sound changes that took place in this subgroup and particularly in Yindjibarndi.

Hendrie (1990) has reconstructed 96 proto-Pama-Nyungan roots with initial apical consonants from nine geographically spread-out languages. Based on twenty geographically widespread Pama-Nyungan languages, Fitzgerald (1991) has reconstructed 168 initial ***ng** forms in proto-Pama-Nyungan and sub-proto-Pama-Nyungan. Most of them are reconstructed at the Pama-Nyungan level. Based on the same 20 languages, and focusing only on initial ***w** forms, I have reconstructed 101 proto-Pama-Nyungan roots and 91 sub-proto-Pama-Nyungan

roots (see Chapter 5). The comparison of these proto-Pama-Nyungan roots with forms in the lexicons of non-Pama-Nyungan languages will be the next stage of work to determine the role these reconstructions play within the Australian language phylum as a whole. If there are very few or no true cognates found in languages of the non-Pama-Nyungan families, these reconstructions will be uniquely Pama-Nyungan and can serve as proof of the existence of a Pama-Nyungan language family.

Alpher (1990) gives reconstructions of certain inflected verb forms in proto-Pama-Nyungan. He follows the heuristic assumption that sound change is regular and phonologically conditioned in his application of the comparative method. The most significant aspect of his work is his comparison of the inflectional endings together with verb stems in modern Pama-Nyungan languages. His concern is that "reconstructing endings alone, disembodied from stems, gives no confidence that the result is in fact a proto-paradigm" (Alpher 1990:167). This is especially important because verb roots fall into different conjugation classes. For example, a root can take a certain past tense form and a certain imperative form. A root that takes a different form in the past tense will also take a different form in the imperative (Dixon 1980:279). Examples (O'Grady, p.c.) follow:

Western Desert	**patja+rnu**	*bite+PAST*
	patja+la	*bite+IMPERATIVE*
	nya+ngu	*see+PAST*
	nya+wa	*see+IMPERATIVE*

Alpher's comparisons are mostly limited to Pama-Nyungan. He does find a few reconstructions that are attested in non-Pama-Nyungan languages. The aim and end results, according to Alpher, do "support the findings of Evans (1986) and Blake (1988) that Pama-Nyungan languages comprise a genetic subgroup

within the larger Australian phylum" (1990:166).

In the same work, Alpher points out two questionable theoretical assumptions held by Dixon (1980). One is "an extreme position on the nonregularity of phonological change, which is held to be conditioned by the semantic nature of inflections ([Dixon] 1980:412) and by the presence of inflectional morpheme boundaries". Alpher takes this position to be incompatible with the neogrammarian theory of the regularity of sound change and at the same time going against "certain important and very commonsense varieties of generativist theory". As a result, this position "licenses all kinds of mischief". The other concerns the degree to which borrowing can be held responsible for lexical replacement in Australia. This point is discussed further in the next section concerning Dixon's 50% equilibrium hypothesis.

Evans (1988:91) sees Blake's work, "Redefining Pama-Nyungan" (1988), as a landmark in Australian historical linguistics. The redefined Pama-Nyungan appears as a "much more promising candidate for a genuine mid-level genetic subgroup, clearly distinct from typological and areal groupings" (Evans 1988:91). Blake (1988:3) points out that lexical comparison can establish genetic distance and in particular, Pama-Nyungan is shown to form a homogeneous group in comparison with the other mainland languages. The pieces of evidence that Blake provides are the following:

1. The comparison of function words: the basis of this practice is that "functions are peculiar to particular languages" and "function roots are relatively unborrowable".

   Cognate reflexes for case markers (Blake 1977) constitute part of his evidence for the genetic relatedness of the Pama-Nyungan languages. He finds that a number of the non-Pama-Nyungan languages lack these cases. If the Pama-Nyungan and non-Pama-Nyungan languages are ultimately

related, then a change such as the loss of case markers in the non-Pama-Nyungan languages would seem to increase the genetic distance between the two groups.

2. A comparison of pronoun roots (Blake 1988): in view of the intensive lexical and grammatical diffusion in Australia, the comparison of pronouns is considered to be more accurate than the lexicon in establishing linguistic genealogy. Blake points out that even in Heath's (1981) study of an extreme case of lexical diffusion in northeast Arnhem Land, there is no significant borrowing of pronouns. The languages Blake considers are from the northeastern corner of the Northern Territory and the northwestern corner of Queensland.

The results of Blake's comparison make necessary some amendments to Hale, O'Grady and Wurm's classification. They are:

1. Yanyuwa, which was earlier classified as non-Pama-Nyungan, is now seen genetically as a Pama-Nyungan language.

2. The Tangkic languages, which were counted by Hale, O'Grady and Wurm as Pama-Nyungan, should be reclassified as non-Pama-Nyungan.

3. Garawa and Wanyi should be counted as Pama-Nyungan languages.

On the whole, the genetic unity of Pama-Nyungan languages is recognized by Blake. It is only at the level of Pama-Nyungan and non-Pama-Nyungan that he has made amendments. Evans (1988) also provides evidence for the genetic significance of Pama-Nyungan. He provides evidence for a distinctive phonological change shared by all and only the Pama-Nyungan languages. The change he proposes is the laminalization of initial **d-** and **n-** to **DH-** and **NH-**. This laminalization isogloss almost corresponds to isoglosses for other innovations

unique to Pama-Nyungan languages. Hence, this constitutes more support for a Pama-Nyungan family. The non-Pama-Nyungan languages i.e. the northern languages, form a "residue group". The pronoun systems and the presence of initial apicals are archaic retentions of the northern languages as opposed to the Pama-Nyungan ones.

Evans and Jones, after reviewing various comparative works on Australian languages, give the innovations that Pama-Nyungan has made (1991:9). They are: " to have shed prefixing verbal morphology, abandoned noun class prefixes, developed a substantially new set of pronouns and case forms, forged a distinctive set of verb 'conjugation markers' by analogically reshaping its inherited verbal paradigm, and laminalized initial [apical] consonants". Evan and Jones also see something in common with the proposals concerning non-Pama-Nyungan languages, that is, they all point to a considerable time-depth for the complicated verbal and nominal prefixing morphology in each reconstructed group. This renders Dixon's view that the prefixing typology is a recent areal development untenable.

4.2.2 Linguistic Diffusion in Australia

The phenomenon of intensive areal linguistic diffusion in Australia is noted by many researchers. For reasons of social or cultural factors such as death tabooing, bilingualism, multi–lingualism and intertribal marriages, linguistic diffusion is pervasive. Death tabooing is said to apply in every part of Australia. After a person's death, his or her name is not to be spoken for some time (Dixon 1980:28). Any vocabulary item that is similar in form to the banned name will be tabooed as well. This causes some vocabulary changes in Australian languages, for a synonym might be used to replace the tabooed word, or a newly coined compound might become the substitute instead. More often, it might

be replaced by a word borrowed from a neighbouring tribe. Dixon sees death tabooing as a significant force in lexical replacement, and thus a cause of vocabulary change in Australian languages. Alpher and Nash (1982:4-5), however, checked through material available and found that tabooing has only a minimal effect on vocabulary change and that the nature of replacement is temporary.

Heath points out that particular demographic factors characteristic of Australian Aboriginal societies make diffusion greater in Australia than in almost any part of the world (1979:396). By demographic factors he means, in this particular context, the frequency of direct contact between people from different language groups due to the influence of the complex of environmental and social-structural phenomena (1979:401). Contact between neighboring language groups can be intimate or minimal. Environmental features that can restrain contact include mountain ranges, bodies of water, and areas where there are not enough food supplies, for example, in the central desert.

There are also nondemographic cultural factors. Heath describes a crude dichotomy of assimilatory versus dissimilatory forces. With the former, we find certain instances of language/dialect convergence taking place at an accelerated rate when two groups have socio-cultural motives for manifesting their solidarity or structural equivalence. With the latter, languages and dialects can undergo divergence when convergence is blocked, for example, by tribal division.

O'Grady (1990g:469) has encountered a type of dissimilatory force which causes divergence. He points out that there could be conscious manipulation of word shapes involved. For example, PPN ***rawa** descends in Garadjarri as **rawarri** *dead*. The feeling grows that the accretion of **-rri** is part of a conscious drive on the part of Garadjarri speakers toward creating greater differentiation between Garadjarri and neighbouring languages. Such innovations may have first arisen in the context of language use by the initiated, who would have been concerned to keep certain knowledge secret (Alkire, p.c.).

Similarly, the semantic flip-flop whereby PPN ***yu+ng** *give* > GYA **yu.nga+l** *send* and PPN ***jAya+** *send* > GYA **taya** (IMPERATIVE) *give!* may also be a result of conscious manipulation (O'Grady, p.c.).

Heath discusses further a whole series of effects which these nondemographic diffusional pressures have on aspects of linguistic structure. The main point is that diffusion is greater between Australian languages than between Indo-European languages or between languages in other well-known language families (1979:405).

Heath has produced a study of linguistic diffusion in eastern Arnhem Land. There, the Yuulngu group, which is a member of the vast Pama-Nyungan family, is isolated in the northeastern corner of the area and in contact over a broad area with non-Pama-Nyungan languages. Thus, an interesting situation has arisen.

Looking at a map of this area suggests close contact between two genetically related non-Pama-Nyungan languages: Ngandi and Nunggubuyu. However, in recent times the Ngandi-speaking people have been interacting socially with people speaking Ritharngu, which is a Pama-Nyungan language. As a result, Ngandi shares nearly 50 percent of nominal and verbal stems with Ritharngu. Only a few shared items between the two can be attributed to independent retention of Proto-Australian items. As a sister language of Ngandi, Nunggubuyu, however, does not share as much vocabulary with Ngandi. What Heath wants to show is that Australia is not "a glotto-chronologist's paradise, and that genetic classification based primarily on quantification of lexical (or other) synchronic sharings are unlikely to bear fruit (1979:406)". At first glance, this comment seems so strong as to preclude efforts at the lexical comparison of Australian languages. However, we should note that what has taken place for Ngandi may not apply to every corner of Australia. As to the dichotomy of assimilatory versus dissimilatory forces, Heath says that more often the latter prevail. So far, there is not a diffusional pattern that is attested as being general to all the

Australian languages. A look at another pair of neighbouring languages in this same area, Nunggubuyu and Warndarang (the latter belongs to a different non-Pama-Nyungan family than Nunggubuyu does), will illustrate another aspect of diffusional phenomena in Australia. Lexical diffusion between the two languages is said to have been insubstantial and has been almost nonexistent for verbs. Even among just four neighbouring languages– Ngandi, Nunggubuyu, Ritharngu and Warndarang, there is no set pattern between each pair – namely, between Ngandi and Ritharngu, and between Nunggubuyu and Warndarang. The point to make here is that no generalization about diffusion covers the whole continent. The facts are different in each of the cases studied. Heath (1979:400) proposes that diffussional studies can be conducted in several different areas on the continent and different results should turn up. The areas he suggests are: (a), the Arandic speech area together with the area where Warlbiri, Warramungu and Djingili are spoken. (b), the area of the Western Desert group. (c), Cape York Peninsula.

However, Dixon (1980:254-255) imagines more regularity. He says that "if, in Australia, two rather different languages come into contiguity, they will borrow back and forth until the proportion of common lexemes gradually rises, and eventually makes up about 50 per cent (in practice 40-60 per cent) of each language's total vocabulary". In Hale, O'Grady and Wurm's classification, the phenomenon of diffusion has been considered. The two conditions noted as exceptions to the criteria for classification with cognate density are: one, when the existence of a dialect chain is strongly indicated; and two, when borrowing between two languages is demonstrated (1966:25). With the expressed goal of doing one thing at a time and doing it well, this team had to complete the task of arriving at a preliminary genetic grouping of Australian languages with full concentration on lexical evidence. They later encouraged more detailed work leading to possible revision and refinement of the classification (O'Grady and

Klokeid 1969:311).

Dixon's hypothesis has another focus. He says, "if one tribe splits into two new tribes, each will taboo and replace words independently, and the percentage of common vocabulary will steadily drop until it reaches the 50 per cent 'equilibrium level' " (1980:255). He further concludes that if any two Australian languages have been in contact for a sufficiently long period, their vocabularies will be expected to have 40-60 per cent identical or closely similar forms. His example involves a comparison of the two neighbouring languages Warrgamay and Nyawaygi, from north-east Queensland. The two languages have 44 per cent common or closely similar vocabulary on a standard 100-word list and 48 per cent on a fuller 500-item count. In examining Dixon's equilibrium hypothesis, Alpher and Nash (1982:4) have found three aspects needing closer examination:

1. Observation of particular instances of replacement.

2. Observation of replacement rates in Australia.

3. Observation of the proportion of shared vocabulary between neighbouring languages in "equilibrium".

"Instances of replacement" refers to death tabooing, as mentioned above. This phenomenon has caused some linguists to think that the lexical retention rate is very low in Australia, and therefore, it is another reason to question Hale, O'Grady and Wurm's classification. However, an example is provided by Hale and O'Grady to show that this is not the case. They used a test list for Parnkalla from 1960 and checked it against a vocabulary published by Schürmann in 1844. The two lists turned out to show almost total agreement of lexical items. The few disagreements may well have been because they were looking at two different dialects of the same language (O'Grady, Voegelin, and Voegelin 1966:26). Alpher and Nash give a further example provided by Haviland, who has been able to

make a comparison across 200 years - the longest period possible for Australia. Haviland makes a detailed comparison of Cook and Bank's 1770 list of Guugu-Yimidhirr with the recorded data of the modern time. Haviland found that the retention rate for Guugu-Yimidhirr over this period is 98 per cent, which would extrapolate to 90 per cent per millennium, whereas glottochronologists hypothesize an 86 per cent per millennium retention rate (the figure 86% is from Bynon (1977:269)).

A simple comparison between Gawurna's and Yaralde's 100-item basic wordlists (based on the Swadesh 100-item wordlist as revised by O'Grady) is conducted below to see whether the percentage of vocabularies shared reach the 40-60 percent "equilibrium" level. Both languages are in South Australia and are geographically in contiguity. The cognates found are listed below (all letters are capitalized to remind the reader that both languages were recorded before the advent of phonemic theory):

	Yaralde	Gawurna	English Gloss
1.	KELE	KADLI	*dog*
2.	KUNAR	KUDNA	*faeces*
3.	PERAR	BIRRI	*fingernail*
4.	MARI, MAROWI	MARRA	*hand*
5.	NGAPE	NGAI, NGATTO	*I*
6.	KANGKIN	KARNKE+	*laugh*
7.	TORE, TORENGK	TĀ	*mouth*
8.	NAKKIN	NAKKO, NANGA	*see*
9.	TALLANGGE	TADLANYA	*tongue*
10.	PULLATYE	PURLAITYE	*two*
11.	NGANGGE	NGANNA	*who*
12.	NGUNE	NINNA, NINDO	*you,(sg.)*

The above twelve pairs are surely cognates. There are another five pairs that are possible cognates. For example, words such as **NGUMPURA** in Yaralde

and **NGAMMI** in Gawurna both mean *breast of female.* However, it is a question of whether Yaralde **-MP-** corresponds to Gawurna **-MM-** (presumably **-m-**).

In the above comparison, the two neighbouring languages share only 12 per cent of the 100 basic words. The figure of 12 per cent is certainly a lot lower than the 40-60 per cent Dixon's hypothesis would predict for languages which are geographical neighbours. However, it is not clear how long Yaralde and Gawurna were in contact. Dixon has an account of a Yaralde legend which describes how the tribe used to live further up the Murray River (its mouth is at Lake Alexandrina in South Australia and it extends up to Mildura in Victoria and beyond) and eventually moved down the river until they reached the coast and settled there. Therefore it is not a good test for Dixon's hypothesis. On the other hand, it also shows one aspect of the difficulties involved when doing a diffusion study. As Johnson (1990:420) points out, it is now almost impossible to determine former sociolinguistic patterns because of the massive changes in Aboriginal life that have taken place since the European invasion.

O'Grady's (1959) study of the effects of the spread of circumcision and subincision on languages in Western Australia offers yet another perspective concerning Gawurna and Yaralde. The people of Yaralde did not acquire this ritual as the people of Gawurna did. On top of this, the fact that Yaralde had moved from the north, which is detected from their legendary account by Dixon, indicates that there is a more distant linguistic relationship than what the geographical proximity between the two languages shows.

As Alpher and Nash (1982) have suggested, two languages that share a very low percentage of cognates may have been neighbours for a long time. They also point out that if O'Grady's lexicostatistical classification shows nothing else, it at least gives numerous instances of adjacent languages that shared less than 40 per cent or more than 60 per cent common vocabulary. For example, between

Mara and Yanyuwa, the two adjacent Western Gulf languages, only 2 per cent of sharing is calculated. In addition, O'Grady and Klokeid (1969) have shown 90 per cent for the Western Desert dialects Pintjantjatjara and Yankuntjarra. The above cases are enough to disprove the "equilibrium" hypothesis from either direction, whether there was convergence or divergence.

I will state again at this point that the phenomenon of linguistic diffusion has not been fully studied and the situations outlined above cannot be considered general in every part of the Australian continent. This is true up to the most recent research done by Johnson (1990:419-420). He feels that although the kind of linguistic diffusion found in western Cape York "has been more prevalent elsewhere than is generally recognized", a claim that this situation is general to Aboriginal Australia still cannot be made. After all, as Johnson concludes, if only some of the language groups under study changed their geographical relationship every five hundred years or so, repeated diffusion caused by small scale migration would "scramble the fine genetic details beyond recovery" (1990:431-432). It is relationships of the intermediate levels among the languages in question that are hard to establish, whereas a broad genetic relationship is fortunately obvious. In other words, a subgrouping into Pama-Nyungan and non-Pama-Nyungan languages is not likely to be threatened by the factors enumerated by Johnson. Eventually, in cases where diffusion has taken place and blurred the evidence for genetic relationships, we would just have to "work directly from present-day languages to proto-languages without the comfort of any intermediate levels" (Johnson 1990:432). Linguistic diffusion in Australia affects low level subgrouping to a large extent, but it should not impose problems on a high level subgrouping in a family tree where the splits between Pama-Nyungan and the other 26 language families has taken place.

On the other hand, Harvey (1991:15) seems to think that diffusion did not operate to the extent of obscuring genetic affiliations.

Heath (1981:356) does further analysis in his more recent work on linguistic diffusion in eastern Arnhem Land. He suggests that a more flexible approach than the traditional lexicostatistics should be adopted when dealing with languages from areas where intensive lexical diffusion has taken place. Interestingly, Hale, O'Grady and Wurm had already identified a language group in this area, Yuulngu, as belonging to Pama-Nyungan before Heath's study. The intense diffusion between the Pama-Nyungan languages and the non-Pama-Nyungan languages of this enclave have not prevented Hale, O'Grady and Wurm from identifying their genetic relationship. According to Alpher and Nash, the three-man team's "estimates of the fraction of lexical replacement that is attributable to borrowing, and estimated equilibrium rate that follows from this, are low enough to suggest that lexicostatistics, as a rough-and-ready method of language subgrouping, can proceed without undue concern for the effects of borrowing". Also, there is always the possibility that one or more languages may be misclassified by this rough-and-ready method. However, the subgrouping of Pama-Nyungan languages as a family is supported by the specific research conducted in their study.

O'Grady (1990b:1-10) has conducted an experiment which is inspired by Anttila's direct comparison of German and Russian. What Anttila (1989, 1972) has worked out is that "German and Russian are plausibly relatable on the basis of contemporary evidence only"(O'Grady cites Anttila). With the same approach in mind, O'Grady claims to find a similarly plausible relationship between Wadjuk, which is located in the southwest of Australia, and Umpila, which is on Cape York Peninsula in the extreme northeast. He does this even when burdened with four disadvantages (which turned out not to be crippling) (O'Grady 1990a:xiii):

1. "wide geographical separation;"

2. Wadjuk was transcribed in the "pre-phonemic" notation of the 19th century;

3. "the sparseness of the available Umpila lexicon, which consists of no more than one thousand entries;" and

4. "we scrupulously avoid consulting data from close relatives of either Umpila or Wadjuk."

O'Grady is able to find over fifty highly plausible cognate pairs of elements. Among them, nominal case-marking suffixes, pronouns, names of body parts and terms for basic life functions are included. This result reassures us of the genetic relationship between the two languages. O'Grady points out that if more complete dictionaries of both languages were to be available, many more cognates would turn up. The same type of comparison could have been conducted with other languages to show a comparable amount of evidence for genetic relationship. By the comparison of languages that are far apart, the problem of diffusion is greatly lessened.

Once a relationship between a pair like the above is established in Australia, more languages from the intervening linguistic and geographical space can be selected to provide further evidence for Pama-Nyungan as the "largest coherent linguistic genetic construct in Australia".

4.3 Conclusion

In this chapter, two main issues that have developed in Australian comparative linguistics are discussed: the validity of a Pama-Nyungan subgroup within the Australian language phylum and the effects of diffusion on comparative work in Australia. The evidence supporting Pama-Nyungan – real language data – counts for more than this or that linguist's opinion. Hock (1986:42) makes the

following comment:

> ...linguists...are not simply playing around with changes and imposing their own view on history. Rather, it is the history of the language and its development which imposes the solution on the linguist.

Though further research centering on the relationship between the Pama-Nyungan and non-Pama-Nyungan languages needs to be pursued, a genetic unity such as Pama-Nyungan is well supported with data and analysis provided by Alpher, Blake, Dixon, Evans, Fitzgerald, Hale, Hendrie and O'Grady.

Chapter 5

Cognate Sets

5.1 Cognate Sets

W1 **PPN *wA**

GAW **WĀ** *where*; NYU **wa** *where, what*; DIY **wa.rda** *where.*

W2 **PEPN *waaja**

UMP **waatha**; WMK **waath**; GYA **waja**; DYI **waja** *crow.*

Hale (1976c:59) reconstructs ***waaja** *crow* for Proto–Middle–Paman.

W3 **PPN *waaja+**

WLB **waji.li** *running*; PIN **waji.l+pa** *one who desires another location...*; BAY **waji.rti** *road, path*; UMP **waatha+** *go, walk*; BGU **waja** *to go, to come, to walk*, **waja.na** *to walk about.*

There is less certainty concerning the inclusion of the WLB, PIN and BAY forms since they are nouns. /**li**/ in WLB **waji.li** is not found in other languages; therefore, it must be an accretion which was added later to the end of the root.

Residue: GUP **wätjwatj.tju+n** *pull in (anchor or fishing line) thinking of someone and they arrive.* There is more doubt concerning this item, since relating it to the other forms will need more imagination and above all, background knowledge.

W4 **Proto-Nyungar *waji**

NYU **wej** *emu*; WJK **WIDJI** *emu; a dragon fly.*

O'Grady (1990c:14) cites the following set, which illustrates a phonological parallel: Proto-Nyungar ***kapi**: NYU **kep**; WJK **GABBI/KYPBI** *water.*

The WJK form **WIDJI** is taken to be the result of vocalic assimilation where the first vowel is assimilated to the second. Curr's (1886:10) record of two other forms from nearby dialects are support for the reconstruction of ***waji**. These two forms are **WADJIE** *emu* from Newcastle and **WAGEE** *emu* from Mount Stirling.

W5 **PEPN *waaka+**

WMK **waak.ang+an** *go up, climb 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).*

W6 **PEPN *waki+**

YAO **waki+na** *shake (self)*; **waki+ya+na** *shake (object)*; PIT **waki.li** *shake.*

Residue: DIY **waka.ri** *break.* This form is included in the residue since shaking some things has the potential of breaking them. This potential: actual relationship is found elsewhere, for another example, see PPN ***wAna.**

W7 **PPN *wAku**

NYA W **waku.jirti** *shoulder*; NYA S **waku.jarta** *upper arm*; WLB **waku** *upper arm, wing, front leg, foreleg*; PIN **waku** *the arm from the wrist to the shoulder, right side or hand, also upper arm muscle both right and left*; BAY **waku.ny** *armpit*; GYA **waku.y** *arm*; **waku.mpa** *spreading branches of tree; biceps or upper arm.*

It should be noted that a capitalized first vowel such as **-A-** in the reconstruction indicates uncertainty concerning its length.

Fitzgerald (1991:60) has included the GYA form **waku.mpa** *spreading branches of tree; biceps or upper arm* under the reconstruction of PPN ***ngAkVl.** WLB **ngawa.rra** *running water, flood*; GYA **wawu.paja** *river*; GID **ngawka.y** *upper reaches of creek* are some of the items that she has included. She claims to see the relationship between body parts and natural features in her recon-

struction. The rationale is that the meaning of *arm* is extended to *branch* and *river*. This corroboration is supported by DYI **karrkal** *upper arm (where it joins the body), creek (where it joins a major river)* (Fitzgerald (1991:61) cites Dixon (1980:110)), and by Maung **i-mawurr** *a man's arm*, **u-mawurr** *arm of a river*, and finally **ma-mawurr** *arm of a tree, branch* (Fitzgerald cites Capell and Hinch (1970:47)).

W8 **PNYY *wAku**

GAW **WAKO** *spider*; GUP **waku.luŋgul** *dew, fog, mist, spider, cloud.*

W9 **PNY *wakV**

WLB **waku.rlu** *headhair*; **waku.rnji** *armband*; PIN **waku.rl.ji** *arm band made of human hair from a dying son ...*; BAY **waka.ri** *hairbelt, human hair to tie around arm in initiation*, **waka.rti** *hair string.*

W10 **PPN *wakV+**

NYA W **waki** *through, in the midst*; NYA S **waki+ya-(n)** *go across*; WMK **waka.n(ang)** *via that route*; GUP **waka.la.ma** *crawl*; DIY **waka.ra** *come.*

These items hold a medium degree of plausibility. They may be related to PEPN ***waaka+**.

W11 **PEPN *wakV+**

UMP **waku** *axe, steel*; YIM **waki+l** *cut*; BAA **waka** *to cut, to chop, to strip (a canoe)*, **waka.ka** *tomahawk, stone axe.*

W12 **PEPN *wAkV**

WMK **waak.am** *thorny vine*; GYA **wanga.y** *a fruit bearing vine...* ; GID **waku.y** *vine.*

-ng- in GYA for ***-k-** is not expected here.

W13 **PPN *wAla+**

NYA W **wala.ni** *a turning back*, **wala.ni+ji+** *to return, to put back into its place*, NYA S **wala+(rn)** *return*, DYI **wala.ka+y** *return*, WEM **walə.ja** *to come near, approach*, **walə.ju.wa** *to come very close.*

The WEM forms are slightly less plausible as cognates because of the semantic differences. The PPN root is reconstructed as ***wAla+** since the suffixes from NYA W, DYI and WEM all differ.

W14 **PNY *wala**

WJK **WAL.DJ.A** *very large dark brown mountain-eagle...* ; PIN **wala.wala** *...a type of eagle...* .

-DJ- in WJK could perhaps be an incretion.

W15 **PDN *wala**

NYA W **wala.rri.ny** *past, by the side of*; PIN **wala** *quickly, fast*, **wala.wala** *very quickly* ... .

A **-rri** stem accretion in NYA turns up often, hence, two fossilized morpheme boundaries are inserted.

Residue: WJK **WALLA.RRA** *carelessly, without looking* may be related to the above set of cognates since carelessness may invoke quick actions or quick actions may result in carelessness.

W16 **PP *walka(n)**

UMP **walki** *stingray barb*; WMK **walk** *spear type, long barb, stingray barb or nail from any big stingray*; GYA **walkan** *diamond fish, devil ray.*

Fitzgerald (1991:65) argues that these items should be from a root ***ngAlkV(n)** in PP. Her basis is the DYI item: **ngalka+l** *poke with stick.* She considers that the WMK item provides the link, because one of its meanings is *spear type* and *spearing* is an intensive method of *poking with a stick.*

Residue: YIM **walpuulpul** *sharp winged stingray*; GYA **wapul-wapul** *small stingray spotted.* These items will be relatable if a **p:k** correspondence can be established.

W17 **PPN *walma+**

GUP **walma** *go out, come out, rise (sun or moon)*; YIM **walmaa** *rise, get up, sprout*; **walaa** *imperative of* **walmaa**, *Excl. look out, watch out, beware, get up*; DYI **walma+y** *arise, get up.*

The dropping of **-m-** in the imperative form of YIM cannot yet be explained.

Residue: UMP **kalma** *come, arrive* may be related. In NYA W, there is **tama+rna** *to arrive, arise*, which would explain the connection among *come, arrive and arise.* However, how initial ***w** is changed into **k-** in UMP is not clear.

W18 **PP *waalngka+**

YIM **waalngka+l** *be hanging, hang*; GYA **walngka+l** *to hang, to float...* ; YDN **walngka+l** *float (in water), glide (through air).*

It is possible that PPN ***wAly+**, PEPN ***walpa+**, and PP ***waalngka+** are ultimately interrelated.

W19 **PEPN *walpa+**

BGU **walpa.ma** *to hang (trans.)*; GID **walpa+** *to hang, to suspend.*

Note again that this root may be related to PP ***waalngka+** and PPN ***wAly+**.

W20 **PNY *walparra**

NYA W **walparra** *spear-thrower*; BAY **walparra** *spear.*

Residue: WMK **walk** *spear type.* Another possible example of a **p-k** putative correspondence is listed under PP ***walki.**

W21 **PPN *waltV**

GAW **WÃLTU** *nape, neck, every space between two things, or by what they are separated, line, stripe, row*; WJK **WALLA.K-YONGA** *...to share, to divide*, **WALLU/WAULLU** *...an interval or open space between two points or objects...* ; WMK **wal.path+an** *smoodge, neck, caress.*

The above set is of a medium degree of plausibility.

Hendrie (1990:40) reconstructs PNPN ***tilting**. The set of cognats he lists includes GAW **TILTI** *cherry* where **-LT-** corresponds to **-l-** in the others. In the above set, this correspondence is seen as well.

Residue: YIM **walmpa** *division, separation, divider, something intervening, bridge...* .

W22 **PNY *walu+**

NYA W **walu+** *stretch*; WJK **WAL.B.U.L** *stretching or reaching over ....*

The **-B-** in WJK **WALBUL** may be a case of stem incretion.

W23 **PEPN *walu**

YAO **walu** *snake, brown*; YIM **wala.ngkar** *death adder*; DYI **wal.k.u.y** *brown snake.*

Residue: WLB **walya.walya** *brown, death adder.*

W24 **PP *walu**

UMP **walu** *cheek*; WMK **wal** *jaw, cheek area*, **wal.mant** *cheek*; YIM **walu** *side, temple, side of face...* ; GYA **walu** *face*; YDN **walu** *side of head above ear, side of hill.*

W25 **PPN *walV+**

WJK **WALLE** *to cry, to shed tears, to wail*; NYU **wali.ny** *crying, weeping*; WMK **wala.ngenyan+an** *cry.*

This set of putative cognates contains two items from the southwest and one from the northeast of the Australian continent. With the tremendous geographical separation, they serve as good vindication of the link between the Pamic languages and the Nyungic languages.

W26 **PPN *wAlVng**

NYA W, S **wal.p.urra** *wide*; YIM **waalaal** *wide*; GID **walung** *wide*.

If the **-p-** in the first item can be seen as a case of incretion, it can be related to the latter two items. YIM and GID are two of the four languages (UMP and WMK are the other two) that preserve ancestral vowel length; the first vowel in the reconstruction is a capitalized **-A-** because of the disagreement between the first vowels in the YIM and the GID form. GID is diagnostic for final **m** and **ng**, and this is why the reconstruction has a final **-ng**.

W27 **PPN *wAly+**

NYA W **waly** *hanging down*; BAA **waly+mala** *to dangle, to hang free*.

This set constitutes excellent, watertight evidence for the link between languages of the east and the west on the Australian continent. Also, this set may be related to PEPN ***walpa+** and PP ***waalngka+**.

W28 **PNY *walya**

NYA W **walya.ka** *leaf, foliage, tea leaves*; NYU **walya.ly** *lungs, lights*; WJK **WAL-YAL** *the lungs ...* ; BAY **walha.rti** *leaf*.

O'Grady (1991f:253) suggests the connection between *leaf* and *lungs* with the following cognate set: Bandjima **walha.rn** *leaf*; Ngarluma **walha.rn** *lungs*; Kurrama **watha.rn** *leaf, lungs* (< proto-Ngayarda ***walha.rn** < PNY ***walya** *leaf*). These items seem to be related to the above PNY ***walya** reflexes.

In Mandarin Chinese, the connection between lungs and leaves is very straightforward. The units for counting or naming for lobes of lungs are unmistakably leaves. In Japanese, the same kanji characters are used for lobes of lungs as for leaves which is pronounced as **haiyuo**.

Residue: DYI **walngka.mu** *lung.* The phonology for this item is a question. BAA **walya.ra** *plant, a bush used in making humpies.*

W29 **PPN *wama**

NYA W **wamu.lu** *a native fruit similar to the tomato*; PIN **wama.jurraja** *delicacy...* ; WJK **WAUMI.L+YÃR** *a white, sweet substance...* , WMK **may wum** ... *a sweet food...*, (**may** *food*); **wom** *wax taken from wild honey bee's nest, used for making firestick, stone axes, ceremonial bands and canoes.*

Residue: WLB **pama** *delicacy.*

W30 **PEPN *wAma**

PIT **wama**; DIY **wama** *carpet snake.*

These forms are possibly related to PPN ***wama.**

W31 **PEPN *waampa**

WMK **waampa.r** *whirlwind*; BAA **wampa+yartu** *wind coming from the east and northeast.*

In this reconstruction, WMK is taken to be diagnostic of ancestral vowel length.

W32 **PPN *wAmpi+**

GAW **WAMPI** *wing of a large bird, for instance, an eagle*; BAA **wampi+** *to fly*, **wampi+nya** *to blow away, to dispel.*

W33 **PPN *wAmpV**

NYA W **wampu** *wrong, mistaken, in error, confused*; NYA S **wampu.rr** *everything mixed up*; PIN **wampa** *ignorant...* ; BAY **wampu** *bad, wrong*; BGU **wampa** *deaf, to be lost*, **wampa.l+ma** *to lose, to forget.*

Residue: WJK **WAUMMA.RĂP** *giddy, confused*, **WAUMMA.RAP.BI+N** *straying, bewildered.* It seems plausible that as a result of another **P** appearing in accretion, the ***p** after -**MM**- was lost.

W34 **PDN *wamulu**

WLB **wamulu** *downy substance for decoration...* ; PIN **wamulu** *soft, young feathers from eagle or hawk, used in ceremonies...* .

Borrowing is a distinct possibility between WLB and PIN which are geographically close.

W35 **PPN *wamV**

PIN **wamu.mpu** *together*; YIM **wami+l** *find, visit, come close to, meet, get together, be found.*

Due to the large geographical separation between the above two languages, this pair of cognates is very encouraging.

W36 **PPN *wAna**

NYA W **wana+rna** *to spread (of fire)*; NYA S **wana+rn** *burn out*; WEM **wana.p** *fire, firewood*; BAA **wanta+** *to burn (intr), to light a fire.*

Residue: WLB **wanta** *sun, hot weather, summer*; BAY **wanma.ri** *summer.*

W37 **PPN *wana**

NYA W **warnu** *digging stick*; PIN **wana** *women's digging stick*; NYU **wan** *digging stick*; WJK **WANNA** *...women's digging stick...* ; GID **wan.k.aa.li** *long stick used for pole-vaulting*; DIY **wana** *digging stick.*

There is slight doubt over the meaning of the GID item; **-k-** is possibly an incretion. The above cognate set is probably related to PEPN ***wAna.**

Evan and Jones (1991:19) deems this cognate set as one of the artifact terms that proto-Pama-Nyungan had at the time of its expansion. There are many more modern languages that have this term. Its widespread indicates a deep

time depth.

W38 **PDN *wana**

NYA W **wana.ngka** *whirlwind*; PIN **wana.nga.ra** *very strong boisterous whirlwind...* .

W39 **PEPN *wAna**

WEM **wan** *boomerang*, BAA **wana** *boomerang, a fighting boomerang of the non-returning kind.*

W40 **PPN *wAngal**

NYA S **wangal** *wind*; GYA **wangal**; YDN **wangal**; DYI **wangal**; BGU **wangal** *boomerang.*

Residue: GUP **waŋgal.kal** *wind*; YIM **wangi** *boomerang.*

The semantic association between *wind* and *boomerang* is confirmed by the following words from south-east Queensland: Bidyara **burany** (V. or N.) *beating boomerangs to make music*; Kabi-Kabi **buran** *wind* (Holmer 1983:148-149).

O'Grady suggests a semantic correlation among the following lines: *wind, boomerang, light, lungs, NEGTIVE, a lie.* The basis of this suggestion is:

1. Curr (1887:158) has a mention of the Kabi word **BORAN** *boomerang* being closely resembling to **BURAN** *wind.* The modern transcription is **burany** *boomerang*, **buran** *wind* (Holmer 1983:148-149).
2. DYI **ngara** *couldn't*; WRG **ngaara** *can't do (despite trying)*; PNK **NGARRA** *error, deception, falsehood...*; VAS **NGERA** *to lie*; ADN **ngara+wangka+**; WEM **ngarə.mangala** *to tell lies* (O'Grady 1987:518-520). The above cognates show that there is semantic association between *negativity* and *lie* since "to lie" is to "assert something with *negative* truth value".
3. NYA **wanga.l** *wind*; NYA **wanga.rr** *light (weight)*; NYA W **wanga.wanga** *lungs*; NGI **wangaa.y** *NEGATIVE* (this item is from Donaldson, 1980:292) (O'Grady 1991f:253).

In this set, the correlation among *wind*, *light (weight)*, *lungs*, and *NEGATIVE* is seen.

4. NYA W **parrka** *leaf, foliage; tea*; NYA S **parrka** *leaf*; PIN **parrka** *leaf*; a haplologised form from MRN **parra.l.ka** *light in weight*; WJK **BARGA.R** *light, thin, as a covering*; GID treblet **parrkaa.n** *thin, underweight (metaph mean, hard-hearted)*, **parrkee.n** *lung*, **parrka.n** *boomerang* (< lightweight (artifact)) (O'Grady 1991f:253).

The above sets show the semantic association between *NEGATIVE, wind, lungs, lightweight, leaf, boomerang* and ultimately relate them to notions of negativity within *to lie, not.* The association between *leaf* and *lungs* can be seen further in PNY ***walya**. This is another semantic connection that awaits explanation; like the other connections found by O'Grady, the reader is referred to his 1991 work on"Pama-Nyungan Semantics".

W41 **PPN *wAng(k)a+**

GUP **waŋga.punuma** *cook by placing food on fire or boiling*; BAA **wanga** *to cook.*

W42 **PPN *wangka+**

NYA S **wangka.ly.pa** *talk too much*; WLB **wangka+** *to speak, to make the sound characteristic of one's ilk or species, to blow – of wind*; PIN **wangka+ngu** *to talk, humans, animals...*; GAW **WĀNGGA+NDI** *to speak, say, utter*; NYU **wangki.ny** *telling, talking about*; WJK **WAN-GOW** *to speak, to talk*; BAY **wangka+** *speak, say, tell*; GUP **waŋa** *talk, speak, tell*; PIT **wangka** *sing*; GID **wang.pa+** *to bark (of dog, dingo)*; DIY **wangka+** *sing.*

Residue: DYI **walngka** *breath*; BGU **wanka** *chest.*

W43 **PPN *wAngka$_1$**

WJK **WAN-GO** *the upper part of the arm from the elbow to the shoulder; a species of snake particularly liked by the aborigines*; BAA **wangka.ra** *upper arm near shoulder.*

We are not very sure about the plausibility of this cognation. If the WJK form is /**wangku**/, then cognation can be established. On the other hand,

O'Grady (1966) has a reconstruction of Proto-Ngayarda ***warnku** *elbow.* The hyphen in WJK **WAN-GO** suggests **/wa(r)nku/**. This would make the BAA form non-cognate.

W44 **PPN *wAngka$_2$**

GUP **waŋga.ny** *one*, BGU **wangka.ra** *one.*

W45 **PNYY *wAngka**

BAY **wangka.la** *spirit, ghost*; GUP **waŋa.rr** *totemic ancestors, culture heroes, beings who originally inhabited the earth then changed themselves into animals, birds, etc.*

So far, we have encountered a few instances of the reflection of PPN ***ngk*** as **ŋ** in GUP. PPN ***wangka+** > GUP **waŋa** is another example. O'Grady (1990d:90) has encountered this correspondence of * **ngk** > **ŋ**. It is seen in the following cognate set: NYA S **jara.ngki+R+** *to look carefully at, examine*; NYA W **jara.ngka+R+** *to pore over, observe closely, e.g. carvings; to peer at, and recognise (a person); to read (a book, letter)*; PIN **jara.ngka+L+** (Close Relationship Speech) *to see*; GUP **dhara.ŋa+n** *to recognise, to understand.*

O'Grady (1990g:468) has a reconstruction of PPN ***nyujan** which presents the semantic association between *dead, spirit* and *white man.* This comes about "through the widespread early belief that the European newcomers were dead Aboriginal people 'restored to the land of their nativity'"(O'Grady cites Moore 1884, p.20).

Residue: YIM **wangarr** *white man, white devil, spirit of dead man.*

W46 **PPN *wAngV**

NYA S **wanga.la.ngu** *young, single fellows*; PIN **wangu** *a boy from boyhood to initiation*; YDN **wanga.rrI** *prepubescent boy*; PIT **wangi** *younger sibling.*

W47 **PEPN *wAni**

PIT **wani** *corroboree, song*; DIY **wani** *corroboree.*

Linguistic diffusion is suspected in this particular set.

W48 **PDN *waniki**

NYA W **waniki** *string-cross, spider web*; WLB **waniki** *string cross ... .*

Both of the above languages are desert languages; therefore, there is the possibility of linguistic diffusion having taken place.

W49 **PPN *wAnja**

WJK **WĂNJA** *to leave, to quit*; BGU **wantha** *to let go (something not alive).*

W50 **PNY *wanka**

NYA W **wanka** *half-cooked, undercooked*, **wanka.nyu** *alive, living*; NYA S **wanka** *raw, alive*; WLB **wanka** *raw, uncooked*, **wanka.ru** *alive, in good health, whole*; PIN **wanka+rri+ngu** *...raw, not cooked, not ripe...* , **wanka+ka+na** *to become alive, awake*, and **wanka+rnu** *to give life, to awaken, save* ; WJK **WANG-EN** *alive, well in health*; BAY **wanka** *raw, alive.*

W51 **PPN *wA(r)ntV+**

NYA W **warnti+pi+ni** *to let fall, drop*; WLB **wanti+** *to fall*; YDN **wanta+n** *fall down, drop.*

W52 **PEPN *wAntV+**

WMK **waan.am+an** *emerge, come out, go out*; GYA **wanti+l** *to get up, to move out of the way, to come out*; DYI **wanta+l** *hang up, scoop up*; GID **wanti+** *to climb.*

The disagreement of the length of the first vowels in the WMK and GID forms is a question. Fitzgerald (1991:78) includes the WMK item under the reconstruction of PPN ***ngAnV**, where it is antonymic to the following: WLB **ngarna** *groin; entrance hole, opening; base, trunk of plant, tree* and PIT **nganu.pa**

insert; **nganu.pa+li** *enter.*

W53 **PP *wantV**

UMP **wantu.n** *where, where to*; WMK **want.tin** *where.*

Hale (1976b:59) reconstructed proto-Middle-Paman ***wantu** *where* on the basis of data from six Cape York languages. Fitzgerald (1991:77), however, includes the above two items under the reconstruction of PPN ***ngantu.** She believes that Hale's reconstruction indicates that PPN ***ng-** has weakened to proto-Middle-Paman ***w-**.

W54 **PPN *wantV+**

NYA W **wani+nyi** *to remain, stay, stop*, imperative form **wanti+yi**; NYA S **wani+ny** *live, lay, sit, stay*; PIN **wanti+ngu** *to leave, to cease from doing an action, finish*; GAW **WANDE+NDI** *to lie down, dwell, exist, be*, and **WANDI.APPE+NDI** *to make or allow one to lie down, cohabit*; UMP **wana+la** (imper)*leave it*; YAO **wana+na** *leave (it), be*; WMK **want.an** *stop (an activity), leave (someone or something)*; PIT **wanti** *wait*; GID **wana+** *to leave , to be.*

Fitzgerald (1991:91) has reconstructed PPN **ngarra$_2$**, the reflexes of which include the WMK item **want+an.** As mentioned in Chapter 2, this WMK item seems to belong to the reconstruction of PPN ***wantV+** more appropriately.

Residue: DIY **wanki** *settled, staying in one place.*

W55 **PPN *wAnukurtV**

WLB **wanukurdu** *whitewood ...* , PIT **wanhukurta** *whitewood.*

Due to the limited size of the lexicon in the source available for PIT, it is always good to find cognate sets that include words from PIT, which is situated between the Nyungic and the Pamic languages.

W56 **PPN *wAnV+**

PIN **wana+rnu** *to follow*; DIY **wani-** *to track, follow.*

Residue: BGU **wanti.ma** *to track.*

W57 **PPN *wanyja**

NYA W **wanyja** *where*; NYA S **wanyja+rni** *where*; GAW **WÃ, WÃDA** *where*, **WÃDANGKO** *from where, whence*; BAY **wantha+la** *where*, **wantharta** *when*; GUP **wanha, wanha.mala** *where*; YIM **wanhthaa** *where*, **wanhtha-wanhthaalka** *when*; GYA **wanja** *where*, **wanja-wanja** *when*; YDN **wanyja** *where*, **wanyja.ngu.nta** *when.*

Hale (1976b:59) reconstructs PP ***wanyja** based on two Cape York languages, Wik Muminh and Kuuk Thaayore.

This root is probably related to PPN ***wInyja**$_1$.

W58 **PPN *wanyjV**

NYA W **wanyja.rra** *how*; BAY **wantha.ka.la** *how*; GUP **wanha+witjan** *which way*; YIM **wanhtha.rra** *how or how are you*; GYA **wanja.rr** *how, which, how many*, and **wanja.rr.ku** *how*; YDN **wanyju.luy** *how, which way.*

This root is probably related to PPN ***wanyja** ultimately.

W59 **PEPN *waanyjV+**

WMK **waanch+an** *hang up, put up high*; PIT **wanyji+** *get up, arise*; BGU **wanji.ma** *to hang.*

W60 **PPN *wapa+**$_1$

NYA W **wapa.ka+rna** *to leap, to jump, jump over, to be agitated of stomach*; NYA S **wapa.ka+rn** *jump*; WLB **wapa+** *to walk, to move...*, **wapa.l.pa** *searching, seeking...*, **wapi.rdi** *on arrival, on approach of*; PIN **wapa.ti+ngu** *to move very slowly, to go or come very slowly when a person is old or sick*; GAW **WAPPE+NDI** *to make, do, perform*; WJK **WOPPÃT MURRIJO** (No gloss given; but **MURRIJO** is *to move, to go, to walk.*) (O'Grady 1990g:472);

BAY **wapa+** *emerge, come out*; GUP **wap.thu+n** *jump, hop*, **wap.mara+ma** *make jump*; UMP **wa?a** *let's go*; YDN **wapa.r** *a walk*; PIT **wapa.ri** *hunt, gather*; BGU **wapa+** *to hunt*; BAA **wapa+** *to come, to arrive, to come out*, **wapi** *to return, to give back*; DIY **wapa** *go, walk.*

The UMP form is a little doubtful as a cognate because the glottal stop has its source in PP ***p**, ***t**, ***rr**, or ***r**. O'Grady (p.c.) comments that *going* and *jumping* are one and the same thing for some creatures, especially kangaroos.

W61 **PPN *wapa+$_2$**

WLB **wapa.rl.ku** *not looking...* ; PIN **wapa.rl.pa** *V. to be one without a care, N. without a care, or concern...* ; DYI **wapa+l** *look up at*; PIT **wapa** or **wapi** *look for*; GID **wapa+** *to peer, to peep, to spy on.*

The WLB and PIN item can perhaps be antonyms of the others.

W62 **PPN *wapV**

BAY **wapi+rri** *wind*; UMP **wapu** *light, not heavy.*

O'Grady (1990g:458) suggests the following cognate set in which the UMP form is included: PPN ***rapu**: NYA W **rapu** *light in weight*; PIN **rapi** also **rampa.ku** *empty, thin, fragile*; UMP **wapu** *light in weight.* For the semantic correlation between *wind* and *light* see PPN ***wAngal.**

W63 **PEPN *wapVl**

YIM **wapul** *Torres Strait pigeon*; BAA **wampa+warru** *bird: quail*; DIY **wapa.ru** *flock pigeon.*

With a WLB form **ngapil.kiri** *crested pigeon* and the YIM and GYA forms above, Fitzgerald (1991:83) has reconstructed PPN ***ngapVl.**

W64 **PEPN *waara(n)**

YIM **waara** *hip*; BGU **waran** *root, hip.*

W65 **PEPN *wAra**

GYA **warmpi+l** *doubt, not believe, to run someone down*; DIY **wara.wara.pa** *to disparage, run someone down.*

Phonemically, there is a great problem for this set, and yet it is included for reference. Also, O'Grady (p.c.) suggests that syncope in GYA is the most likely explanation, although more evidence is needed. The processes he assumes are the following: ***wara** > **wara+pi+l** > **wara+mpi+l** (pre-nasalization) > **war.mpi+l**. Fitzgerald (1991:90) has listed this GYA form under the reconstruction of PPN ***ngArpa**, and this seems plausible as well.

W66 **PDN *wara**

NYA W **wara.rr** *standing, stationary*; NYA S **wara.rr+karra+** *stand*; PIN **wara+rri+ngu** *Long, used of a person stretching himself, one who is standing upright.*

These forms might be related to PNY ***waraLy**.

W67 **PPN *wArra**

GAW **WARRA.WONDA.KKA** *across, not straight on, to one side*; NYU **wera** *direction across*; BAA **warra** *side, direction...* .

The NYU item is a demonstration of another case of the merger of **-r-** and **-rr-**.

W68 **PNY *waraLy**

WLB **waraly.waraly+(y)irra+** *to hang it up* (**yirra+** *to put it, place it)*; PIN **waraly+ngara+ngu** *to be hanging, used of garments, spider webs or other objects hanging from trees*, **waraly+ju+nu** *to hang up*; NYU **wariny** *hanging, hanging up.*

The third consonant ***-L-** in the reconstruction indicates uncertainty. O'Grady (p.c.) suggests that the second vowel in NYU could have been fronted by the following **-ny-**.

W69 **PPN *wArlV**

WLB **warl.p.a** *wind, turbulent air*, PIN **warl.p.a** *wind*; WJK **WARH-RA.L** *whirlwind*; BAA **warlu** *storm, fierce hail-storm, cyclone.*

O'Grady (p.c.) suggests that borrowing has possibly taken place between WLB and PIN.

Residue: PIT **warlu.wa** *windbreak.*

W70 **PPN *wArla**

PIN **waarla** *house (used only of an European construction)*; DIY **warli** *house*, **warla** *nest.*

The DIY items are a doublet, as suggested by O'Grady (p.c.). An example of a doublet from English is *shirt*, which is a native word, and *skirt* which is from Old Norse. O'Grady (p.c.) has also noted that Australian English has borrowed the above item as *wurley*, meaning *aboriginal dwelling.*

W71 **PNY *warl(j)a**

WLB **warla.wurru** *eaglehawk, wedge-tailed hawk*; PIN **warla.wurru** *eagle type*; NYU **warli.j** *eaglehawk*; BAY **warla.wurru** *eaglehawk.*

O'Grady (p.c.) suggests that borrowing might account for the identical shapes of the WLB, PIN and BAY forms.

O'Grady (1990c:14) gives a cognate set that might involve the same root as the above: PPN ***wArla** (> Nhanda **warla** *egg*; Yoda-Yoda **wala** *water*; PIN **warli.ly.warli.lya** *hailstones about the size of a golf ball*).

In NYU, there is a metathesis rule, for example, ***ngarnka > ngarnak.** Likewise, **warlij** could have been derived from **warlja** in two steps. One is fronting of the second vowel **-a** to **-i**, and the other is metathesis between **i** and **j**; i.e., **warlij < warlji < warlja.**

W72 **PEPN *wA(r)lkV**

GYA **walka.rr** *black sand goanna*; PIT **warlku.ja** *sand goanna.*

Residue: UMP **wali** *lizard sp.*; YIM **walmpa.rra** *iguana living on sand hill.*

If YIM has a prenasalized **-p-**, and a **-k-** to **-p-** correspondence is assumed, then its form can be one of the cognates.

W73 **PPN *wArlti**

PIN **warlti** *a distasteful term for a lazy person...* ; PIT **warli.rimaru** *lazy.*

W74 **PNY *warlV**

WLB **warl.k.u.rr+ma+** *to bark – of dog*; PIN **warl.k.u.rr+pa** *barking noise made by dogs, to make a barking noise*; GAW **WARRU.WARRU.KA+NDI** *to bark*, **WARRA** *throat*; NYU **warla.k** *throat.*

Fitzgerald (1991:130) encounters a similar semantic association between *growl of (dog)* and *throat.* It can be seen in the following cognates: WLB **nguurr.pa** *larynx, throat*, **nguurr+ma** *to gulp, breathe heavily*, **nguurr+pirlti+pirlti** *snorer*; BGU **ngurra+ngurra.n** *dog*; GID **nguurr** *growl (of dog).*

W75 **PNYY *warna**

NYA W **wana.yiti** (sic) *water, rain*; S **warna.yiti** *water*, **warna.n** *debris left after flood*; WLB **warna** *1. poisonous snake as brown snake, 2. snake as opposed to legged reptiles*; PIN **warna.n+pa** *a rivulet in the sand, the path made by flowing water in sand or earth*, **warna.mpi** *water snake, mythical snake which is at all large water places*, **wana.n.ju+nu** (sic) *used of water running down a creek bed*; BAY **warna.n** *rain*, **warna.mankura** *water serpent*; GUP **wan.b.a.na** *rain.*

O'Grady (p.c.) points out that water serpents are associated with water; hence the above can be treated as one set.

W76 **PNY *warni+**

GAW **WORNE+NDI** *to fall, be born*; NYU **wərn** *dead, disembodied*; WJK **WANNI+** *to die*, **WANNI+GA** *dead*; BAY **warni+y+** *fall, come off.*

The NYU and WJK forms are probably antonyms to the other two.

W77 **PPN *warnku**

PIN **yanku** *sleep*; YIM **warngku** *sleep, sleeping*; GYA **warngku** *sleep, days.*

O'Grady (p.c., 1990d:82) points out that, phonologically speaking, the above items are partly paralleled by the following set: PPN ***marnku**: WLB **marnku.rr.pa** *several, a few (the paucal number, lesser plural...)*; PIN **marnku.rr+pa** *a few, three or more*; GAW **MARNKU.TYE** (apparently /marnku.ji/) *three*; BAY **marnku.rr** *three*; UMP **mangku** *four*, although "the implied rule of PPN ***rn** > **ng/–k** in UMP requires validation".

W78 **PPN *warr**

NYA W **warrwarr** *tattered, torn*; WMK **warrrrr** *tearing noise of mateiral (e.g. in a fight).*

This is an excellent PPN cognate set in many respects: phonology, semantics and wide geographical separation.

W79 **PPN *wArra$_1$**

WJK **WARRA.N** *yam...* ; GYA **warra.puka** *species of wild yam.*

W80 **PPN *wArra$_2$**

NYA W **warra.rn** *tribal country*; NYA S **warra.rn** *open country*; WLB **warra.ja** *... uncovered, out in the open*; PIN **warra.rn+pa** *swamp, with or without water, applies also to an open area*; GYA **warr.mp.a** *uncovered or exposed place, in the open.*

In GYA, incretion of **-p-** possibly took place and prenasalization subsequently followed.

W81 **PPN *warram**

NYA W **warra** *rotten*; GAW **WÃRRA.NGKO** *ill, sick*; NYU **wara** *bad, dirty, no good, etc.* ; WJK **WARRA** *bad*; YDN **warra** *done the wrong way*; PIT **warrru.wa** *rotten*; BGU **warr.k.u** *bad, to be bad*; GID **warram** *left-hand side or direction*; WEM **warə+ngin** *(your) left hand*; DIY **warra.nganyju** *left-handed, left hand*

O'Grady (p.c.) notes that NYU has shifted *rr to r in many forms. Also, he cites other evidence that shows *left: bad* semantic association, for example NYA S **panyja.rr** *jealous*, Kala Lagaw Ya **BODA.I** *left*, **BOEDHA.Y GETH** *left hand* (> 'bad/weak hand'-**GETH** *hand* > ***kaju**) (O'Grady 1990f:239).

Fitzgerald (1991:84) reconstructs PPN ***ngaram** for the following items: GUP **ŋaram.biya** *hand*; GID **warram** *left hand side or direction*; WEM **warə+ngin** *(your) left hand.* However, she notes that the GID and WEM form could very well be reflexes of PPN ***warram.**

W82 **PNY *warrari**

NYA W **warrayi** *fly*; NYA S **warrayi** *fly*; BAY **warrari** *fly.*

***r** > **y** is a frequent sound shift. O'Grady gives an example of this shift in NYA: **rirra** is sometimes heard as **yirra** *tooth.* A similar shift is seen in WLB as well. In WLB, **warri+** and **wayi+** both mean *to seek, look for it.*

O'Grady suggests relating the notion of *bad* to *fly (the insect)* since flies can make meat go rotten. In that case, this set of cognates may be related to PPN ***warram.**

Residue: YIM **waarri+l** *Vtrans. fly (a kite or an airplane).*

W83 **PPN *wArri+**

WLB **warri+** or **wayi+** *to seek it, look for it*; GAW **WARRE+NDI** *to look for, to seek*; GYA **warri.nga+l** *to watch, to see where someone is going.*

Residue: GYA **warr.mp.a+punga+l** *find*; DYI **warray.ma+l** *find, meet.*

W84 **PPN *wArri**

GAW **WARRI** *wind*; BAA **warri+** *to move about, to vibrate.*

Though the BAA form is a verb, it is included for now because of the semantic association between *whirlwind* and wind that *vibrates.*

W85 **PPN *warring**

NYA W **warri**; S **warri** *cold*; PIN **warri** *N. cold, winter season*; GID **warring** *cold*, **warring+kiny** *winter, cold season.*

In Chapter 2, I mention that GID is the language that retains the ancestral final nasal. This is why a final **ng** is reconstructed. The whole set is very encouraging in reassuring us of the relatedness between the languages from the west and the east.

W86 **PPN *warrma**

NYA W **warrma.la** *revenge or fighting expedition*, **warrmal+ka+** *to hunt game*; PIN **warrma.rla** *a group of men, specifically a group on a revenge expedition*; YIM **warrma** *corroboree, party, dance*; GYA **warrma** *type of tribal dance, corroboree.*

Residue: WJK **WAR-BUM** *to kill, to slay.* [1]

W87 **PPN *wArru**

NYU **wera.parnti** *young man*; GYA **warru** *young man.*

The tendency toward the merger of **rr** with **r** in NYU makes for greater plausibility in this set. The /e/ must remain a mystery for the time being.

W88 **PPN *wArrV**

NYA W **warri.ny.kuru** *red kangaroo*; NYA S **warri.ny.kura** *plain kangaroo*; WLB **warru** *rock wallaby*; PIN **warru** *wallaby*; NYU **wara.ng** *wallaby, whistling*

[1] O'Grady (1981b:277, p.c.) gives another root that has the meaning of *play, dance*: **PPN *kArri+Y**: NYA **karri+y+** *STATIVE (in verb forms)*; WLB **karri+y+** *to stand*; UMP **aaʔi** *to play, dance*; WMK **keeʔ+** *to play, dance*; Bakanha **kaʔi+** *to play, dance.* The residue for this set is WEM **wari.pa** *to dance* which Fitzgerald (1991:103) has included as a reflex of PPN ***ngArV+**$_1$.

wallaby; WJK **WARRU** *a female kangaroo...* ; PIT **warra.putha** *kangaroo.*

It should be noted that we can not be sure about the NYU form, and its single **r** was probably a **rr** before the influence of English, as commented on by O'Grady. As for the WJK form, we have doubts anyway since the nature of the **r** sound cannot be determined.

W89 **PNYY *warrV**

NYA W **warru** *day*; GUP **warri.karramany** *sun time.*

Residue: YIM **wari.kan** *moon.*

W90 **PPN *wArrV+$_1$**

NYA W **warru.pi+** *to go away, depart, to pull out*; NYA S **warr.pu+ji+n** *set off, start walking*; WLB **warru+ya+** *to go around*, **warru+** *around*; GAW **WARRU** *out, outside...* ; GUP **warr.yu+n** *pull, push, lead the way*; DIY **warra.ra** *leave (behind).*

Residue: NYU **wort** *excl. go, let's go.*

W91 **PPN *wArrV+$_2$**

GUP **warra.warra.tj** *galloping*; GYA **warri+** *to run, to fly*; YDN **warra.pal** *flying squirrel*; DYI **warri+y** *Vintr. fly.*

W92 **PNYY *warrV**

NYA W **warru.ly** *green grass, foliage*; NYA S **warra.pa** *green feed, tall grass*; GUP **warra.g.a** *cycad.*

The -g- in the GUP form is taken to be an incretion.

W93 **PPN *wArrVngkV+l**

GAW **WÃRRANGKO** *ill, sick*; GYA **warrngka+l** *to groan, suffer because of pain and/or sickness.*

W94 **PPN *wARku+**

GUP **warku'.yu+n** *annoy, tease, worry, mock, deride, exorcise or drive away (funeral rite)*; BGU **warrku pintanima** *to annoy.*

Although there is excellent semantic agreement, the difference between **r** and **rr** leaves us in doubt which is what the **-*R-** in the reconstruction is indicating.

W95 **PDN *waru**

NYA W **waru.ku.karri+nyi** *to stand by a fire to get warm*; PIN **waru** *fire, firewood, heat*; GAW **WARDU** *warm.*

There is doubt concerning the GAW form because of **-RD-**, yet it is included since we cannot be sure about the transcription from the 19th century anyway.

W96 **PNYY *waru**

WLB **waru.rru** *night*; GUP **waru.muk** *dark*, **waru.muk+thirri** *become dark*, **waru.munha** *dark.*

W97 **PPN *wArV+**

WLB **wara.parnpi+** *to sing out, to call*; GAW **WARRA.BA+NDI** *to speak, converse*, **WARRA.YUNGO+NDI** *to give word, to tell, inform*; WJK **WARRA.NG-ÃN** *to tell, to relate, to bid, to desire*; GYA **wari** *sign, call, message which is sent by telepathy*; DIY **warra.pa** *to relate, to tell (a story), to read.*

There is reason for doubt concerning the DIY form because of the **-rr-**.

W98 **PPN *warV+$_1$**

WLB **wari+ya+** *to climb*; WMK **war mat+an** *go up.*

W99 **PPN *warV+$_2$**

PIN **wari.ny.kati+ngu** *to come from a distance*; BAY **wara.li+** *go*; UMP **wa?a+li+** *let's go*; WEM **wara+** *to walk, to come.*

In the UMP form, we cannot be sure about what the glottal stop has come from. According to O'Grady (1976:65), glottal stop in UMP can reflect proto-Pamic ***p**, ***r**, ***rr**, or ***t**. Cognates from other Pamic languages are needed to resolve this question.

W100 **PPN *warVy**

PIN **wara** *long*; BAY **waru.waru** *for a long time*; GID **warraay** *long time.*

The long **a** in the second syllable of the GID form is thought to be a relatively recent development in GID (Dixon 1980); Pama-Nyungan proto-forms will normally have long vowels only in the first syllable. GID seems to have merged **r** and **rr**, therefore, the **rr** in the GID form is not considered a problem.

Fitzgerald (1991:90) assumes that the GID form **warraay** is a reflex of the root PPN ***ngarra**$_1$. NYA W **ngarra.kuny** *always, everyday, for all times* and GAW **NGARRA.RLU.KKO** *many times, often* are two of the forms that she includes.

W101 **PDN *wawi**

WLB **wawi.rri** *plains kangaroo*; PIN **wawi.rri** *used of very large, fully grown, mature hill and plain kangaroo or euro*; GAW **WAUWE** *female kangaroo.*

W102 **PPN *wawu**

WJK **WAU.G** *soul, spirit, breath,* **WAU.GAR** *breath, breathing*; YIM **wawu** *breath, insides, soul, center, want*; GYA **wawu** *the spirit of a man, breath.*

Residue: NYA W **kawu** *body.* If this is a rare case of initial-strengthening, it may have echoes in the following set: NYA W **kula** *by and by*; PIN, UMP **ngula** *by and by* (O'Grady, p.c.).

W103 **PPN *wAya+**

WJK **WEYA.NG** *to mix*; WMK **waa?+enj+an** *get mixed up with another group... .*

Confirmation of an intervocalic y dropping rule in WMK is needed.

W104 **PEPN *waya+**

UMP **way?a.waya** *fast, quickly, hurry up*; YDN **way.mp.a+n** *fly*; GID **wayaa+** *to fly.*

O'Grady (p.c.) sees the YDN form having a **-p-** incretion with subsequent prenasalization. The second long vowel **-aa** in GID is a recent development rather than ancestral.

Fitzgerald (1991:132) has a parallel ?–insertion; as seen in the following set: PPN ***nguya(l)**: BAY **nguyu** *raw (of fruit)*; UMP **nguy?ul.u** *raw (of meat)*; WMK **ngoyal** *raw.*

W105 **PPN *wayi**

WLB **wayi+npa** *(interjection), hey you (sg.)*; GUP **way** *interjection like 'hey'*, **way'+yu+n** *call out 'way'*; UMP **way** *interjection used to attract attention from afar.*

Fitzgerald (1991:109) includes the UMP form under the reconstruction of PPN ***ngayi**. The BAA form **ngayi** *hey, hello! exclamation used to greet someone or to demand attention* makes her cognate set seem plausible.

W106 **PNY *wayi**

NYA W **wayi** *question introducer (yes, no)*; BAY **wayi** *question introducer.*

W107 **PPN *waayju+(l)**

UMP **aaji+ya** *cook, burn*; GYA **wayju+l** *to cook food, to burn something*; YDN **waju+l** Vtr. *cook, burn*; PIT **waji** Vtr. *cook*, **wathi.la** *make fire*; BAA **wanja+** *to cook in ashes*; DIY **wayi** *cook.*

BAA **wanja** appears to be a prenasalised form of the root.

Hale (1976a:27) reconstructs a root ***yaaji+** *to burn* for Proto-Northern-Paman, which O'Grady (p.c.) relates to forms in YIM, NYA-S and PIN going back to PPN ***yaaju+**. The latter, in turn, is probably obscurely related to ***waayju+**.

Residue: NYA W **wayaliny** *a small tree, the leaves of which yield ash suitable for cooking tobaccos*; PIN **yuju.rn.pu+ngu** *to cook in the ground* .

W108 **PNY *wayu**

PIN **wayu.rta** *possum*; BAY **wayu.rra** *possum.*

W109 **PNY *wayu+**

WLB **wayi.pi** *creeper sp...* ; PIN **wayi+rnu** *to creep, on all fours to avoid detection*; BAY **wayu.rnta+y+** *to crawl.*

W110 **PPN *wija+**

NYA W **winyja.rr+pi+** *to sneeze*; YIM **yija.wurr** *sneeze.*

There are no **wi-** forms in YIM. Ancestral ***wi** has apparently changed into **yi-** in this language. The NYA W form has undergone prenasalization and stem accretion of **rr**.

W111 **PDN *wiji**

NYA W **wiji.ny** *narrow*, **wiji** *sinew, string*; GAW **WIDNI** *sinew, strings...*

The two items from NYA W seem to be a doublet, like **skirt** and **shirt** in English.

W112 **PPN *wɪji(ny)**

WLB **wiji.ni** *sore*; PIT **withi** *sore, wound*; BGU **withiny** *a sore.*

W113 **PPN *wiijil**

NYA S **wiji+rn** *take someone*; YIM **yiithil** *companion, company...* .

W114 **PPN *wiju**

WLB **wiji.kari** *another's, someone else's, belonging to another*; YIM **yithu** *stranger, person from North*; BGU **withu** *whiteman.*

The semantic association between *whiteman* and *stranger* should be straightforward since white people have arrived in Australia only recently. Also a stranger is from another tribe, which should connect the meanings *another's* and *stranger.*

The second vowel in WLB is assumed to have assimilated to the first.

Residue: BGU **withany** *stranger.* This form is included by Fitzgerald (1991:110) under the reconstruction of PEPN ***ngija(n)**.

W115 **PEPN *wIjV**

BGU **witha** or **withila** *fat*; WEM **withe.juk** *small, little*; BAA **withu.lu** *all, everything.*

The plausibility of the above set is not high, unless the WEM form is antonymic to the others.

W116 **PPN *wIjV**

GAW **WITO.WITO** *tuft of feathers worn as an ornament by young men on the fore part of the head*; WEM **withə.n** *feather.*

W117 **PP *wika**

UMP **wika.ma+** *lie to, deceive*; WMK **wik** *talk, word, speech...* , **wik maay+an** *tell lies, made up stories* (**maay+an** means *pick up...*).

W118 **PEPN *wIka+**

YDN **wiki+l** *makes (a person) feel satiated and sick*; WEM **wika** *to be hungry, to starve, to die.*

These words are probably antonyms of each other.

Fitzgerald (1991:111) has WMK **ngeek.an** *greedy person who finishes up all the food* as a cognate of the above WEM form and her reconstruction PPN ***ngIka** may seem more plausible.

W119 **PPN *wIka+**

PIN **wika.rru** *The party who takes the older boy on his journey to the place where he is to be circumcised. Used to be taken by both men and women*; UMP **wiika+** *follow him*; GID **wikaa+** *to send in pursuit of.*

Residue: YIM **wuku+rr** *to follow, chase...* ; GYA **wuku.rri+l** *to follow.*

W120 **PPN *wiikar**

WLB **wiki.ny.pa+ma+** *to taper it, cut it narrow*, **wiki.ny+ma+** *to taper it – as in shaping a woomera*; YIM **yiikaar+damal** *split, split up*; GYA **yika** *little sliver of some thing, as a sliver of glass*, **yika+damal** *to split, as wood*; DIY **wika** *to sharpen.*

W121 **PPN *wiikV**

GAW **WIKA** or **KUYA.WIKA** *fishing net*; UMP **wiiku+ma** *go fishing.*

Making the proto-form a noun seems to make more sense.

W122 **PPN *wIlpa+**

GAW **WILPILPA** *whistling*, **WILPILPAE+NDI** *to whistle*; BAA **wilpa.rtirru** *bird – whistling duck*; DIY **wilpi+** *to whistle.*

Borrowing is not to be excluded as a possibility in this set because of the geographical proximity of the three languages.

W123 **PEPN *wIlpi**

PIT **wilpi** *humpy, hut*; BAA **wilpi** *humpy.*

The considerable geographical separation between the two languages makes a hypothesis of borrowing less attractive.

W124 **PNY *wilura**

PIN **wilura.rra** *west*; BAY **wilura** *west.*

W125 **PNY *wilya**

GAW **WILYA** *foliage, young branches, brushwood*; BAY **wilya.rri** *bean bush.*

W126 **PPN *wIma**

PIN **wiima** *small, used of persons, amounts, and numbers*; PIT **wima** *big.*

These words are probably antonyms of each other.

W127 **PEPN *wIma**

BAA **wimi+** *to play*; DIY **wima** *song, corroboree, ceremony.*

W128 **PPN *wIngku**

WLB **wingki** *wrong, unlawful, wrong attitude*; GAW **WINGKO.WINGKO** *irritable, sensitive, hot, angry*, **WINGKO.WINGKU.RRU** *angry, enraged*; PIT **wingku.ru** *noisy.*

For the PIT item I am in slight doubt because of its difference in meaning. Note, however, that in some Aboriginal communities people become vociferous when angry.

Many WLB items show assimilation of V_2 to V_3, V_2 to V_1 or V_1 to V_2. For example, PPN ***winpa** is reflected as **winpi.ri** *spearwood* in WLB.

W129 **PP *wini+**

UMP **wini+** *frightened, be*, **wini+nyu** *frightened*; YIM **yini.l** *afraid, cowardly, frightened, wild*; GYA **yini.l** *fear*, **yini+yini** or **yinyi.l.ji** *frightened.*

W130 **PPN *winpa+**

WLB **winpi.ri** or **wiinpiri** *spearwood...* ; YIM **yinpa** *four pronged spear*; GYA **yinpa** *fish spear.*

W131 **PPN *wINu**

GUP **winyi.winyi** *bat*; BAA **winuu.li** *bat, a large species of bat.*

The -N- in the reconstruction indicates indeterminacy about the nature of the nasal.

W132 **PDN *winyja**

NYA W **winya** *full (of liquids)*, **winya+ji+ni** *to fill*; NYA S **winya+jarri+** *overflow*, **winya** *full*; WLB **winji+** *to pour it.*

The absence of a stop following **-ny-** in the NYA forms is unexplained. Perhaps, as suggested by O'Grady (p.c.), the stop dropped as in the following : ***+ngka** > NYA, **+nga** *Locative*, and also ***+ngku** > NYA, **+ngu** *to you SG.*

W133 **PPN *wInyja$_1$**

NYU **winyja** *where*; WJK **WINJA.LLA** *where*, **WINGI** *where, whither...* ; PIT **winhtha** *where*; WEM **winja** *where*; BAA **winja.ra** *where*, **winji.ka** *who*; DIY **winhtha** *when.*

These forms are probably related to PPN ***wanyja** *where.*

W134 **PPN *wInyja$_2$**

NYA W **winyja.rrka** *barn or screech owl*; DIY **winhtha** *owl type.*

W135 **PPN *winykung+pa+**

WLB **winy.winy+ma+** *to whistle under one's breath*; GID **winy.kung+pa+** *to whistle.*

O'Grady (p.c) points out that the WLB form shows four developments attested elsewhere: (1) PPN ***+pa+** > **+ma+** (O'Grady 1990f:218); (2) analogic replacement of ***k** with **w**; (3) ***ng** shifting to **ny**; another example of this shift is seen in Hendrie (1990:52) where PPN ***ning** is shifted to **niny** in NYA W. This process is an assimilation of **ng** to **ny** due to the [-bk] feature of the preceding vowel **i**. (4) The second vowel ***u** is assimilated to the first vowel **i**.

W136 **PEPN *wipa**

WMK **wipa.th+an** *make someone angry...* ; PIT **wipi.wipi** *sulky*; BAA **wipa** *hard.*

W137 **PNY *wipu**

NYA S **wipi.ya** *tail feathers of emu*, **wipu** *tail*; PIN **wipi.ya** *emu feathers*, **wipu** *tail*; BAY **wimpi.l** *emu, chick*, **wipi.ri** *long.*

The BAY form has a prenasalized **-p-** and the above items seem to show a doublet in NYA S, PIN and BAY respectively. The semantic association between *tail* and *long* has yet to be demonstrated. This set of cognates is probably related to PDN ***wupV**.

W138 **PNYY *wiri**

WJK **WIRI.L** *slender, wasted, slight, thin*; GUP **wir'.yu.na** *thin.*

The glottal stop in GUP remains unexplained, however, if it is a case of epenthesis, there are four examples provided by Fitzgerald (1991:85). PPN ***ngirriny** > GUP **ŋirr'+yu+n** occurring in **lirra ŋirr'+yu+n** *smile* (**lirra** *tooth*).

W139 **PPN *wiiriny**

NYA W **wiri.rr.pi+ni** *to make a scratch on, scrape, strike it - as match,* **wiriny.pi+ni+** *to light spinifex or grass across wind in order to burn off,* **wirin** *star;* NYA S **wiri.rr** *scratch marks where something has climbed a tree;* PIN **wii.rl+pa** *star;* GUP **wiriny.tju+n** *scrape, shave, plane, smoothe, level;* WEM **wiri.ng** *hot coals.*

O'Grady (1987:521-522) suggests that the reconstruction for the above is ***wiiriny**. Relevant reflexes include some monosyllabic forms in Eastern Pama-Nyungan languages. They are Ngiyambaa **wii**; Gurnditj **winy** *fire, firewood;* Wargamay **wii** *sun;* Dharawal **we** *fire.* He argues that all the forms are etyma of a single proto-Pama-Nyungan root which has to do with the friction of wood rubbed against wood in the generation of fire.

Residue: UMP **wu?a+** *dehusk a root, scratch,* **wu?an.ji** *bushfire,* **wu?an+nga+** *smooth it out, erase - as marks in sand;* DYI **wirngkal** *scrape, scratch;* BAA **wirupi** *plant ... for lighting fire,* **wirap+wirap+mala** *to sparkle.*

W140 **PPN *wIrrka+**

GAW **WIRKA.RE+NDI** *wash one's self;* WEM **wirraka** *to swim;* BAA **wirrka** *to swim.*

W141 **PNY *wirlarra**

NYA W **wilarra** (sic) *new moon, month;* NYA S **wirlarra** *moon;* BAY **wirlarra** *moonlight.*

Borrowing possibly has taken place because of the geographical proximity between NYA and BAY.

W142 **PDN *wirlki**

NYA W **wirlki** *curved, a turning, a curve;* NYA S **wirlki** *turn, head off, bend;* WLB **wirlki+wirlki** *crooked, bent.*

Residue: YIM **yirngal** *stir, wind up, swing around.* ***w-** > **y-** before **-i-** in this form is not a problem. However, more work is needed on the possible shifts of ***rl** to **r** and ***k** to **ng**.

W143 **PPN *wIrlu**

NYA W **wilu.ru** (sic) *stone curlew, the crest of certain birds...* ; NYA S **wirlu.ru** *bird (sp. southern stone curlew)*; NYU **wilu** *curlew*; BAY **wirlu.mayu** *curlew*; GUP **wila** *curlew*; WEM **wil** *curlew, the stone curlew. This is a very widespread word found also in the Western Desert languages*; DIY **wirlu.ru** *curlew.*

W144 **Proto-Nyungar *wirna**

NYU **wirn** *the human spirit, spirits, ghosts of men*; WJK **WINA.TDING** *dead, derived from or connected in some way with WYNA.GA, dead.*

NYU contains many CVC words due to vocalic apocope. PPN root ***maa-mang** > **mam** *father* in NYU is another example.

Residue: NYA S **winyjurr** *spirit.*

W145 **PPN *wIrna**

NYU **wirn+wirn** *weary, worn out (but meaning uncertain)*; WJK **WINDA.NG** *worn out, useless, applied particularly to an old man or woman*; DIY **wirna.wirna.rdi** *tired out, sleepy.*

Residue: PIN **wirnku.wirnku** *a state of deep sleep.* If **-k-** is an infix, the plausibility of cognation is increased.

W146 **PNY *wirnpa+**

NYA W **winpa.l+pi+ni** *to whistle*; NYA S **wirnpa** *whistle*; WLB **wirnpi.rli** *to whistle*; GAW **WINBI.RRA** *whistle, pipe, flute*; BAY **winpi.rri** *whistle.*

These forms are probably related to the PPN root ***wIlpa+**.

W147 **PPN *wIrnpan**

WLB **wirnpi.wirnpi** *long and slender*; DYI **wirrmpan** *thin [skin and bones].*

The DYI form seems to have assimilated **-n-** to bilabial **-p-** and consequently **-m-** appears. The disagreement between the WLB **-r-** and DYI **-rr-** makes cognacy less plausibale.

W148 **PNY *wirnta**

NYA S **wirnta** *prong, spike, tucked into headband or fastened to spear*; GAW **WINDA** *a large spear, thrown with the mere hand.*

W149 **PPN *wirra+**

NYA W, S **wirri+(rn)** *put, place*; YIM **yitha+rr** *put, put down*; GYA **yija.rri+l** *to put.*

O'Grady (p.c., 1987:526) gives another instance of the correspondence between intervocalic **rr** and **th**. In UMP, and YIM, there is **katha+l** *to tie.* Hale (1976b:23) reconstructs **kaja+L** for proto-Pamic. A cognate is found in PIT. It is **karra+** *to tie up.* Also, in Kala Lagaw Ya, the second person plural pronoun has gone from ***nyurra** to ***nyitha** and eventually to modern **NITA/nitha.** There are now at least two cognate sets and one sound change to support this sound correspondence.

Residue: WJK **IJA+** *put*; UMP **ngiija+** *put.*

W150 **PDN *wirrilya**

NYA W **wirrilya** or **wirrilyi** *angry*; PIN **wirrilyi** *N. anger to the point of taking up spears to fight. V. to become angry.*

The third vowels in the second NYA W and PIN forms seem to have undergone assimilation. The possibility of diffusion between the two languages is also high.

W151 **PEPN *wirrpa**

YIM **yirrpi** *tassel, apron belt, string...* ; DIY **wirrpa** *pubic tassel.*

The assumption in this reconstruction is that the second vowel in YIM has undergone assimilation.

W152 **PPN *wIrru**

NYA S **wirru.rntu** *kidney*; BAA **wirru** *kidney*, **wirru+marni** *kidney fat.*

W153 **PNYY *wirru**

NYA W **wirru.n.wirru.n** *rainbow bird*; GUP **wirri.r'.wirri.r** *rainbow bird.*

It is unlikely for recent borrowing to have taken place between NYA and GUP because of the intervention of non-Pama-Nyungan languages. This makes the two forms a probable independent retention of an older term in each language.

Residue: YIM **yirmpal** *rainbow...* ; GYA **yiril** *rainbow.*

W154 **PEPN *wIrrV+**

YDN **wira+n** *be bent, twisted*; PIT **wirrr.k.u** *crooked*; BAA **wirri+ma+** *to wind up, to roll up*; DIY **wirr.k.a** *fissure, cracked ground.*

The PIT and DIY forms are taken to have undergone stem incretion involving **-k-**. For the **-r-** in YDN, see comments under PPN ***wurru**.

W155 **PNYY *wIrti**

NYA W **wirti.rt.kiti+ya+na** *swing the arms in walking*; GUP **wit̲.thu'.wit̲.thu+n** *swing something backwards and forwards.*

Vocalic apocope in GUP seems to be common, **wap.thu+n** *jump, hop* under the reconstruction of PPN ***wapa+**$_1$ is another example.

W156 **PPN *wIrtu**

NYA W **wirtu** *great, large, very, greatly*; NYA S **wirtu** *big*; BAA **wirtu** *old, big, important.*

Residue: DIY **wirti** *all through, long, extended (e.g. night, sandhill).*

W157 **PPN *wIrtu+**

NYA W **wirti.ri.mi+ni** *to drag, to lead (as a horse)*; PIN **witu.rtu kati+ngu** *to lead away carefully so that escape is not possible, to grasp firmly so that object will not drop while carrying*; BAA **wirtu+wirtu+** *to pull out*, **wirtu** *to push, to scrape along.*

The second BAA form seems to have undergone antonymic shift. I assume that the second vowel in NYA W has undergone assimilation.

Residue: WMK **wij+an** *catch, pull, put, take out (e.g. splinter out of hand), drag (e.g. truck out of bog), lead away.*

W158 **PDN *wita**

WLB **wita** *small, little, small child, few, small amount*; **wita+wangu** *large, much* (**+wangu** is a PRIVATIVE suffix); GAW **WITTE** or **WITTE.WITTE** *large, much, quick, very, ably.*

These words apparently stand in antonymic semantic relationship.

W159 **Proto-Northern-Paman *wIya**

UMP **wiiya** *one of several, other*; WMK **winya.m** *one*, **winy** *another.*

Apparently WMK has a prenasalized **-y-**.

W160 **PDN *wiya**

NYA S **wiyi.rr** *complete, finish, everyone, everything*; PIN **wiya+rnu** *to finish, send*, **wiya** *NEGATIVE.*

The second vowel in the NYA S form seems to have assimilated to the first vowel, while **rr** appears frequently as stem accretion.

W161 **PPN *wIya**

WLB **wiya.rr.pa** *piteous, poor fellow, dear, term of affection*; NYU **weya.rn** *frightened, cowed, unfortunate, terror-stricken, poor*; PIT **wiya.rrru** *hard.*

The PIT form seems to be an antonym.

W162 **PEPN *wuja**

YIM **wujii.r** *small bandicoot*; BGU **wuja.la** *bandicoot.*

W163 **PPN *wUjV**

BAY **wuthu.rta+y+** *lie on one's stomach*; BGU **wuja.yi** *to lie down, to camp*; WEM **wuju.p** *stomach, belly.*

The semantic association between *to lie down* and *stomach* can be attributed to that between a body part and a stance verb. O'Grady (1990e:121) discusses the relationship between body parts and verbs of position and locomotion. Fitzgerald (1991:34) finds this relationship to be more general than O'Grady has perceived.

W164 **PEPN *wUka+**

DYI **wuka+l** *give*; WEM **wuka** *to give.*

Fitzgerald (1991:119) has both of these forms listed under the reconstruction of PPN ***ngukV(l)**, where they seem to belong more appropriately with forms such as BAA **nguuka** *to give* and so on.

W165 **PPN *wukal**

NYA W **wuku.rt** *nodding the head as of a fast-walking horse or an emu*; UMP **wukul.ngi+** *to bend down*, WMK **wukal** *neck*; YDN **wukul** *nape.*

The NYA W and UMP forms relate semantically to *neck* in that the neck flexes when one nods or bends down. Fitzgerald (1991:118) lists the WMK form with WLB **nguka.rnu** *throat* and PIN **nguka-rnu** *to swallow* which seems quite reasonable as well. Her reconstruction is PPN ***ngUka.**

of being, to have; YDN **wuna+n** *lie down, sleep, exist*; BGU **wuna** *to lie down.*

O'Grady (1981a:157) reconstructs PPN ***nguna+Y+*** for the same root as above. The Nyungic reflexes can be seen from Fitzgerald's study of initial ***ng** in Pama-Nyungan. They are the following: WLB **nguna+** *to lie, be lying down, to extend horizontally*; PIN **nguna.rn+pa** *arm, branch of tree*; NYU **ngurni.ny** *lying, be lying down.* DIY, though not a Nyungic language, has not weakened initial ***ng** to **w-**. The reflex is **nguna** *arm, wing, branch of tree.* Fitzgerald (1991) argues that the semantic association for *arm* and *lie down* is that between a stance verb and a body part.

W172 **PPN *wuntu+**

WJK **WUNDU+N** *to stare, to wonder, to look at a person in order to recognize him*; UMP **wuntu+** *look for, seek.*

W173 **PP *wunyju+rr**

YIM **wunyju+rr** *blow, fan*; DYI **wunyju.rr.mpuya.l** *blow, puff.*

W174 **PPN *wupa**

NYA W **wupa.jupani** *children, little ones*, **wupa.rtu** *small*; NYA S **wupa.rtu** *small*, **wupa.rtu.pani** *infant, baby*; UMP **wupu.nyu** or **wupu.n.pu.nyu** *children.*

W175 **PDN *wupV**

NYA W **wupi** *emu feathers*; GAW **WOPPA** *feather*, **KARIWOPPA** *emu feather.*

W176 **PDN *wura**

PIN **wuru.lu** *all*; GAW **WORTA.BURRO** *all, the whole.*

Residue: BAY **wurra.yimpa** *all.*

O'Grady (1990g:462) has another example of GAW having **-rt-** where other languages have **-r-**. The GAW reflex for PNYY ***wAri** *tail, penis* is **WORTI** *the tail of an animal.*

W177 **PPN *wurlta**

GAW **WORLTA** *clear, warm, hot*; UMP **wulu** *hot, summer*; YIM **wulu.ng.kurr** *flames, lightning, light*; GYA **wula** *flames.*

Hendrie (1990:40) has a reconstruction PNPN ***tilting**. It is based on the following cognates: NYA S **tili** *flame*, W *firelight*; WLB **rrili** *flame*; PIN **tili** *light, flame*; GAW **TILTI** *cherry*; GID **tilingkirr**. The reconstruction of PPN ***wurlta** is parallel to this.

W178 **PPN *wurnta**

BAY **wurnta+** *cut, blow down (wind)*; UMP **wunta** *wind*; WMK **wunt** *wind.*

W179 **PNY *wurnta**

NYA S **wurnta** *shield*; NYU **wurnta** *shield*; WJK **WUNDA** *a shield.*

W180 **PPN *wUrra+**

NYA W **wurra+rna** *to report, tell, say, to warn, inform*; NYA S **wurra+rn** *to tell*; WEM **wurre.ka** *to speak.*

Residue: BAY **wurrkal** *throat.*

W181 **PPN *wurrang**

GUP **wurr.y.a.ra** *cabbage palm*; GID **wurraang** *leaf.*

Residue: YIM **wuuruy** *soft middle part of palm leaf.*

W182 **PPN *wurrku**

NYA W **wurrku** *sick, ill*; NYA S **wurrku** *pain, sore, sick*; YIM **wurrku** *pain, hurt*, **wurrka+l** *suffer, feel pain.*

W183 **PPN *wurrpa**

GUP **wurrbu+na** *go to sleep*; WMK **wurrp** *nest, bunk, used for putting food on or sleeping*; YDN **wurrmpa** *asleep.*

The YDN form has a prenasalized **-p-**.

W184 **PEPN *wUru**

YDN **wuru** *large river, small slatey-colored snake*; WEM **wur.wur** *blue sky*, **wurə.wurə.tail** *blue.*

The ultimate acceptability of this set will depend on the establishment of the necessary semantic connection.

W185 **PEPN *wuurV+**

YIM **wuurii** *play, dance*; GYA **wuri** *dance, swing, to gamble*; BGU **wura.li** *to play.*

Fitzgerald (1991:130) reconstructs PPN ***nguurV**; the link is from the BAY form **ngura.tharri+yi+** *stage a corroboree, dance.*

W186 **PPN *wurVn**

GAW **WORRA** *sand*; UMP **wurrun.pi** *white sandhill.*

W187 **PPN *wurru**

NYA W **wurru** *wood, timber, tree, clothing, any item made of wood, a thing, something*; PIN **wurru.mpu.ru** *spear type*; YIM **wurr.p.uy** *type of spear for kangaroo or emu*; YDN **wúru** *spear handle.*

Dixon (1980:175) suggests that **r** and **rr** might have been allophones of a single phoneme in pA, **r** occurring initially and **rr** finally. He sees this suggestion to be highly plausible since very few languages outside Australia have more than one rhotic phoneme. Also, it is common for **r** and **rr** to be allophones of one phoneme. Based on this argument, the YDN form is included in the above set for the time being.

W188 **PNYY *wu(r)ta+**

WJK **WURTA.MAR** *to beat, to strike*; GUP **wut.thu+n** *hit.*

W189 **PP *wuympV**

UMP **wuympa.nhu** *fish sp. flathead*; GYA **wuy.u.mpu** *sp. of fish....*

O'Grady (p.c.) feels that the second vowel **-u-** in GYA is epenthetic.

W190 **PNYY *wVngkV**

GAW **WONGGA** *west*; GUP **wuŋ'ku.rr** *west.*

The first vowel is reconstructed as **-V-** because the GAW form, being from a 19th century transcription, cannot tell us the nature of this vowel with accuracy.

W191 **PEPN *wVrrpa**

YDN **wurrpa+n** *look for, search, seek*; GID **wurrpa+** *to hide one's self*; WEM **wirpa+** *to hide oneself.*

The YDN form could be an antonym of the GID form. The WEM form could be a substitution for **wirrpa+** resulting from prolonged contact with English.

W192 **PNY *wVrta**

PIN **wirta.n+pa** *the internal throat*; NYU **wort** *throat.*

There is reason for hesitation concerning the phonological agreement between these forms.

5.2 Conclusion

In this chapter, I cite cognate sets which I have uncovered in this study. Though I give only lexical reconstructions, their significance lies in their expansion of O'Grady's lexical iceberg to include sets with initial *w. A schematic presentation of the possible interrelationships among the twenty witness languages is attempted by O'Grady based on his own study and findings in Hendrie (1990), Fitzgerald (1991) and this study. The family tree model in historical linguistics is followed in the making of this chart. It is inserted in Appendix D.

Chapter 6

Conclusion

This work involved an effort to provide cognates for words with initial w in twenty members of the largest Australian language family – Pama-Nyungan. It was stimulated by a much larger project by G.N. O'Grady to provide cognate sets and reconstructions which will corroborate Hale's thesis that Pama-Nyungan is the largest coherent genetic linguistic construct on the Australian continent.

In the most general sense, this thesis has represented an attempt to show how the historical comparative method can deal with data from Australia. This question shaped Chapter 3, where the basic principles of the historical comparative method were explored and O'Grady's own comparative approach was put into perspective. With the Neogrammarian theory of the regularity of sound change as the starting point, and Anttila's contributing principle of setting up matchings as a preliminary to the establishment of true correspondences, it was shown that the extreme conservatism in the phonologies of many of the descendants of proto-Pama-Nyungan required O'Grady's modifications to the general theory. In addition, some major comparative work, especially at the pan-Australian level, was reviewed and used to illustrate evidence for the subgrouping of Pama-Nyungan and non-Pama-Nyungan languages.

A look into Aboriginal Australian social-historical factors which might affect the comparative picture was also provided. Here, Dixon's hypothesis regarding intensive lexical diffusion was considered and it was concluded that it does not conflict with the type of comparison that I am pursuing.

The cognates, which are determined with strict standards, are, it is hoped,

true cognates for the Pama-Nyungan languages. If cognates are subsequently found in non-Pama-Nyungan languages, then they will contribute to an eventual proto-Australian construct. Most importantly here, these cognates contribute to the confirmation of the Pama-Nyungan family's status as a genetically related subgroup within the larger Australian phylum.

In all this work it is important to consider archaeological and anthropological evidence, including that relating to the Australian Aboriginal world view. This is certainly an important direction for research in the future. More insights will be gained through a joint approach carried out by researchers from different disciplines.

Bibliography

Alpher, Barry, 1990, Some proto-Pama-Nyungan paradigms: a verb in the hand is worth two in the phylum. In O'Grady and Tryon eds., 1990, 155-171.

Alpher, Barry and David Nash, 1982, *Lexical replacement and cognate equilibrium in Australia.* Manuscript.

Anttila, Raimo, 1989 or 1972, *Historical and comparative linguistics.* Philadelphia: John Benjamins.

Austin, Peter, 1981, *A grammar of Diyari, South Australia.* Cambridge: Cambridge University Press.

Baldi, Philip, 1990a, Introduction: the comparative method. In Baldi, P., ed., 1990, 1-13.

———, ed., 1990b, *Linguistic change and reconstruction methodology.* New York: Mouton de Gruyter.

Blake, Barry J., 1977, *Case marking in Australian languages.* Canberra: Australian Institute of Aboriginal Studies. Linguistic series, No. 32.

———, 1979, Pitta-Pitta. In Dixon and Blake, eds., 1979, 182-224.

———, 1988, Redefining Pama-Nyungan: towards the pre-history of Australian languages. In Evans and Johnson, eds., 1988, 1-90.

———, 1990, The significance of pronouns in the history of Australian languages. In Baldi, P., ed., 1990b, 435-450.

Bloomfield, Leonard, 1946, Algonquian. In Osgood,C. *Linguistic structures of native America.* 85-129. New York: The Viking Fund.

Blust, Robert, 1990, Summary report: linguistic change and reconstruction methodology in the Austronesian language family. In Baldi, P., ed., 1990, 133-153.

Breen, J. Gavan, 1973, *Bidyara and Gungabula: grammar and vocabulary.* Linguistic Communications 8. Melbourne: Monash University.

Bynon, Theodora, 1977, *Historical linguistics.* Cambridge: Cambridge University Press.

Capell, Arthur, 1956, *A new approach to Australian linguistics. Oceania.* Linguistic Monographs 1. University of Sydney.

———, 1886, *The Australian Race.* Vol. 4, Melbourne: Government Printer.

Curr, Edward M., 1887, *The Australian race: its origin, languages, customs, place of landing in Australia and the routes by which it spread itself over that continent.* Vol. 3, Melbourne: John Ferres, Government Printer.

Dixon, R.M.W., 1970, Proto-Australian laminals. *Oceanic linguistics.* 9/2, 79–103.

———, 1972, *The Dyirbal language of North Queensland.* Cambridge: Cambridge University Press.

———, 1977 *A grammar of Yidiny.* Cambridge: Cambridge University Press.

———, 1980, *The languages of Australia.* Cambridge: Cambridge University Press.

Dixon, R.M.W. and Barry, J. Blake, eds., 1979, *Handbook of Australian languages.* vol.1. Canberra: ANU Press.

Donaldson, Tamsin, 1980, *Ngiyambaa: the languages of the Wangaaybuwan.* Cambridge: Cambridge University Press.

Douglas, W.H., 1968, *The Aboriginal languages of south-west Australia.* Canberra: Australian Institute of Aboriginal Studies.

———, 1976, *The Aboriginal languages of the south-west of Australia.* Canberra: Australian Institute of Aboriginal Studies. 2nd edition.

Evans, Nicholas, 1988, *Arguments for Pama-Nyungan as a genetic subgroup, with particular reference to initial laminalization.* In Evans and Johnson, eds., 1988, 91-110.

Evans, Nicholas, and Steve Johnson, eds., 1988, *Aboriginal linguistics 1* . Armidale NSW: Department of Linguistics, University of New England.

Evans, Nicholas, and Rhys Jones, 1991, *The cradle of the Pama-Nyungans: some archaeological and linguistic speculations.* A Paper presented at the Arcling Conference in July at Darwin, Australia.

Fitzgerald, Susan, 1991, *Initial *ng in Pama-Nyungan.* M.A. thesis. University of Victoria, British Columbia, Canada.

Geytenbeek, Brian and Helen Geytenbeek, 1971, *Gidabal grammar and dictionary.* Canberra: Australian Institute of Aboriginal Studies.

Haas, Mary R., 1969, *The prehistory of languages.* Paris: Mouton.

Hale, Kenneth, 1964, Classification of Northern Paman languages, Cape York Peninsula, Australia: a research report. *Oceanic Linguistics.* 3/2, 248-265. _____, 1974, *An elementary dictionary of the Warlbiri language.* (mimeo).

_____, 1976a, Phonological developments in particular Northern Paman languages. In Sutton, P. ed., 1976. 7-40.

_____, 1976b, Phonological developments in a northern Paman language: Uradhi. In Sutton, P. ed., 1976, 41-49.

_____, 1976c, Wik reflections of Middle Paman phonology. In Suttern, P. ed., 1976, 50-60.

Hale, Monty, Fred Bradman, Gwen Bucknall and Malcom Brown, 1980, *Nyangumarta dictionary.* Strelley, Western Australia: Strelley Community School.

Hansen, Kenneth C. and Lesley E. Hansen, 1974, *Pintupi dictionary.* Darwin: Summer Institute of Linguistics.

Harvey, Mark, 1991, *The Temporal interpretation of linguistic diversity in the Top End.* A paper presented in the Arcling conference at Darwin Australia, July 1991.

Haviland, John, 1979, Guugu Yimidhirr. In Dixon and Blake eds., 1979, 26-180.

Heath, Jeffrey, 1979, Diffusional linguistics in Australia: problems and prospects. In *Australian linguistic studies.* Wurm S. A. ed., 1979, 395-418.

_____, 1981, *A case of intensive lexical diffusion: Arnhem Land, Australia.* Language, 57/2, 335-367.

Hendrie, Timothy R., 1990, Initial apicals in Pama-Nyungan. in O'Grady and Tryon eds., 1990., 15-77. Also a Master's thesis from the University of Victoria, Victoria, B.C., Canada, 1984.

Hercus, Luise A., 1969, *The language of Victoria: a late survey.* Vol. 1-2, Canberra: Australian National University.

———, 1982, *The Bāgandji language.* Canberra: ANU.

Hershberger, Henry D. and Ruth Hershberger, 1982, eds., *Kuku-Yalanji dictionary.* Darwin: Summer Institute of Linguistics.

Hock, Hans H., 1986, *Principles of historical linguistics.* New York: Mouton de Gruyter.

Holmer, Nils M.,1983, *Linguistic survey of South-Eastern Queensland.* Pacific Linguistics, Series D, No. 54, ANU.

Jeffers, R.J. and Lehiste, I., 1979, *Principles and methods for historical linguistics.* Massachusetts: The MIT Press.

Johnson, Steve, 1990, Social parameters of linguistic change in an unstratified Aboriginal society. In Baldi, P., ed., 1990b, 419-433.

Kilham, Cristine, Mabel Pamulkan, Jennifer Pootchemunka, and Topsy Wolmby, 1986, *Dictionary and source book of the Wik-Mungkan language.* Darwin: Summer Institute of Linguistics (1989 edition).

Lawton, D.W. and Beulah Lowe, n.d., Temporary Gupapuyngu dictionary. Mimeo, Millingimbi.

Laycock, Donald C. and Werner Winter, eds., 1987, *A world of language: papers presented to professor S.A. Wurm on his 65th birthday.* Pacific Linguistics, C-100. Canberra: ANU press.

McConvell, Patrick, 1990, The linguistic prehistory of Australia: opportunities for dialogue with archaeology. In *Australian archaeology.* No. 31, December 1990., 3-27.

McCormack, William C. and Stephen A. Wurm eds., 1978, *Approaches to language: anthropological issues.* Mouton Publishers, The Hague, Paris.

Moore, George Fletcher, 1884, *Diary of ten years eventful life of an early settler in Western Australia.* Nedlands: University of Western Australia. (1978 fascimile edition).

Oates, William and Lynette F. Oates, 1970, *A revised linguistic survey of Australia.* Australian Aboriginal Studies No. 33, Canberra: Australian Institute of Aboriginal Studies.

O'Grady, Geoffrey N., 1959, *Significance of the circumcision boundary in Western Australia.* B.A. thesis. University of Sydney, Sydney, Australia.

———, 1966, Proto-Ngayarda phonology, in *Oceanic Linguistics.* 5/2: 71-130.

———, 1976, Umpila historical phonology. In Sutton, P. ed., 61-67.

———, 1981a, The genesis of the pronoun ***ngali** in Australia. In WPLC *(Working Papers of the Linguistic Circle of the University of Victoria).* Vol.1 No.1., 152-173.

———, 1981b, *yamu in nuclear Pama-Nyungan (and beyond?). In WPLC, Vol.1 No.2, 266-284.

———, 1987, *The origin of monosyllabic roots in Eastern Pama-Nyungan.* In Laycock and Winter, eds., 517-529.

———, 1990a, Introduction. In O'Grady and Tryon , eds., xiii-xxii.

———, 1990b, Wadjuk and Umpila: a long-shot approach to Pama-Nyungan. In O'Grady and Tryon, eds., 1-10.

———, 1990c, Pama-Nyungan semantics:*brain, egg* and *water.* In O'Grady and Tryon, eds., 11-14.

———, 1990d, Pama-Nyungan **m-, j-*, and *k-*. In O'Grady and Tryon, eds., 79-103.

———, 1990e, The Nuclear Pama-Nyungan universal quantifier ***parntung**. In O'Grady and Tryon, eds., 117-153.

———, 1990f, Pama-Nyungan: the tip of the lexical iceberg. In O'Grady and Tryon, eds., 209-259.

———, 1990g, Prenasalization in Pama-Nyungan. In Baldi, Philip, ed. 1990b, 451-476.

———, O'Grady, Geoffrey N. 1991, *Cognate search in the Pama-Nyungan language family.* A paper presented at the Arcling conference at Darwin, Australia, July, 1991.

———, O'Grady, Geoffrey N., S. A. Wurm, and K. L. Hale, 1966, *Aboriginal languages of Australia.* Map. Victoria, B.C.: Dept. of Linguistics, University of Victoria.

O'Grady, Geoffrey N., C. F. Voegelin and F. M. Voegelin, 1966, Languages of the world: Indo-Pacific facsicle six. *Anthropological Linguistics.* 8/2 Bloomington: Indiana University.

O'Grady, Geoffrey N. and T. J. Klokeid, 1969, Australian linguistic classification: a plea for coordination of effort. *Oceania.* Vol. xxxix, 298-311.

O'Grady, Geoffrey N. and D.T. Tryon, 1990, eds., *Studies in comparative Pama-Nyungan.* Canberra: Pacific Linguistics C-111.

Sapir, Edward, 1916, Time perspective in Aboriginal American culture, a study in method. Canada department of mines, Geographical Survey, Memoir 90, Anthropological issues no. 13, Ottawa. [Reprinted in SWES, pp.389-462 (1949).]

Schürmann, C. W., 1884, *A vocabulary of the Parnkalla language ... to which is prefixed ... grammatical notes.* Adelaide: George Dehane.

Sutton, Peter, 1976, ed., *Languages of Cape York.* Canberra: Australian Institute of Aboriginal Studies.

Taplin, George, 1879, The Narrinyeri, in J. D. Woods et al. eds., *The native tribes of South Australia.* 1-156, Adelaide: E. S. Wigg.

Teichelmann, Christian G. and C.W. Schürmann, 1879, *Outlines of a grammar, vocabulary and phraseology of the Aboriginal language of South Australia.* Adelaide: Robert Thomas.

Thompson, David A. 1988, *Lochart river "sand beach" languages: an outline of Kuuku Yáu and Umpila.* Darwin: Summer Institute of Linguistics.

Wald, Lucia, 1978, Linguistic reconstruction and history. In *Approaches to language: anthropological issues.* McCormack, William, C. and Wurm, Stephen, A. eds.,

Wurm, Stephen A., 1972, *Languages of Australia and Tasmania.* Janua Linguarum, Series Critica 1, The Hague: Mouton.

———, ed., 1979, *Australian linguistic studies.* Pacific Linguistics, Series C, No. 54, The Australian National University.

Appendix A

List of Abbreviations and Sources of Data

Following are abbreviations of language names used throughout the the work and their sources:

BAA	Bāgandji	Hercus 1982
BAY	Bayungu	O'Grady field notes, typed by Alix O'Grady
BGU	Bidyara-Gungabula	Breen 1973
DIY	Diyari	Austin 1981 and Austin field notes
DYI	Dyirbal	Dixon 1972
GAW	Gawurna	Teichelmann and Schürmann 1879
GID	Gidabal	Geytenbeek and Geytenbeek 1971
GUP	Gupapuyngu	Lawton and Lowe nd
GYA	Gugu-Yalanji	Hershberger and Hershberger 1982
NYA	Nyangumarta	
	W Wallal dialect	O'Grady field notes
	S Strelley dialect	Hale et al. 1980
NYU	Nyungar	Douglas 1968 and Douglas 1976
PIN	Pintupi	Hansen and Hansen 1974
PIT	Pitta-Pitta	Blake 1979
UMP	Umpila	O'Grady computer print out
YAU	Kuuku–Ya?u	Thompson 1988
WEM	Wemba-Wemba	Hercus 1969
WJK	Wadjuk	Moore 1884
WLB	Warlpiri	Hale 1974
WMK	Wik-Mungkan	Kilham et al. 1986
YDN	Yidiny	Dixon 1977
YIM	Guugu-Yimidhirr	Haviland 1979

Languages mentioned other than the twenty source languages listed above are the following:

ARB	Arabana	O'Grady 1991
ADN	Adnyamathanha	O'Grady 1987
BAR	Barunggam	O'Grady 1991
DAR	Darumbal	O'Grady 1991
MRN	Mirniny	O'Grady 1991f
NGI	Ngiyambaa	O'Grady 1991f
NMA	Ngarluma	O'Grady 1991
NYA-L	La Grange dialect of NYA	O'Grady 1991
PNK	Pankarla	O'Grady 1987
VAS	'Vasse' dialect of Nyungar	O'Grady 1987
WAK	Wakka-Wakka	O'Grady 1991
WRG	Warrgamay	O'Grady 1987
YGN	Northern Yinggarda	O'Grady 1990c
YGS	Southern Yinggarda	O'Grady 1990c
YIN	Yindjibarndji	O'Grady 1990c

pA	proto-Australian
PAP	Proto-Atherton-Pamic
PDN	Proto-Desert-Nyungic
PEP	Proto-Eastern-Pamic
PEPN	Proto-Eastern-Pama-Nyungan
PMP	Proto-Middle-Pamic
PN	Pama-Nyungan
PNP	Proto-Northern-Pamic
PNY	Proto-Nyungic
PNYU	Proto-Nyungar
PNYY	Proto-Nyungo-Yuulngic
PP	Proto-Pamic
PPM	Proto-Pama-Maric
PPN	Proto-Pama-Nyungan
PY	Proto-Yuulngu

Appendix B

Phoneme Inventories

Table: Phoneme Inventories (part 1)

Lang.	Stops	Nasals	Laterals	Rhotics	Glides	Vowels
NYA	p j t rt k	m ny n rn ng	ly l rl	rr r	y w	i a u ii aa uu
WLB	p j t rt k	m ny n rn ng	ly l rl	rr rd r	y w	i a u ii aa uu
PIN	p j t rt k	m ny n rn ng	ly l rl	rr r	y w	i a u ii aa uu
GAW	P T TY T RT K PP TT TT KK B D G	M N NY N RN NG MM NN NN DN	L LY L RL LL LL DL	R R RR RR	Y W I U	I E A O U
NYU	p j t rt k	m ny n rn ng	ly l rl	rr r	y w	i e a o u
WJK	P TD TJ T RT K PP DT T-Y TT RD KK B DJ D RTD G BB D-J DD GG B-B D-Y	M N-Y N NG MM NN	L-Y L LL	R R RR RR RH-R	Y W	I E A O U
BAY	p th j t rt k	m nh ny n rn ng	lh ly l rl	rr r	y w	i a u ii aa uu
GUP	p th tj t ṭ k ' b dh dj d ḍ g	m nh ny n ɳ ŋ	l ḷ	rr r	y w	i a u e ä o
UMP	p th j t k ?	m nh ny n ng	l	rr	y w	i a u ii aa uu
WMK	p th j t k ?	m nh ny n ng	l	rr	y w	i e a o u ii ee aa oo uu

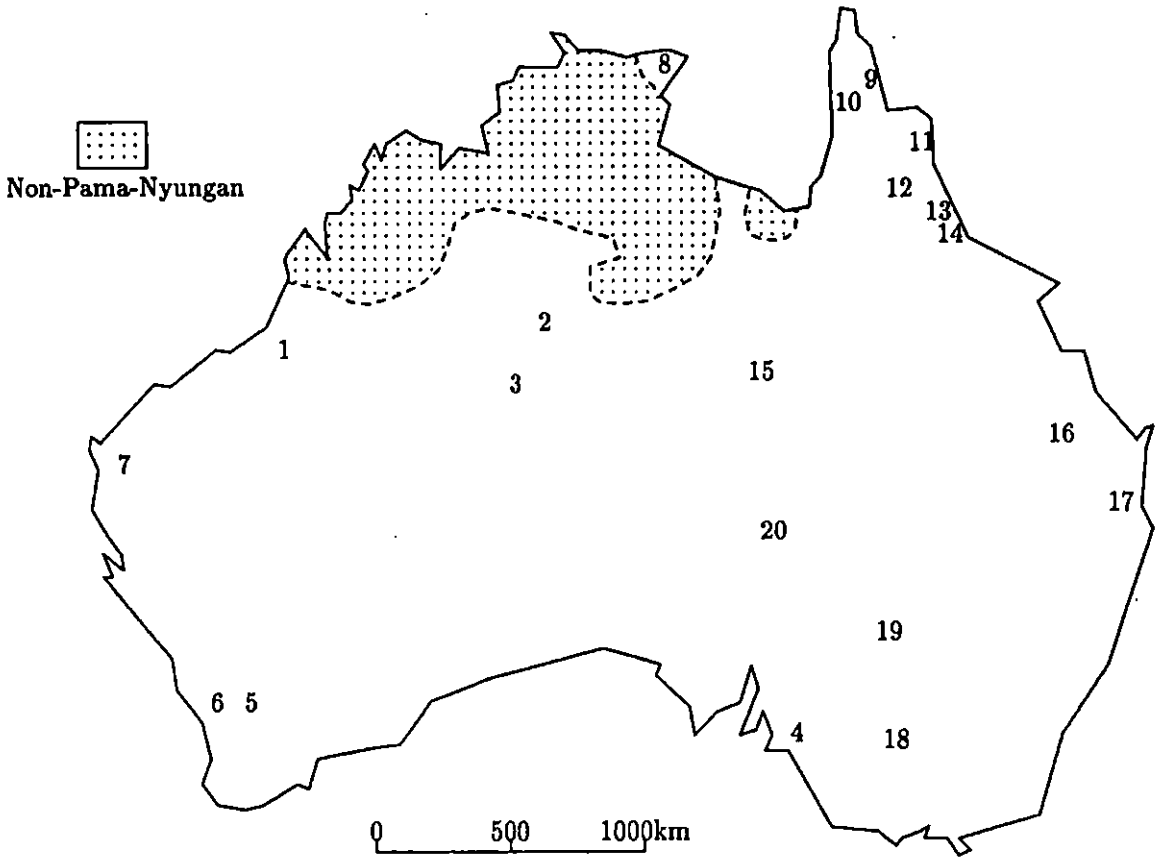
Table: Phoneme Inventories (part 2)

Lang.	Stops						Nasals						Laterals				Rhotics			Glides		Vowels					
YIM	p	th	j	t		k	m	nh	ny	n		ng			l		rr		r	y	w	i		a		u
																						ii		aa		uu
GYA	p		j	t		k	m		ny	n		ng			l		rr		r	y	w	i		a		u
YDN	p		j	t		k	m		ny	n		ng			l		rr		r	y	w	i		a		u
																						ii		aa		uu
DYI	p		j	t		k	m		ny	n		ng			l		rr		r	y	w	i		a		u
PIT	p	th	j	t	rt	k	m	nh	ny	n	rn	ng	lh	ly	l	rl	rr	rrr	r	y	w	i		a		u
BGU	p	th	j	t	rt	k	m	nh	ny	n		ng			l		rr		r	y	w	i		a		u
																								aa		
GID	p		j	t		k	m		ny	n		ng			l		rr			y	w	i	e	a		u
																						ii	ee	aa		uu
WEM	p	th	j	t	rt	k	m		ny	n	rn	ng			l		rr		r	y	w	i	e	ə	a	o	u
																						ii	ee		aa	oo	uu
BAA	p	th	j	t	rt	k	m	nh	ny	n	rn	ng	lh	ly	l	rl	rr		r	y	w	i		a		u
																						ii		aa		uu
DIY	p	th	j	t	rt	k	m	nh	ny	n	rn	ng	lh	ly	l	rl	rr		r	y	w	i		a		u
				d	rd																					

Appendix C

Map of the Approximate Locations of the Twenty Witness Languages

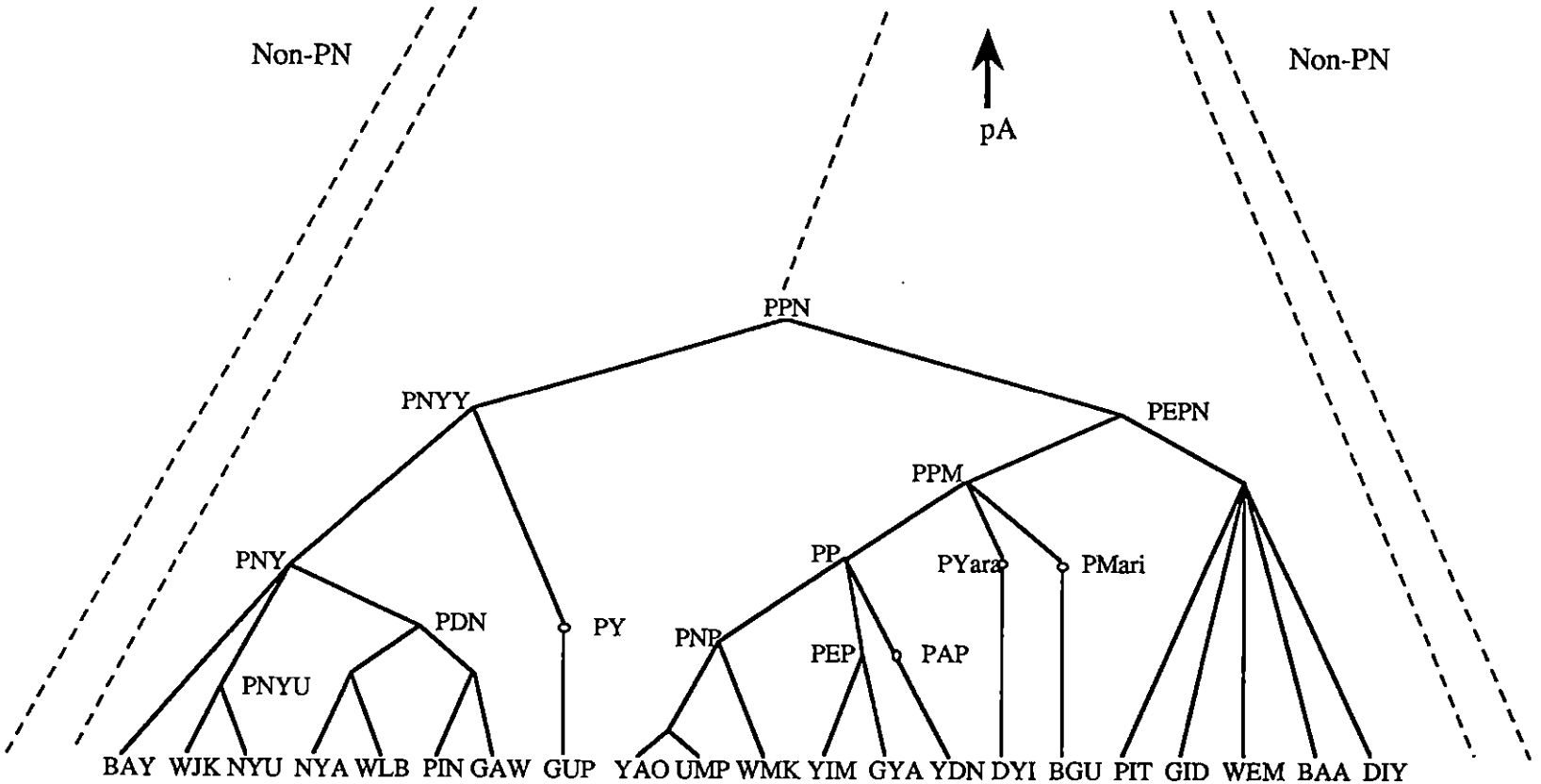
Approximate locations of languages in the study



Bāgandji	19	Nyangumarta	1
Bayungu	7	Nyungar	5
Bidyara-Gungabula	16	Pintupi	3
Diyari	20	Pitta-Pitta	15
Dyirbal	14	Umpila	9
Gawurna	4	Wadjuk	6
Gidabal	17	Warlpiri	2
Gugu-Yalanji	12	Wemba-Wemba	18
Gupapuyngu	8	Wik-Mungkan	10
Guugu-Yimidhirr	11	Yidiny	13

Appendix D

A Schematic Presentations of the Possible Relationships among the Twenty Languages in the Study



A Schematic Presentation of the Possible Relationships among the 20 Languages in the Study

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None

Publications:

None

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Title of Thesis/Dissertation:

*Initial *w in Pama-Nyungan*

Author: CHEN SHU-CHEN

[redacted]

27 Aug 1992

Date