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TABLE OF CONTENTS

	<i>Page</i>
PROLEGOMENA TO A THEORY OF AUSTRALIAN GRAMMATICAL CASE SYSTEMS	
by Alan Rumsey	1
<i>Bibliography</i>	26
HIERARCHICAL VARIATION IN PRONOMINAL CLITIC ATTACHMENT IN THE EASTERN NGUMBIN LANGUAGES by Patrick McConvell	31
1. Introduction	31
2. Clitic Agreement	33
2.1. Pronoun and Clitic Paradigms	33
2.2. Nuclear Cases	37
2.3. Peripheral Cases	41
2.4. Case Systems and the Form of Clitic Attachment	43
2.5. Number	46
2.6. Dual Neutralisation	52
3. The Order of Clitics	56
3.1. Subject Number Shift	56
3.2. Clitic Switch	61
4. The Clitic Base	69
4.1. Types of Base	69
4.2. AUX and Presentence Attachment	70
4.3. Q-Word Attachment	76
4.4. Initial Attachment	78
4.5. Contrastive Initial Attachment	81
4.6. V-Attachment	89
4.7. The Varieties of Clitic Attachment	94
4.8. The History of Clitic Attachment	100
5. Conclusions	103

	<i>Page</i>
5.1. Split Systems and Hierarchies	103
<i>Map</i>	114
<i>Bibliography</i>	115
CAUSE, ORIGIN AND POSSESSION IN THE FLINDERS ISLAND LANGUAGE	
by Peter Sutton	119
0. Introduction	119
1. A Historical Problem	119
1.1. FI and Other Languages	120
2. Collapsing of 'Lower Categories' at 'Higher Levels'	127
3. Alternative Kinds of Agent	129
4. Morphological Summary	133
<i>Notes</i>	138
<i>Bibliography</i>	142
SUBORDINATION OF FINITE SENTENCES IN NIYAMBA: (WAJA:YBUWAN), A LANGUAGE OF CENTRAL WESTERN NSW by Tamsin Donaldson	145
<i>Bibliography</i>	158
DIALECTAL DIFFERENTIATION IN BĀGANDJI by L. Hercus	159
1. The Bāgandji Dialects	159
2. The Main Morphological Differences	160
3. The Verbal Word	161
4. The Nominal Word	162
5. Phonetic Distinctions	163
6. Conclusion	164
<i>Map</i>	164
<i>Bibliography</i>	165
THE LINGUISTIC SITUATION IN NORTH CENTRAL NEW SOUTH WALES	
by Peter Austin, Corinne Williams and Stephen Wurm	167
<i>Map</i>	167
1. Introduction	168
2. Area	168
3. Language Names and State of Languages	168
4. Relations between the Languages	169
4.1. Vocabulary	170
4.2. Morphology	171
4.3. Syntax	172
5. Relations outside the Area	172
5.1. Vocabulary	173

	<i>Page</i>
5.2. Morphology	175
5.3. Syntax	177
6. Conclusions	177
<i>Notes</i>	178
<i>Bibliography</i>	179
NORMAN PAMA HISTORICAL PHONOLOGY by Paul Black	181
<i>Map</i>	182
1. 'Proto-Paman' and Pre-Norman Pama	183
2. The Languages	187
3. Norman Pama as a Genetic Group	191
4. Phonologies of the Attested Languages	194
5. Pre-Norman Pama Phonology	198
6. Consonant Reflexes in Norman Pama	204
7. Consonant Loss and Lenition	206
8. Vowel Developments in Norman Pama	209
9. Walangama Phonological Developments	216
<i>Notes</i>	219
<i>Appendix - Reconstructed Forms</i>	220
<i>Bibliography</i>	236
PHONOLOGICAL TARGETS AND NORTHERN CAPE YORK SANDHI	
by Terry Crowley	241
0. Introduction	241
1. Background	241
2. Sandhi in the Northern Cape York Sub-group	243
2.1. Atampaya Sandhi	243
2.2. Explanation of the Correspondences	247
2.3. Yadhaykenu Sandhi	249
2.4. Angkamuthi Sandhi	251
3. Proto-Northern Paman and its Daughter Languages	252
4. Frills on the Anti-VV Constraint	255
<i>Notes</i>	257
<i>Bibliography</i>	258
KAITITJ NOMINAL INFLECTION: SOME COMPARATIVE NOTES	
by Harold J. Koch	259
1. Introduction	259
2. Inflectional Categories	260
3. Number	261
4. Organisation of Cases	261

	<i>Page</i>
5. Case Suffixes	263
6. Derivational Suffixes	264
7. Order of Case and Number Suffixes	264
8. Ergative-Instrumental-Locative	265
9. Ablative	268
10. Comitative and Allative	269
11. Dative	270
12. Conclusion	271
<i>Notes</i>	273
<i>Bibliography</i>	275
PUNGUPUNGU AND WADYIGINY: TYPOLOGICALLY CONTRASTIVE DIALECTS	
by D.T. Tryon	277
1. Introductory (The Problem)	277
2. Wadyiginy and Pungupungu - Similarities (General Overview)	278
3. The Differences (The Verb Phrase)	279
3.1. Verbs of Lying	280
4. The Differences (Wadyiginy)	282
4.1. Intransitives	282
4.2. Transitives with Direct Object	282
4.3. Transitives with Indirect Object	284
5. Conclusions	285
<i>Bibliography</i>	287
ANTHROPOLOGY AND BOTANY: TURNING OVER A NEW LEAF	
by A.K. Chase and J.R. von Sturmer	289
<i>Bibliography</i>	299
LINGUISTIC ASPECTS OF ETHNOBOTANICAL RESEARCH by Peter Sutton	303
1. Language as an Essential Part of Ethnobotany (not just a tool)	303
2. Plant Naming, Description and Classification as Aspects of Speech Acts	305
2.1. Nomenclature	306
2.2. Edibility	306
2.3. Physical Attributes	307
2.4. Non-Physical Attributes	307
2.5. Use	307
2.6. Environment and Location	307
2.7. Inter/Intra-Class Relations	307
2.8. Seasonality	307

	<i>Page</i>
3. Morphology and Semantics of Names	308
4. Attributions	309
4.1. Physiological Attributions	309
4.2. Non-Physiological Attributions	309
5. Classifications	309
5.1. Taxonomies	309
5.2. Non-Taxonomic Classification	310
<i>Notes</i>	313
<i>Bibliography</i>	314

INTRODUCTION

Most of the papers in this volume were presented in oral form at the linguistics sessions on 17th May during the 1976 Biennial Meeting of the Australian Institute of Aboriginal Studies, but we have included several which were not. Terry Crowley was in the field on Cape York Peninsula then and was unable to attend and read his paper. The Chase and von Sturmer paper and the second Sutton paper were presented at the Ethnobotany Workshop, sponsored by the Institute, the previous day, and we have included them here because of their linguistic interest and content.

Luise Hercus read a paper entitled 'Notes on Baagandji', much of whose content is to appear in a joint publication with Stephen Wurm. Her present paper, 'Dialectal Differentiation in Bāganji', expands upon another portion of her oral presentation.

Wilf Douglas read a paper, 'Aboriginal Categorisation of Natural Features', which was published shortly afterward under the same title in *The Aboriginal Child at School* 4/5:51-64 (October 1976), and so does not appear in the present volume.

We have not formally organised the volume into sections, but the first four papers fall mainly under the heading of syntactic studies. The middle six papers might be categorised broadly as comparative studies, while the final two are ethnobotanical in orientation.

One point about the papers generally that strikes us is their formal linguistic cast and their lack of consideration of the sociolinguistic and anthropological linguistic dimensions of speech communities and language change or evolution. We suspect, and hope, that the 1976 Biennial Meeting marks the end of an era in Aboriginal linguistics. We look forward to the publication of current and future work by Australianist linguists that is informed by richer theories of language in culture.

Bruce Rigsby
Peter Sutton

PROLEGOMENA TO A THEORY OF AUSTRALIAN GRAMMATICAL CASE SYSTEMS

Alan Rumsey

The traditional distinction between grammatical (or syntactic) and non-grammatical (concrete, local, adverbial, 'semantic', etc.) cases (or uses of them) seems destined to survive in some form as a basic part of our theoretical apparatus, resisting all attempts to overthrow it. Fillmorian 'Case Grammar', for instance, has proven inadequate insofar as it has tried to trace *all* surface case marking to underlying 'case' nodes which represent semantic primitives.

These inadequacies have led fellow generative semanticists Postal and Perlmutter to a revised version of the theory, which they call Relational Grammar. The revisions which they propose are predicated on a re-emphasis of the traditional division between 'grammatical' cases, which are associated with syntactic 'terms', and non-grammatical cases, which are associated with 'non-terms'.

Relational Grammar as presently formulated is unable to account for the so-called ergative languages, and will itself require major revisions when its practitioners take a serious look at languages of this type. But the theory of universal grammar which develops to maturity will almost certainly be one which incorporates not only the deep-surface distinction, but some version of the grammatical - non-grammatical distinction as well.

The version of the latter which will be adopted for the purposes of this discussion is based on that propounded by Kurylowicz (1949) in "Le probleme du classement des cas". Like Chomsky (but unlike most of his successors, or, for that matter, his neo-grammarians predecessors) Kurylowicz insists on a strictly autonomous syntax. For him, the accusative case, when marking the object of a transitive verb, which is its primary function, has no *semantic* value whatever. It sub-

categorises the verb only for transitivity, which is a *syntactic* rather than a semantic fact (cf. Jespersen's (1924:157-64) cautions concerning the lack of correspondence between "objecthood" and meaning.)

But in many Indo-European languages the accusative sometimes, though very infrequently, also marks a noun 'adjunct' to an *intransitive* verb. In the syntax sections of Indo-European comparative grammars, such uses of the accusative case have traditionally been described as 'accusative of goal', 'accusative of temporal extension', etc. In such instances the accusative does subcategorise the verb *semantically*, but not syntactically): the accusative of temporal extension occurs with verbs which are inherently 'durative' and the accusative of goal with verbs of motion. Thus, the accusative has a primary, syntactic function and a secondary, semantic or 'adverbial' function. The instrumental (in Sanskrit, for instance) is used *primarily* to form adverbial modifiers. Much less frequently, it arises transformationally as the marker of the agent in a passive construction. (Expression of the agent is always optional). This *syntactic* function is secondary. The distinction between grammatical (syntactic) and non-grammatical (or 'concrete') cases depends on which of these two distinct kinds of functions is primary. The grammatical cases are those whose primary functions are syntactic and the concrete cases are those whose primary functions are adverbial.

In some languages, such as Sanskrit, Finnish, and many of the 'Pama-Nyungan' family in Australia, all grammatical cases *and some adverbial cases* are marked by affixes on the noun or some element of the NP, but this should not lead us to treat all the cases so marked within a given language as elements of the same system. Rather, they comprise one whole system, plus parts of another. Both systems are relational, but in different ways.

It is the grammatical cases alone which form the first system. The relations implemented by this system are syntactic relations, and they exist only at the level of the syntagm. Each major NP constituent must be marked for the adjunct-relation it bears to a given verb in a given syntagm. But different verbs characteristically take different numbers of adjuncts. This situation usually gives rise to a system of grammatical cases which functions hierarchically on the paradigmatic plane.

That is, rather than using case A to mark the unique adjunct of a single-adjunct verb, cases B and C to mark the adjuncts to two adjunct verb, and cases D, E, and F to mark the adjuncts to a three-adjunct verb, grammatical case systems always effect certain economies instead. This they do by instituting inclusion relationships such that the grammatical cases become hierarchically ordered. One case is given the

most inclusive distribution by being allowed to mark one of the adjuncts of any verb. Another case is ranked second and allowed to mark one of the adjuncts of any verb except a one-adjunct one, etc.

The nominal affixes implementing the *non-grammatical* cases, on the other hand, are outside the system of grammatical case and do not form another system by themselves. Rather they must be seen to participate in a separate highly structured *semantic* system. It is just these cases which can probably be handled most easily by a theory of the Fillmorian kind, i.e. one which incorporates some kind of deep-structure 'case' terms as semantic primitives. Here we must not be overly mindful of the surface morphology. In the first place, each of the non-grammatical case desinences no doubt encodes a multitude of semantic 'cases', which are disambiguated (if at all) by other means. Also, insofar as they are *adverbial* cases, they enter into a semantic system some of whose terms emerge as surface *adverbs*. It was this semantic system, and not the grammatical case system, which Hjelmslev (1935) was really exploring when he constructed his finely elaborated model of underlying case meanings.

One of the fundamental tenets advanced by Hjelmslev, and, indeed, almost all other case theorists working within the various post-Saussurian structuralist traditions, is that all of the cases together form a paradigmatic system within which each of the terms enters into (sometimes mediated) oppositions with all the others, and can be positively characterised only with reference to these relations of mutual opposition within the system. Each term is on an equal footing with all the others, or, if you like, is equally vacuous without reference to its relations of opposition with all the other terms. Indeed, this fundamental structuralist tenet has been the basis for much enlightening work in its application to the 'local' cases. It is this very principle which requires us to look beyond the inventory of affixes for marking adverbial 'case', and to consider the larger system of which they are a part.

But, as we have seen, the *grammatical* cases, when viewed paradigmatically, do not show these relations of multi-lateral equipollent opposition. Here then, is additional evidence that they form a distinct system.

Interestingly, many languages reflect this directly at the morphological level. Arabic, for instance, has three grammatical cases: nominative -u, accusative -a, and genitive -i. These are the only cases for which nouns decline 'synthetically'. All the other, concrete cases are indicated 'analytically'. Eskimo has two grammatical cases, nominative (or 'absolute') and ergative. Ergative takes the desinence

-p ~ -m. (Nominative, as in most languages is indicated by \emptyset). Local cases are built on the ergative form, that is: Noun + p ~ m + local case desinence. Uṅaṛinjin, to cite one of the many Australian examples, shows grammatical case only by cross-referencing pronominal elements of the verb, but shows many 'concrete' cases by nominal postposition. (This, and all other claims made here about Uṅaṛinjin, are based on my own fieldwork.)

The latter characteristic is one which is shared by all Australian languages, regardless of the other typological characteristics which differentiate them. That is, every Australian language so far described shows some 'concrete' cases by nominal suffixes or postpositions occurring somewhere in the noun phrase.

For instance, Lardil, often cited as a nominative-accusative language (more on this typology later), which shows grammatical case with nominal suffixes, also marks several 'concrete' cases in this way, including locative and instrumental. Klokeid (1976:552) argues that such cases, unlike the grammatical ones, "... must be generated by the base (rules)".

It is arguable whether such categories should actually be generated as distinct, case-labelled nodes within some kind of a base structure (be it an autonomous syntactic one or a directly semantic one), or whether some other provision should be made for them within the 'semantic structure'. But either way, Klokeid's conclusion that they must be handled differently from such grammatical cases as nominative and accusative is in line with my remarks above.

Dyirbal, which is like Lardil in showing grammatical case by nominal suffixation and in lacking (case-congruent) person marking on the verb, but is syntactically a thoroughly ergative language, also uses suffixes to show several 'concrete' cases, such as locative -nga ~ -ga ~ -ṛa ~ - [homorganic stop]a and ablative -ṅunu. (Dixon, 1972:42). Pitjantjatjara shows grammatical case by nominal suffixation and by case-congruent pronominal suffixation and is of a mixed-ergative type to be explored below. Several concrete cases are also shown by certain post-nominal elements, some of which, such as ablative -nga ~ -la ~ -ta are true suffixes, and others of which are more loosely bound postpositions (Glass and Hackett 1970:34, 67-8).

Alawa, which is of the same mixed type as Pitjantjatjara, but shows *prefixed* pronominals, also shows grammatical case by means of nominal suffixation. In addition there are suffixes for the 'local' cases allative and elative (Sharpe, 1971:62).

Finally, Nunggubuyu, which has what I will call global case marking, and shows no noun suffixes marking grammatical case, does have such desinences as locative -rudj ~ -dudj, allative -wuy ~ -guy, ablative

-wala ~ -gala, and commutative-instrumental -miri (Hughes and Healey, 1971:58).

But, as I have made clear above, these non-grammatical cases do not by themselves form a complete system within any given language. Rather, they implement part of a larger paradigmatic-relational semantic system which can be elucidated only by careful consideration of all the terms of the system, regardless of the means by which the language gives surface expression to these terms. Most of these categories are true 'cryptotypes' in most of the languages of the world, and demand an extremely penetrating syntactic-semantic investigation of the given language to bring them out. Unfortunately, no such concrete-case study has yet been carried out on any Australian language. Given this fact, it would be most presumptuous (and certainly futile) to attempt to make any generalisations about concrete-case systems within Australia as a whole (or within a given 'family' of Australian languages).

Rather, I will hereafter confine myself to a discussion of systems of *grammatical* case within Australia, which have so far been described in a much more nearly adequate way for some Australian languages.

Interestingly enough, an examination of the literature reveals that, among the case suffixes used in various Australian languages, by far the most clearly cognate forms with anything approaching a pan-Australian distribution are (with the possible exception of locative) precisely those which mark *grammatical* cases: an ergative in something like *-ru ~ -lu ~ -du, and two other oblique cases *-gu and *-nja ~ na ~ na (plus, of course, the \emptyset nominative).

Let us now turn to a consideration of the syntactic case systems implemented by these morphemes and their functional equivalents in various Australian languages.

As I have outlined above, such systems invariably effect certain economies by ordering the cases hierarchically. Consider a simple sentence consisting of a transitive verb with two NP adjuncts. Let us assume that the proposition underlying such a sentence will always be structured in such a way that the verb bears distinct relationships to each of the two NPs. We can then call one of these NPs adjunct I and the other adjunct II. Let us further assume that there is enough of a correspondence between syntax and semantics to guarantee that adjunct one will *usually* represent a logical 'agent' and adjunct two a logical 'patient'. Now consider a simple sentence consisting of an intransitive verb and only one NP adjunct. The syntactic status of this sole adjunct is different from either adjunct I or adjunct II above, because it occurs in a different structural configuration. There is, therefore, no compelling reason why it should be given the same surface case marking

as either of the two adjuncts to a transitive verb.

In fact there are some languages where each of these three adjunct types is indicated by a distinct surface case marker for some NPs. For instance, Ngayimil, one of the Yuulngu dialects of northeastern Arnhem land, marks all animate nouns this way. (Schebeck 1976:354, 374).

In Djingili, on the other hand, the singular personal pronouns show this kind of three-way case marking, but not the non-singular pronouns or the nouns (Chadwick 1975:15 ff.).

But no such three-way case marking occurs at all in many (perhaps most) Australian languages, and when it does occur, it is only for certain types of NPs, never all of them.

The predominant tendency is for two of these three adjunct positions to be grouped together and marked by one surface case, which is thereby given the most inclusive surface distribution, and thus is functionally the least marked case. (It is interesting to note that this case is usually formally 'unmarked' as well. That is, it is assigned a zero desinence. This is just another example of the systematic relatedness between surface morphological patterning and syntactic function.)

Consider the possibilities. If we designate the position of the sole adjunct to an intransitive verb 'adjunct X', then three pairings are possible: $X \equiv I \neq II$, $X \equiv II \neq I$, and $I \equiv II \neq X$. The last of these three pairings would be counter-productive. That is, it would not allow for a distinction between the unique functions I and II and would nonetheless require a separate case for the redundant marking of X (whose structural position in any given syntagm, since it is an *unique* adjunct, is unambiguous). The same amount of information could be conveyed by grouping I, II and X all together and marking them by a single surface case, which does in fact describe the case morphology for certain nominals in some languages, e.g., the bound pronominal elements in Djingili (Chadwick 1975:15). But in Djingili, the adjunct status of these elements is disambiguated by an arrangement into order classes corresponding to 'case' function. It is doubtful whether there is any language in the world which is really totally ambiguous in this way. It is even more doubtful that there is any language which chooses the third 'counter-productive' option mentioned above, i.e. marks I and II in one case and X in another.

The first two options, then, are those from which almost every language chooses its method of case-marking for most nouns. Either the 'agent' or the 'patient' (these are semantically-based shorthand terms for these two syntactic-structural positions, as discussed above) of the transitive verb is put into the same unmarked case which is also assigned to the sole adjunct of an intransitive verb.

But many, perhaps most, languages which choose the first option, that is, which place the 'patient' of the transitive verb into the unmarked case (commonly called 'ergative' languages) are actually of a 'split-ergative' surface-morphological type. Only *some* NP types are put into the unmarked case when functioning as patients and into a relatively marked case when functioning as agents. Conversely, some NP types are put into the unmarked case when functioning as *agents*, and into a distinct, relatively marked case when functioning as *patients*. By now, the Dyirbal language of northern Queensland has become the classic example of such a split surface-case marking language. In Dyirbal, lexical nouns show the former pattern (called 'ergative' after the marked case involved) and personal pronouns show the latter (called 'accusative', after the marked case involved.) Almost all Australian languages showing any 'ergative' case marking are actually of this split-ergative type.

But different languages show different kinds of splits. We now know that such splits are never haphazard, never just surface morphological quirks. Silverstein (1976) has demonstrated that such splits reflect an underlying, probably universal hierarchical ranking of NP types for 'naturalness' as agents *vs.* 'naturalness' as patients. The NP's which are the most 'natural' agents are those which are assigned the unmarked case when occurring in syntactic 'agent' position, and the ones which are the most natural patients are those which are assigned the same unmarked case when functioning as patients.

Thus, in Dyirbal, for instance, it is the 'agent-naturalness' of first and second person as opposed to third person (or, better, non-person) which is the underlying semantic motivation for accusative case marking just for personal pronouns. Conversely, it is the 'patient-naturalness' of 'non-person' which motivates ergative case-marking just for lexical nouns.

The limited instances of 'three-way' case-marking discussed above (where I, II and X are all marked separately) are also constrained by the hierarchy. They occur 'above' the ergative case marking region staked out by a particular language and 'below' the accusative region, as constrained by the hierarchy.

Actually, the hierarchy must be modelled as a three (and maybe more) dimensioned space rather than a linear scale to account for all occurring 'splits', but I will not go into these niceties here, nor will I give a detailed explication of all the lexical features which have so far been discovered to be relevant, and the structure of the hierarchy which they comprise (for which, see Silverstein (1976)).

Rather, I propose to introduce complications of a different kind, which are more relevant to the discussion at hand.

Notice that in my initial remarks on grammatical case marking, I mentioned not only one- and two-adjunct verbs (which are the only kind considered immediately above), but three-adjunct verbs as well. Verbs of this kind present somewhat of an embarrassment to most syntactic theoreticians, because there is really no well-motivated way of representing the 'third' adjunct in underlying form. In traditional Chomskian grammar, they have usually been represented by a second NP node descending from the VP node, but this does not do justice to the apparent syntactic and semantic differences between 'objects' and 'indirect objects'. Another possibility is to treat them as adverbial modifiers, which would mean that there really are no 'three-adjunct' verbs underlyingly. This would account for the fact that, unlike either adjunct to a two-adjunct verb, the third adjunct to a three-adjunct verb is seldom obligatory (I can think of no verbs for which it is obligatory in any language I know, but this does not constitute positive proof!) The traditional 'dative', then, would not be a 'grammatical case' at all by the criterion developed above. (Indeed Kurylowicz, unlike most Indo-Europeanists, does not consider the I. E. dative to be a grammatical case.)

But such an approach would fly in the face of much evidence that the dative *is* a grammatical case and that 'indirect object' is a primary syntactic category. Unlike most adverbial modifiers, 'dative' constituents figure in the operation of many syntactic transformations in the languages of the world. In English, for instance, we have an important transformation known as 'dative movement' (see Green 1971:88-182), which accounts for such surface forms as 'I gave my love a cherry'. (Note, by the way, that it is just the *grammatical* cases in English which can be marked by word-order alone.) Many languages such as Chinook, Takelma, and several Algonquian languages, have output constraints which make crucial use of the category 'indirect object'.

Let us assume, then, that there are some verbs which do take a third (optional?) adjunct and that the structural relationship of this adjunct to the verb is different from that of either of the adjuncts to a two-adjunct verb. Its relationship to the verb is in some sense more peripheral than is either of theirs (since it is usually optional), but less peripheral than that of any adverbial modifier. Again as a shorthand term, let us call this adjunct the 'indirect object'. Let us further assume that there are some *intransitive* verbs which can optionally take an 'indirect object' as a *second* adjunct, and that this second adjunct bears a relation to the verb which is comparable to the

relationship between a transitive verb and its indirect object. This assumption is perhaps more controversial than the first, but will, I hope, be borne out in its application to the data below.

The logical possibilities for case-marking for 'indirect objects' are many, but there are two main methods from which most languages choose one. First, there is the method according to which a distinct surface case is used for *indirect* objects only (and often for various other non-syntactic functions as well). This is the traditional 'dative' case. Within Australia, there are many languages which have such a case, which is usually marked by a reflex of the 'pan-Australian' case desinence *-gu. Examples of such languages are: Dyirbal, where -gu never marks *direct* objects (except under certain important transformations, to be discussed below), but, among other functions, marks *indirect* objects; and Kunjen (a group of Paman dialects of the central Cape York peninsula), where *-na and *-gu have fallen together in an interesting way as lexically conditioned allomorphs of the same case (*-na occurs only on kinship terms - B. Sommer, personal communication). *-na seems also to have had another reflex which, on personal pronouns, marks a separate, general oblique case of a type to be discussed below (Sommer 1972:92).

But there is another method of assigning surface case to indirect objects which is also widespread in Australia. In many languages, indirect objects are lumped together with direct objects of transitive verbs and marked identically, even within the same syntagm. Lardil and Ngarluma are languages of this type. Compare, for instance, the following Lardil and Ngarluma sentences with comparable ones from Dyirbal and Kunjen (some glosses supplied by me differ from the published sources):

- Lardil: 1. *tangka* *ɳethakun* *yaramanin* (Klokeid 1976:553)
man hit:INST horse:ACC
 'The man hit the horse.'
2. *ngata* *wuthakun* *pirngenin* *wiŋi:n* (Klokeid 1976:561)
I give:INST woman:ACC food:ACC
 'I gave the woman food.'
3. *pirngen* *yalalikun* *ngitha:n* (Klokeid 1976:562)
woman laugh:INST I:ACC
 'The woman laughed at me.'
- Ngarluma: 4. *maŋkuɭa* *ɭalku-ŋa* *yukuru-ku* (Hale 1967-8/II:14)
child-nom strike-past dog-ACC
 'A child struck a dog.'

5. furlu-i parlgu-i jungu-na Maa-Turlakurdu-gu
all-OBL meat-OBL give-past Pideonhand-OBL
'They gave all the meat to Pigeonhand'
 (Brandenstein 1970:251-2)
6. Maṅkuḷa waṅka-ṅa mayaka-ku (Hale 1967-8/II:14)
child-nom. speak-past man-ACC
'A child spoke to a man'
- Dyirbal: 7. balan ḡugumbil baṅgul yaṅaṅgu balgan
woman-nom. man-erg. hit
'The man is hitting the woman'
 (Dixon 1972:59)
8. balam baṅgun wugan baḡul (Dixon 1972:300)
it-nom she-erg. gave him-dat
'She gave it to him'
- Kunjen: 9. ud amayar iṅ oyboy aḡar il iṅun
dog big-erg. meat wallaby-nom. bite-past he it
'A big dog bit the wallaby'
 (Sommer 1972:30)
10. lalaṅal alk iṅkum bibiṅ aḡen undamay
uncle-erg spear new-nom father my- dative
eley-ambar il
showed he
'Uncle showed the new spear to my father'
 (Sommer 1972:32)
11. lalaṅal alk iṅkum kakaṅan uwal il
uncle-erg. spear new-nom. brother-dative gave he
'Uncle gave my younger brother a new spear'
 (Sommer 1972:32)
12. lalaṅ il niṅṅaṅan ergeṅ il (Sommer 1972:33)
uncle-nom he aunt-dative spoke he
'Uncle was speaking to aunty'

Example 5 is taken from von Brandenstein's *Narratives* (1970). His orthography (based on the Estonian system) is not comparable to Hale's. All of the nouns marked with OBL in this example, however, are clearly suffixed with allomorphs of Hale's 'accusative' case. Notice that what Hale and Klokeid have called the 'accusative' case in Ngarluma and Lardil is distinct from the kind of 'accusative' case which is found in Indo-European languages, and on personal pronouns in many Australian languages. In this respect, von Brandenstein's terminology is more accurate; this is really a general oblique case which marks three syntactic functions: direct object of a transitive verb, indirect

object of a transitive verb, and indirect object of an intransitive verb. I suggest that the term 'accusative' be used only to describe a case which is confined to the first of these functions, and that the oblique grammatical case of the Lardil and Ngarluma type be called something else. For lack of a better term, I will here follow the tradition of English school grammars and call it the 'objective' case. Case systems of the Lardil and Ngarluma type, then, will be called nominative-objective systems.

So far, I have been focussing the discussion exclusively on systems which show grammatical case by means of suffixes attached directly to the noun (or final element of the NP) whose adjunct status is at issue. But, as I have already mentioned, some languages such as Uṅarɪnjin and Nunggubuyu do not show grammatical case in this way at all. In these languages, the grammatical cases are indicated, not on the nouns themselves, but rather by pronominal elements which are prefixed to the verb, each of which 'cross-references' one of the adjuncts to the verb. Most such systems indicate adjunct status of cross-referenced NPs by means of form classes and/or order classes for independent elements corresponding to each adjunct. In Uṅarɪnjin, for example, adjunct I to a transitive verb (usually a semantic 'agent'), is always cross-referenced by an element (often \emptyset) occupying the second position in the verb complex. Adjunct II (usually a 'patient') is cross-referenced in initial position. Thus, for example, in the sentence:

13. Yali aṅuwiljani ṅin

'I speared the kangaroo'

/yali a₁ - ṅa₂ - √wilja - ni ṅin/
 kangaroo 3 sg. masc. class spear past I

(a₂ assimilates in gravity to following consonants; a₁ does not.)

the element a₁ in the verb complex cross-references the patient, and ṅa₂ the agent. Actually, the free standing pronoun ṅin in such a sentence would almost always be deleted in surface structure because, unlike the lexical noun yali, it is completely redundant in this context. That is, the element /ṅa₂/, being itself an index of the speaker, carries all the referential specificity of the free pronoun. In addition, it marks the adjunct status of ṅin by its position within the verb complex.

In this way, Uṅarɪnjin always marks adjunct status by *order* class for the bound pronominal elements. In addition, many of the pronominals show varying surface (and sometimes morphophonemic) shapes which sort them into *form classes* corresponding to adjunct status. For instance, the first person singular affix, which, as we have seen, takes the form /ṅa₂/ when marking adjunct one, instead occurs as ṅan- when it

cross-references an NP functioning as adjunct II. Thus:

14. η in η anbiljani a \dot{r} i djinda
 'That man speared me'
 / η in η an- \emptyset - $\sqrt{\text{wilja}}$ - ni a \dot{r} i djinda
 me me he spear past man that

The 'internal syntax' of U η a \dot{r} injin verb prefixes is some ways analogous to systems of nominal case marking, which sometimes also make use of both form and order classes at the sentence-syntactic level. Consider, for instance, German, where syntactic case is shown by a combination of NP suffixes and word order. But this comparison conceals some rather fundamental differences. First, there is the important fact that, by its very nature, the U η a \dot{r} injin system of double adjunct marking is not a morphologically productive one. In German, as in all nominal case-marking languages, each NP is marked separately by a set of productive morphological processes whereby even new words may be declined for case as soon as they enter the language. Thus the case desinences have a kind of psychological reality as independent elements in the language. The processes by which adjunct I is distinguished from adjunct II in U η a \dot{r} injin, on the other hand, are productive only at the syntactic level. That is, there is a relatively small, closed set of prefix combinations which enter into appositional relations with an open-ended set of free standing NP's in various propositions. For this reason, the prefix elements tend to lose their psychological reality as independent elements. The *prefix combination* as a *single unit* has much more psychological reality because it combines with a relatively large number of transitive verb roots, with productive morphophonemic alternations at the juncture between prefix combinations and following elements. But even here the psychological reality is disappearing in a language like U η a \dot{r} injin, because the vast majority of transitive (and intransitive) verb phrases show "compound verbs", the whole set of which are built on only nine transitive (and five intransitive) verb roots.

A second difference, which is perhaps related to the first, is that, unlike nominal case marking systems, these 'appositional' systems often function 'globally' (as per (Silverstein 1976:124-5)). That is, although there may be independent elements corresponding to adjunct I and adjunct II, the form and/or position of either may not be predictable without reference to the 'lexical content' of both. In U η a \dot{r} injin, for example, the 3pl. 'agent' allomorph is -r- when the 'patient' is 3 sg, -ra₂- with 1sg, 2 sg, or 3 pl. patient, and \emptyset with 1 pl. and 2 pl. patient.

In Maung, as in U η a \dot{r} injin, there is some variation by form class, but unlike U η a \dot{r} injin, there is also a systematic transposition of order

classes conditioned by lexical content. Capell and Hinch state categorically that "the object prefix precedes the subject prefix" (Capell and Hinch, 1970:76), but an examination of their adjoining transitive prefix chart reveals that this ordering is reversed just where there is a first or second person subject acting on a third person object.

This Maung datum provides a good example of how global systems often reflect the same kind of hierarchical ranking of NP types which I have discussed in connection with such *local* split case marking languages as Dyirbal. Recall that in Dyirbal, NPs were marked for adjunct status according to their degree of naturalness for functioning as agents or patients, the major break being between personal pronouns and lexical nouns. The Maung rules for order-class arrangement make reference to the same hierarchy and make the break at exactly the same point. But, whereas in Dyirbal each major adjunct is ranked and marked independently, the Maung rules for order-class arrangement must be sensitive to the ranking of *both* adjuncts to a two-adjunct verb. Having set up hierarchically constrained equivalence sets: A. personal pronouns and B. all other NPs, the grammar of Maung must specify that if adjunct I belongs to A *and* adjunct II belongs to B, then the order is adjunct I - adjunct II. For all other combinations, the order is adjunct II - adjunct I.

J. Heath (1976) has demonstrated how hierarchically constrained global rules at this kind seem to play their role in many of the 'prefixing' languages of northern and northwestern Australia.

In Nunggubuyu, there are *four* equivalence sets constituted as constrained by Silverstein's hierarchy (except for some minor irregularities, for which he gives a morphological explanation), according to which pairs are classified as either direct (I in a higher set than II), inverse (II in a higher set than I), or equipollent (I and II in the same set). Both the form of the pronominal elements and their order is determined by this ranking. In direct combinations, the order is I-II and in inverse combinations this order is reversed and an 'inverse morpheme' /^a-N-/ is inserted between the two elements.

Ngandi has a similar system, but with six equivalence sets and /-gu₃-/ as an inverse morpheme in place of /-^aN-/. Its distribution does not extend to *all* inverse combinations. If we are to maintain that /-gu₃-/ really is an inverse marker here, we must in some instances resort to what Heath calls "ad hoc morphological restrictions" explaining its absence in some surface forms. This raises the question of just how closely the surface distribution must fit the presumed semantic patterning before we are entitled to give a systematic explanation to what may be only a mild tendency, or even a morphological mirage.

Consider, for example, the Uḡarɨnjin transitive prefix set, where an -n- often intervenes between subject and object pronominals. In an interesting attempt to explain how true direct-inverse systems such as the Nunggubuyu one could have evolved, Heath (1976:181-83) interprets this Uḡarɨnjin -n- element as an inverse marker on the make. His historical argument with respect to some other languages is a plausible one, but in Uḡarɨnjin the distribution of -n- is nearly random with respect to direct/inverse relations - more nearly so than Heath's account suggests, since he has incorrectly rendered Coate and Oates' 2 sg → 3 forms (bindj-, njindj-, etc.) as biñj, ñiñj, etc. (Heath 1976:182). All five of these combinations include an /n/ (not /ñ/), contra Heath's claim that this element "... occurs in no direct combinations." (ibid.) In general, the shapes of Uḡarɨnjin transitive prefix combinations defy systematic explanation in terms of lexical hierarchy. The case marking rules for these prefix combinations must still be formulated globally, insofar as the irregularities in question (e.g. the presence of -n- on the 'object' series) are conditioned by the *pairing* of one (lexically specified) element with another. The rules must be sensitive to lexical content, for that is precisely what triggers differences in form, but they are rules which do not show the simplifying influence of a lexical hierarchy.

(Note, by the way, that globally conditioned hierarchical patterning, when it does occur, must be described in terms of multiple ranked equivalence sets, as Heath has discovered. These sets are necessary just to define the class of *equipollent* pairs, and, unlike the hierarchy by which they are constrained, differ from language to language.)

Indeed, there are languages, such as Gunwinggu, (Oates 1964:43ff) where most of the prefix combinations have become so irregular that the simplest way of writing case-marking rules for them would probably be to motivate surface shapes for the prefix combinations directly from structural descriptions specifying adjunct *pairs*. The prefix clusters so derived would not be segmentable into separate single-adjunct-marking elements. This would of course be true only for pronominal complexes attached to transitive verbs, as there is no segmentation problem with prefixes cross-referencing unique adjuncts to intransitive verbs.

Note that the 'global' principle is one which is logically compatible with *any* method of surface case-marking, not just the 'appositional' type discussed immediately above. One could conceive of a nominal case-marking language of the Dyrbal type in which the choice of surface case independently marked on each NP was, nonetheless, dependent on the hierarchical ranking of that NP relative to that of another adjunct to the same verb. Silverstein (1976:129) claims that such a system operates

Dalabon, where there is an optional ergative suffix *-yi*, which is used to mark 'agents' *mainly* in inverse and equipollent combinations (Capell 1962:111). But even among the few examples given by Capell, there are apparent violations of this 'global rule'. For example:

nur - ji niraʔnan
we all - erg.
'we all see him'
 mag waʔwaʔ - ji gajinujan ganjno
 erg.
'(see that) crows don't eat the meat'

At least the first of these would be a 'direct' combination according to any reasonable equivalence-class scheme. Furthermore, by Capell's account, though we can't be sure, since he has not discerned the global principle involved, the ergative marker is facultative even in those combinations where one would expect it. So this global patterning seems to be no more than a general tendency.

Nowhere in Australia has there yet emerged an example of a true global case marking system implemented by means of nominal suffixes. Yet among the many languages which show grammatical case exclusively by cross-referencing pronominals, global systems are the rule rather than the exception. This could hardly be a purely accidental correlation. A necessary part of the explanation would seem to lie in the distinction between morphological and syntactic productivity discussed above. With the tendency toward 'inflectionalisation' of subject + object combinations goes a tendency to consider adjunct-status *vs.* lexical content only at the global level. (Note I have not claimed that either of these tendencies is the 'cause' of the other. Which, if either, is primary is a question which I leave open here.)

Many of these global, appositionally-implemented surface case-marking systems do not display a clear 'ergative' or 'accusative' (nominative-objective) patterning at the morphological level.

Consider, for instance, the Uṇaṛinjin system. There is an initial class for adjunct II to a two-adjunct transitive verb, and a second position, or central, 'pre-root' class for adjunct I. Sole adjuncts to intransitive verbs are cross-referenced in initial position:

ada ṇa - ma - ɾa	ada bud - ma - ɾa
<i>sit</i> 1 sg. - <i>do</i> - past	<i>sit</i> 3 pl. - <i>do</i> - past
<i>'I sat down'</i>	<i>'They sat down'</i>

This order class, since it is 'initial', could be identified with the 'initial' order class in which 'patients' to transitive verbs are

cross-referenced. But note that 'initial' position for the intransitive schema is also the immediate 'pre-root' or 'central' position, and could therefore just as easily be identified with the position assigned to 'adjunct I' of a transitive verb. The order-class evidence concerning 'ergativity' is therefore totally equivocal.

The form-class evidence is also equivocal. Compare the indicative verb prefix series:

	1 sg.	2 sg.	3 sg. Class I	1 Pl. Inc.	1 Pl. ex.	2 Pl.	3 Pl.
Intransitive	ŋa ₁	njin	a ₁	ŋar	njar	gur	bur
Trans 'agent'	ŋa ₂ [~] ∅	djam [~] dja ₂ [~] ∅	∅	ar	anjir-ra ₂ [~] ∅	na ₂ [~] ra ₂	ra ₂ [~] ∅
Trans 'patient'	ŋan [~] ∅	njin [~] njun	i [~] va ₁ [~] an	ŋada ₂	njada ₂	gunda ₂	bu [~] bi [~] bi [~] anda ₂

Formally, the intransitive prefixes seem to resemble the patient series more than they do the agent series. But there is the important difference that many more of the patient series show an -n- element (Heath's 'inverse' marker). This -n- could therefore be interpreted as an accusative, or 'objective' marker. But this functional-formal correspondence is only partial. Witness the fact that -n- is not always present on 'patient' markers, and furthermore *is* present on the 2 sg intransitive (and sometimes transitive) subject marker. A look at the equivalent series for verbs in the potential mood (see (Coate and Oates 1970:93-4, 96), who label this category 'irrealis') reveals the presence of -n- on five 'object' elements for which it is absent in the indicative series, but also on yet another *intransitive* subject marker (1 sg. ŋan-).

Aside from this significant tendency for -n- to function as an accusative marker, the patient series has more in common with the intransitive subject series than does the 'agent' series. In particular, agents are often represented by ∅, or ra₂[~] r, which is merely a general plural marker.

A comparison with the cognate Wunambal forms (for which, see Vászolyi 1976:643-5) suggests that these formal reductions have been effected by phonological processes acting on a system which originally marked adjunct status by order class alone. Prefix combinations in Wunambal are much more transparent. They follow a fairly straight forward agglutinative system. Person and number are often individually segmentable for subject *and* object markers. What is not segmentable is an accusative marker -n-. Rather, subject and object markers are often formally identical and *both* show a final -n. (As do all Uŋarɪnjin cardinal personal pronouns, which, of course, do not decline for 'case').

Compare the forms:

Uḡaṛinjin:

bu on, /bu - na₂ - √wu - n/
 3pl. lsg. act on present
 'I act on them.'

Wunambal:

burḡanbun, /bu(n)- r- ḡan- ø √bu- n/
 3rd per., human-plural-1 per-sg-hit-present
 'I hit them.'

The (n) in the Wunambal form above is one which usually appears on the 3 per. human morpheme (cf. Vászolyi 1976:644-5), and probably gets deleted here because of triple-consonant cluster restrictions. The important point to notice is that this -n- also appears on the 'agent' marker -ḡan.

Many of the irregularities among Uḡaṛinjin prefix combinations can be explained historically (and perhaps synchronically) by a restriction which demands that no prefix combination contain more than two syllables. In addition, the first syllable of the transitive combination or intransitive subject marker always receives at least secondary (and sometimes primary) stress, whereas the second syllable (if there is one) is almost always unstressed. Thus, irrespective of whether 'initial class' or 'central class' is the crucial category for *syntactic* purposes, it is the initial position which is *phonologically* salient. It is mainly these phonological processes which have created the appearance of different form classes marking syntactic functions. But until we have evidence of a syntactically significant reinterpretation of these 'form classes', we must abstain from drawing any conclusion concerning 'ergativity' on the basis of these facts alone.

But there *is* syntactic evidence that Uḡaṛinjin is not an 'ergative' language. There is a special 'long form' of the verb, which has been described formally by Coate and Oates (1970:52-4). My analysis of Uḡaṛinjin text reveals that this form is used (optionally) to signal that the 'subject' of the verb so marked is an NP which is coreferential to one occurring in previous discourse, usually in the immediately preceding clause or sentence. The notion 'subject' is, as far as I have been able to discover, one which can be motivated for Uḡaṛinjin solely by the operation of the syntactic transformation giving rise to these 'long forms' of the verb. As we have seen (p.15-16), there is little morphological evidence for a surface identification between 'adjunct X' and adjunct I or adjunct II. The slight

system. Syntactically, though, this transformation clearly characterises the system as an 'accusative' one, because, in the case of a transitive verb, it is sensitive only to the coreference status of the 'agent', and 'ignores' all other adjuncts. The transformation applies also to intransitive verbs in which instance it is of course, sensitive to the co-reference status of the sole adjunct.

In the discussion so far I have presented surface case marking systems of two types. 1. The Dyirbal-Lardil type, wherein grammatical case is shown only by nominal suffixes, and 2. the Un̄ar̄injin - Nunggubuyu type, where grammatical case is shown only by cross-referencing pronominal elements on the verb. These two types represent polar extremes within Australia. Between these two poles, there exist many languages which mark case by various combinations of these two methods. Within the northern 'prefixing region', there are many languages which show grammatical case by nominal suffixes as well, usually according to a locally conditioned (partly) ergative system.

Rembarnga, a prefixing language of central Arnhem Land, is thoroughly ergative in its system of nominal case inflection. Nouns, demonstratives and personal pronouns all show an ergative case in -yi?. (Cf. the above account of -yi in Dalabon, which is a neighbouring, related language. Francesca Merlan, who has done fieldwork on Dalabon, reports (personal communication) the Dalabon suffix is -yi?.) But, apropos of the system of pronominal affixation on the verb, "the forms of these prefixes appear to provide no conclusive morphological evidence one way or the other for a nominative-ergative system (as opposed to nominative-accusative)" (McKay 1976:495).

Nungali, a 'prefixing language' of the Victoria River area, has ergative case marking on nouns. There are four noun classes, which are indicated on some nouns by direct prefixation. On these nouns, the prefix takes a separate form for ergative case. Other nouns take ergative suffixes (Hoddinott and Kofod 1976). Ngaliwuru and Djamindjung, which are neighbouring, closely related (verb-) prefixing languages lack noun classes, and therefore noun prefixes, but show the same, suffixal, ergative marking (Hoddinott and Kofod 1976).

South of the 'prefixing region', among the so-called Pama-Nyungan family, all the languages show grammatical case by nominal suffixation. But there are many which, unlike Dyirbal and Lardil, supplement this system with a system of pronominal *suffixes* which occur singly (for some intransitive verbs) or in bound pairs (for other verbs). Often these elements go directly on to the verb or a verbal auxiliary. This seems always to be the case in Kalkatungu, for instance (Blake 1969:44-62).

In the northern part of the 'Western Desert' region, the verb stem is usually inflected only for tense, and there is an independent mode-

particle, to which the pronominal elements are suffixed. In other languages, such as Pitjantjatjara and Wembawemba (a Victorian Language), they can be suffixed to a word of any grammatical class, as long as it occurs clause-initially. (For the Wembawemba case, see Hercus (1969: 55 ff.).)

The languages which show these suffixed pronominals are almost all at least partly ergative in their nominal case-marking. But, curiously, the bound pronominals almost *never* pattern ergatively. Rather, the almost universal pattern for these systems is to mark 'agents' and 'intransitive subjects' in one form class, and to mark 'objects' in another. Thus, compare the following two Walbiri sentences:

15. $\eta\text{at}^{\text{y}}\text{ulu-!u } \phi\text{-}\eta\text{a-}\phi$ ka!i $\text{ya}\eta\text{ka}$ $\text{t}^{\text{y}}\text{a}\eta\text{tu-}\eta\text{u}$
I-erg. *def past-I-it boomerang that trim-past*
'I trimmed that boomerang'
 (Hale 1967-8/I:17)

16. $\eta\text{atjulu } \phi\text{-}\eta\text{a}$ $\text{pu!a} - \text{tja}$
I *def. past-I shout - past*
'I shouted'
 (Hale 1973:310)

Citing similar evidence from the Ngiyambaa language of New South Wales, Capell remarks: "This, of course, is not fully logical. Where both intransitive and transitive forms of subject-words exist, it might be expected that there should be two corresponding sets of verbal suffixes. In some parts of Australia this does actually happen in the expected way." (Capell 1967:28-9). But the two languages he cites as examples do not show ergative systems of suffixation. One of the, Yabula-Yabula, appears not to be a 'suffixing' language at all. The example given merely shows free pronouns operating on a nominative-ergative principle.

His second example, the Jaralde (Narinjari) language of South Australia has a nominative-accusative (objective?) suffixation system *except* for 1 sg, 3 sg, and 3 du, which show, not ergative, but three-way A-O-S formal distinctions. (See Yallop 1975:40-3). Incidentally, Capell (1966:64-5) has elsewhere cited this language as one which lacks the ergative marker. But Yallop (p.13) makes it clear that Narinjari did have an ergative, in *-il*.

Most often, these pronominal suffix systems show the kind of nominative-objective case marking discussed above in connection with the *nominal* case systems of Lardil and Ngarluma.

In Pitjantjatjara, we find three suffix form classes, described by Glass and Hackett (1970:37) as follows:

1. manifesting subject tagmeme in all clause types.
2. manifesting object tagmeme and also indirect object -instrument tagmeme, location-destination tagmeme, origin tagmeme, and benefactive tagmeme in all clause types.
3. manifesting clause level benefactive tagmeme and phrase level possessor tagmeme.

The second form class, then, merges separate functions served by the accusative and dative cases in nominative-accusative languages (and subsumes other 'concrete' functions as well). Glass and Hackett give examples of this form class being used to cross-reference direct objects of transitive verbs and indirect objects of intransitive verbs. Since there is only one 'slot' available for this form class in any given clause, there will, in some syntagms, be competition between direct objects and other NP functions for cross-reference. It would appear as though, in such instances, it is the direct object NP which 'loses out' and fails to be cross-referenced at all. Thus:

17. mantji - nu - ni - \emptyset nganku-lamatatji kuka- \emptyset
 got - me - 3 sg I - from meat
 (form class
 2, above)

'She got the meat from me'

(Glass and Hackett 1970:42)

(Incidentally, the *order* of the pronominal elements in combination is determined by a global hierarchical rule sensitive to 'person' features only: first person precedes second and second precedes third—a rule which is widespread among the 'Western Desert' languages.)

Walbiri, which exhibits nominative-ergative case marking for all nouns and free standing pronouns, has a similar nominative-objective suffixing system. Examples 15 and 16 show how this system operates for two-adjunct transitives and one-adjunct intransitives. Intransitive verbs with 'direct objects' are cross-referenced exactly like two-adjunct transitives:

18. η atjulu ka- η a- η ku njuntu-ku wa η ka-mi
 I present-1 -2 you-dative speak-non past
'I am speaking to you'

(Hale 1973:332)

where - η ku belongs to the same form class as the direct object in 15.

There is a distinct 'dative' marker for such verbs only for 3 sg. For all other persons and numbers, 'dative' and 'accusative' are identical.

Concerning 'double transitive' sentences, Hale remarks:

There is a small class of transitive verbs (that is, verbs whose subjects are ergative) which require both a direct object and an indirect object. A noun phrase functioning as the direct object of such a verb is in the absolutive case, while a noun phrase functioning as the indirect object appears in the dative. Only the subject and indirect object are represented by clitics in the auxiliary. I illustrate:

19. *ɲatjulu-!u ka-ŋa -ŋku ka!i yi-nji njuntu-ku*
 I-erg. present-1-2 boomerang give-nonpast you-dat.
 'I am giving you a boomerang.'
20. *ɲatjulu-!u kapi-ŋa-!a ka!i punta-ŋi kudu-ku*
 I-erg future 1 3 boomerang take-non-past child-dat.
 'I will take the boomerang away from the child'
 (Hale 1973:333)

Case patterning of this kind is typical of these pronominal suffixation systems: they are sometimes nominative-accusative, more often nominative-objective, but almost never ergative, nor lexically split in any way (except for ordering purposes, which has nothing to do with 'case'). Yet they most often occur in languages whose systems of *nominal* case marking are split-ergative, or as in the case of Walbiri, totally ergative. Why should this be?

Before we can even attempt to answer this question, we must ask: Why should these languages have pronominal suffixation systems at all? We have seen that in languages of the Nunggubuyu and Uŋaŋinjin type, the pronominal affixes are the sole means of indicating grammatical case, thereby making explicit the adjunct positions of major NP constituents in underlying structure. But in all of these 'suffixing languages' this information is always signalled on the NPs themselves. Grammatical case is never ambiguous *when the noun constituents are present in surface structure*. But therein lies the rub. For, if we examine the 'discourse structure' of Australian languages, we find that the almost universal method of anaphora within languages of all types is simple NP deletion. And in the nominal case marking languages, deleted NPs take their case marking with them. Thus, their adjunct status must be disambiguated by other means.

In Dyirbal (as per Dixon 1972), this information gets encoded at the surface through the operation of syntactic transformations. One of these transformations attaches -*ŋay-* to the verb. The presence of -*ŋay-* in surface structure tells us that the deleted NP functions as underlying 'agent' (A) or adjunct I to the verb so marked, and furthermore, that this NP is coreferential to one which functioned as an underlying 'patient' (P) or intransitive subject (S) in the previous clause.

There is another transformation which attaches -*ŋura-* to the verb. This morpheme signals that the deleted NP is an underlying S or O, and

that it is coreferent to an A in the previous clause. The absence of -*ḡay-* or *ḡura-* indicates that the deleted NP is an underlying S, or O and that it is coreferent to an underlying S, or O in the previous clause. (All of these formulations assume that the previous clause itself has not been -*ḡay-* or -*ḡura-* transformed. If it has, the coreference relations are different. But coreference and adjunct status remain 'recoverable').

Transformational mechanisms of this type are common in the nominal case-marking languages of Australia. In Ngayimil (a Yuulngu language of northeast Arnhem Land) for instance, there exists a battery of transformations which allow for any of *five* distinct adjunct types to be brought into the nominative case, which, as in Dyrbal, is the 'topic' case in which nouns can undergo anaphoric deletion (see Schebeck (1976) for this extremely interesting data). Unfortunately, Schebeck's findings are not directly comparable to Dixon's because his syntactic rules take the form of quasi-Harris transformations (though with Chomskian 'arrows!'), indicating relations between pairs of surface case configurations, rather than deep-surface relations of the TG or (Dixonian) type).

I submit that, if we are to understand the 'case' patterning of Australian pronominal suffixation systems, we must conceive of them as functional equivalents to these syntactic mechanisms facilitating zero anaphora, rather than as independent case-marking systems. In most of these suffixation systems, the elements cross referencing 3 sg NPs (the least marked type, since 'inanimate' affixes are never formally distinct) are formal zeroes. Thus, in their application to the least marked NP's, these anaphoric systems are directly comparable to the Dyrbal type (i.e. there is zero anaphora with no formal cross reference on the verb). But rather than setting up a 'topic' case, and signalling adjunct status by leaving traces on the verb of the 'derivational history' of the deleted NP, these systems do it instead by transferring person, number, and 'case' information to the verb or some other non-deleted element in the clause.

Such systems facilitate zero anaphora in two ways.

First, within a single suffixal form class associated with a given 'case', they allow for a lexical specification of the deleted NP. This increases the likelihood that the NP will be correctly identified as coreferent to some previous, nondeleted NP, since the possibilities become more limited. For example, if the affix specifies 3 pl., no other NP types can be coreferent to the deleted one. In the case of 1st and 2nd person, this specification is complete. That is, the suffixed pronominal element carries *all* the lexical specificity of the deleted

NP. In fact, in many languages, the personal pronominal affixes carry *more* lexical specification than the free pronouns (though the free pronouns may enter into 'periphrastic' NPs which are just as highly specified). For instance, Pitjantjatjara, which is typically 'Western Desert' in this respect, has only two cardinal pronouns, 1sg and 2sg (which may optionally be suffixed for number, and additional 'person' features). It is easy to see, then, why personal pronominal NPs are usually deleted. The more interesting question, as we shall see, is: why are they sometimes *not* deleted?

Second, within a given lexical class, there is partial specification of adjunct status. Typically, these systems show distinct form classes for two grammatical cases, one of which cross-references NPs functioning as S or A, and the other of which cross-references all other adjunct types. But within most of these suffixing languages (as we have seen above for Walbiri and Pitjantjatjara) these two case categories constitute a relatively 'collapsed' system which dissolves a distinction between direct and indirect objects made by the *nominal* case system within the language.

Indeed, it is just when the nominal system can disambiguate direct and indirect object functions that we often find pronouns or nouns present in surface structure which could otherwise be deleted. See, e.g. examples 18, 19, and 20 above, where *natjulu* (18), *njuntu-ku* (18, 19), *natjulu-!u* (19, 20), and (if anaphoric deletion were otherwise possible) the nouns themselves all serve this case-disambiguating function. In particular, the free-standing personal pronouns, which are always semantically redundant when cross-referenced, often occur in surface structure just because they bear case markers which convey more highly specified adjunct-status information than do the bound pronominals. For a Pitjantjatjara example see 17, where the 'object' clitic here cross-references a 1 sg pronoun in a 'concrete' oblique case. Had the surface pronoun been deleted, the clitic element could have been interpreted as cross-referencing a direct object.

Thus, in such languages, the primary means of grammatical case marking is found in the system of nominal suffixes. In so far as the pronominal suffixes mark case at all, they do so in order to facilitate zero anaphora, which is their primary function.

So in order to discover why they should pattern non-ergatively in a given language, one must examine the larger system of discourse structure in which they play their part.

Recall that in Dyirbal, zero anaphora was possible within an untransformed clause only if its underlying 'patient' or 'intransitive subject' was co-referent to an underlying 'P' or 'S' in the previous

clause. The -ḡay- and -ḡura- transformations signal a switch in function as follows: -ḡay-: S,O → A, -ḡura-: A → S,O. All of these facts, and others, point to a kind of 'underlying ergativity' in the operation of syntactic transformations (many of which are largely anaphoric in function). The significant fact here is that these transformations are sensitive only to underlying adjunct status, not to the lexical features of the NPs in question. Thus, even personal pronouns, which show nominative-accusative case endings, pattern ergatively for anaphoric purposes.

'Underlying ergativity' of the Dyirbal type is very uncommon even in Australia. Far more often, most if not all of the transformations of a given language pattern 'accusatively', regardless of how much 'ergativity' is apparent in the nominal case-marking morphology. Thus, for instance, Walbiri, which has ergative inflection for all NP types, shows a syntax which groups together S and A in opposition to all other adjunct types.

Pitjantjatjara, which inflects ergatively for all nouns, and accusatively for personal pronouns, has two switch-reference particles and two co-reference particles, all of which occur clause-initially, and often take the pronominal suffixes for the clause. The coreference particles indicate that the 'subject' of the clause so-marked is co-referent to the 'subject' of the previous clause; the switch reference particles indicate that it is not. (Glass and Hackett 1970:93-4). This facilitates deletion of the 'subject', disambiguating its reference and adjunct status. (Deletion occurs in four of the five examples they cite). But the notion of 'subject' here is a non-ergative one: it subsumes A and S and excludes all other adjuncts.

Thus, the implicit 'case' patterning shown by this particular anaphoric device in Pitjantjatjara is identical to that which we found among the Pitjantjatjara pronominal suffixes above, but does *not* correspond to the split-ergative case marking found among the nominal suffixes.

I submit that, in general, systems of pronominal affixation whose *primary* function is anaphora will reflect the underlying syntactic case patterning much more reliably than does the system of nominal case marking.

In particular such systems almost never show lexical-hierarchical splits. Case marking is determined only by adjunct status, not by lexical content. In this respect, they resemble the transformational anaphoric devices of Pitjantjatjara (co- and switch-reference particles) and Dyirbal (-ḡay- and -ḡura-), which both override the splits shown by the *nominal* case marking systems of these languages.

The only thing different about Dyirbal, of course, is the direction in which it overrides the split; the transformations operate in a strictly 'ergative' fashion. But this should not blind us to a fundamental similarity in the end result. Notice the surface case configurations produced by the -*ɲay*- transformation: all agents and intransitive subjects end up in the nominative case, regardless of their lexical specification, and, similarly, all patients end up in the dative case, which is, otherwise, the grammatical case for indirect objects. Thus, for surface case-marking purposes, the hierarchical split is overridden in the same direction as in Walbiri and Pitjantjatjara. There is an even more startling similarity. Both in Dyirbal -*ɲay*- clauses and in Walbiri-Pitjantjatjara suffix combinations, there are only two positions available for signalling grammatical case. In both systems, one of these 'slots' is reserved for A and S. In both systems, the second 'slot' is reserved for transitive objects, *except when they co-occur with indirect objects*, which take precedence in such instances. In the former system, the *direct object* is 'bumped' into the ergative case, and in the latter it simply fails to be cross-referenced.

Thus, at the reduced level of case elaboration at which these anaphoric systems are operating, the fundamental 'cases' seem to be 'nominative' and 'dative'. It is at just this reduced level that all the Australian languages, and, indeed the languages of the world appear most comparable. It may well be that these categories constitute a universal 'least common denominator' from which all our studies of grammatical case should proceed. (See Silverstein (1976) for further arguments to this effect.)

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HIERARCHICAL VARIATION IN PRONOMINAL CLITIC ATTACHMENT IN THE EASTERN NGUMBIN LANGUAGES

Patrick McConvell

1. INTRODUCTION

In this paper I discuss the similarities and differences in the attachment of pronominal clitics in three languages of the Ngumbin subgroup that I have studied to some extent, Gurindji, Mudbura, and Bilinara, together with some passing references to the operation of pronominal clitics in neighbouring languages. The Ngumbin languages share with the languages of the Western Desert region (the Wati and Ngarga subgroups of the Nyungic group) the grammatical feature of attachment of a clitic complex, consisting of formatives agreeing with certain NPs in the same simple sentence, to another element in the sentence. The pronominal clitics are quite similar in form throughout the Western Desert region. The areas in which there are notable differences in their behaviour as between different languages and dialects can be divided into three:

(a) The relations of *agreement* between the free NPs and the bound clitics which represent them. The three areas to be examined here are (i) case, (ii) person, and (iii) number (there is no grammatical gender or noun classification in the Ngumbin languages). It appears generally true for the Western Desert languages that there is a different organisation of case marking in the pronominal clitic system on the one hand and free NPs on the other; in the E. Ngumbin languages the free pronouns differ in their case system from either nouns or clitics. The difference is not simply one of a neutralisation of a set of cases in one system as compared to another, but different neutralisations of semantic cases in each system, producing an 'ergative' system for one nominal type and an

'accusative' system for another. The question of person need not take up much of our time, although we shall see that some difficulties do arise where the free pronoun system in Mudbura makes fewer distinctions of number and person than the clitic system (in other Australian languages the opposite situation also arises, e.g. Yukulta (Keen 1972)). As for number, in most of the Ngumbin languages, and some other neighbouring languages neutralisation of the distinction between dual and plural takes place under some circumstances where a dual clitic combines with a non-singular clitic (DUAL NEUTRALISATION). The environments which cause this neutralisation vary widely between different languages and dialects.

(b) The *order* of the clitics in the clitic complex. This appears to be determined by a combination of case, person and number of the clitics concerned in the E. Ngumbin languages. Variation in the surface orders of clitics is to be found in these and neighbouring languages. Two aspects will be considered here: (i) why clitics are found sometimes in the order subject-oblique, sometimes oblique-subject, and even, in Mudbura, subject-oblique-subject (see further under CLITIC SWITCH and CLITIC COPYING), (ii) why number markers (particularly those of subject clitics) appear sometimes adjacent to the person marker they refer to, sometimes separated from it by other clitics (SUBJECT NUMBER SHIFT).

(c) The element to which the pronominal clitics (henceforth, for the purposes of this paper, simply 'clitics') are attached. I shall refer to this element as the *clitic base*.

In the languages under consideration here this base may be either (i) an Auxiliary (often referred to by Capell, particularly in relation to the Ngumbin languages, as the 'catalyst'), (ii) a complementiser or negation marker, (iii) the initial constituent of the clause (sometimes the initial word) or (iv) the verb. These types I shall call respectively (i) Aux-attachment, (ii) Presentence Attachment, (iii) Initial attachment, and (iv) V-attachment. Languages may exhibit exclusively one type of attachment, or, as in the case of the languages to be examined here, more than one type, either in free variation, or in which the type is determined by the context in which the clitics appear.

I argue throughout the paper and in the conclusion that the concept of *hierarchy* elaborated by Silverstein (1976) in relation to case-marking may fruitfully be extended to explain not only the operation of the rules discussed here in individual languages, but also the range of variation found in different languages and dialects.

2. CLITIC AGREEMENT

2.1. PRONOUN AND CLITIC PARADIGMS

I take the rule of CLITIC ATTACHMENT to be a transformational rule which copies bundles of features from an NP or NPs in a simple sentence into another position in the same sentence. In the languages dealt with here, the clitics which cross-reference the NPs are attached to each other and suffixed to another word in the sentence. An optional rule of PRONOUN DROP follows CLITIC ATTACHMENT, deleting those of the NPs in the sentence which are pronominal and which have been cross-referenced by clitics.

As a guide to later discussion, the paradigms of free pronouns (1) and (2) and of clitic combinations (3)-(11) (S + O only; see Section 2.3. for further possible combinations) are set out below. In what follows G. stands for Gurindji (both dialects, where not otherwise specified); WG for Western Gurindji, EG for Eastern Gurindji; B for Bilinara, and M for Mudbura. WM and EM are also used in distinguishing Mudbura dialects. Elsewhere (a), (b) etc. are used to indicate dialectal forms which do not have a clear geographical basis. In the orthography j is a laminal palato-alveolar stop and y a palatal glide.

Free Pronouns

(1)	ABS	ERG	DAT	(2)	ABS	ERG	DAT
G, B				M			
1S	ŋayu		ŋayin		ŋayi		ŋayina
2S	nuntu		nunup		nuntu		nunupa
3S	nantu		nanup		naninaniŋi (-ŋi)		nanupa
1ID	ŋali		ŋalinup		ŋayi (kujara)		ŋayina (kujarawu)
1ED	ŋayira		ŋayiran		ŋayi (kujara)		ŋayina (kujarawu)
2D	nunpula		nunpulan		nuntu (kujara)		nunupa (kujarawu)
3D	nanpula		nanpulan		(Demonstratives used)		
1IT	ŋaliwula		ŋaliwulan		ŋayi (yukaŋu)		ŋayina (yukaŋuwu)
1IP	ŋaliwa		ŋaliwanup		ŋayi (taŋu)		ŋayina (taŋuwu)
1EP	ŋantipa		ŋantipanup		ŋayi (taŋu)		ŋayina (taŋuwu)
2P	nurulu		nurulun		nuntu (taŋu)		nunupa (taŋuwu)
3P	narulu		narulun		(Demonstratives used)		

Pronominal Clitics

(3) Singular Subject and Singular Oblique:

	G		O
	1	2	3
S	1. η anunu (RFL)	η anku	η a (DO) η ala (IO)
	2. yin	njunu (RFL)	n (DO) nkula (IO)
	3. yi	η ku	\emptyset (DO) η unu (RFL) la (IO)

B as above, except that η anu replaces η unu as RFL marker.

(4) Singular Subject and Singular Oblique:

	M		O
	1	2	3
S	1. η ayi (RFL)	η an η ku	η a (DO) η ala (IO)
	2. yin	η nanun (RFL)	n (DO) nku η a (IO)
	3. yi	η ku	\emptyset (DO) η anu (RFL) la (IO)

η ku is often realised phonetically as η u or η^w .

(5) Singular Subject and Non-Singular Oblique:

G	1ID	1ED	2D	3D	1IT	1IP	1EP	2P	3P
1	η anali (10)	η anayira- η unu (10)	η an η ku- wula	η awulin	η anali- wula (10)	η anala (10)	η anantipa- η unu (10)	η an η jura	η ayina
2	η ali (10)	η ayira	—	η pulin	η ali- wula (10)	η ala	η antipa (10)	—	η jina
3	η ali	η ayira	η kuwula	wulin	η ali- wula	η ala	η antipa	η jura	yina

B as above, except that η anu replaces η unu, η alawa sometimes replaces η ala.

WG as above, except: η alin replaces η ali; η ura replaces η jura; η ini/ η ini replace η jina/ η yina; η aliwa sometimes replaces η ala.

(6)

M	1ID	1ED	2D	3D	1IT	1IP	1EP	2P	3P
1	η anali- (η ju)(10)	η analiya (10)	η an η ku- wula	η awuli	η anali- wula(10)	η an η alaa (10)	η ananta (10)	η an η jura	η ayina
2	η alin (10)	η aliyan	—	η pulin (WM) wulin (EM)	η ali- wula	η alan (10)	η antan	—	η jinan (WM) yinan (EM)
3	η ali- (η ju)	η aliya	η kuwuna	wuli	η ali- wula	η alaa	η anta	η jura	yina

(7) Non-singular Subject and Singular Oblique:

G		O	
	1	2	3
S	1ID	—	— !i (DO) !i!a (IO)
	1ED	—	jaŋku ja (DO) ja!a (IO)
	2D	yinpula	— npula npula!a
	3D	yiwula	ŋkuwula wula (DO) wula!a (IO)
	1IT	—	— !iwula (DO) !iwula!a (IO)
	1IP	—	— !a(a) (DO) !aa!a (IO)
	1EP	—	ŋaŋkula ŋalu (DO) ŋalu!a (IO)
	2P	yinta	— nta (DO) nta!a (IO)
	3P	yilu	ŋkulu lu (DO) lu!a (IO)

(8)

M			
S	1ID	—	— !i (DO) !i!a (IO)
	1ED	—	jaŋku ja ja!a
	2D	yinpula	— npula (DO) npula!a (IO)
	3D	yiwula	ŋkuwula wula (DO) wula!a (IO)
	1IT	—	— !iwula (DO) !iwula!a (IO)
	1IP	—	— !aa~!awa (DO) !aa!a (IO)
	1EP	—	ŋaŋkula ŋali (DO) ŋali!a (IO)
	2P	yinta	— nta (DO) nta!a (IO)
	3P	yili	ŋkulu li (DO) li!a (IO)

B as G except that lawa sometimes replaces !a(a).

Also reported for G: an obsolete 1ET subject form jawula. Oblique and independent forms of this could not be elicited.

(9) Non-singular Subject and Non-singular Oblique:

EG	O			
	1I	1E	2	3
1I	RFL/RCP: !ipunu (D) !iwulapunu (T) !apunu (P)	—	—	(a) !ayina (b) !ayinaŋkula
1E	—	RFL/RCP: !apunu (D) !alupunu (P)	ŋaŋjurakula	ŋayinaŋkula
2	—	ŋantipaŋkula	RFL/RCP: npulanunu (D) ntanunu (P)	ŋjinaŋkula
3	ŋalaŋkulu	ŋantipaŋkulu	ŋjurakulu	yinaŋkulu RFL/RCP: wulapunu (D) lupunu (P)

!aa alternates with !a as 1IP marker.

In addition to the replacements mentioned earlier, B replaces G ŋkula with ŋulu, and has !awayinaŋulu instead of !ayina/!ayinaŋkulu.

(10)

M	O			
	1I	1E	2	3
1I	RCP: !iŋa (D) !iwulana (T) !aaŋa (P)	—	—	!aaŋulu
1E	—	RCP: !aŋa (D) !aliŋa (P)	ŋaŋjuraŋulu	ŋayinaŋulu
2	—	ŋantaŋulu	RCP: npuŋan (D) ntaŋan (P)	yinaŋulu
3	ŋalaŋulu	ŋantaŋulu	ŋjuraŋulu	yinaŋulu RCP: wuna (D) lina (P)

(11) Non-singular Subject and Non-Singular Oblique:

WG	O								
	1ID	1ED	2D	3D	1IT	1IP	1EP	2P	3P
1D	!ipunu (R/R)	—	—	!iwulip	—	—	—	—	!iyina
1ED	—	!apunu (R/R)	ŋapura- kulu	!ayina- kulu	—	—	—	ŋapura- ŋkulu	ŋayina- ŋkulu
2D	—	ŋayira- ŋkulu	npula- punu (R/R)	npula- yina	—	—	ŋantipa- kulu	—	ŋjina- ŋkulu
3D	ŋali- ŋkulu	ŋayira- ŋkulu	ŋura- ŋkulu	wula- yina- ŋkulu	ŋali- wula- ŋkulu	ŋala- ŋkulu	ŋantipa- kulu	ŋura- ŋkulu	yina- ŋkulu

1IT	—	—	—	!iwula- yina	!iwula- nunu (R/R)	—	—	—	!ayina
1IP	—	—	—	!ayina	—	!apunu (R/R)	—	—	!ayina
2P	—	(a) nqantipa- kulu (b) nqayira- nkulu	—	njina- nkulu	—	—	(a) nqantipa- kulu (R/R)	nta- nunu (R/R)	njina- nkulu
3P	(a) nala- nkulu (b) nali- nkulu	(a) nantipa- kulu (b) nayira- nkulu	nura- nkulu	(a) nala- nkulu (b) naliwula- nkulu	—	nala- nkulu	nantipa- kulu	nura- nkulu	yina- nkulu lupunu (R/R)

2.2. NUCLEAR CASES

In dealing with case I shall take the view that each NP in a sentence has a 'semantic case' associated with it at an underlying level, which is made up of a number of semantic features drawn from a universal set. Such deep cases are realised differently in different languages, by word order, verb-marking, prepositions, or, as in the Ngumbin languages, by case suffixes on nouns and adjectives. In their passage to surface structure, underlying cases undergo various neutralisations and distortions which eventually produce a *surface case system*. Here I shall not be concerned with the case-system at the deepest semantic level, about which a number of proposals have been made (Fillmore 1968, Chafe 1970). I shall refer here to an *underlying case system*, consisting of a larger number of cases than the surface system, which remains the same for the languages under discussion while the surface system varies slightly for different languages and for different types of nominal.

One such variation is that between nouns (in which I include non-pronominal NPs and adjectives), free pronouns, and pronominal clitics.

The surface case-system of nouns in the E. Ngumbin languages is typically 'ergative'. The agent or subject of a transitive verb (A) has an ergative case-suffix, whereas the patient or direct object of a transitive verb (O) and the subject of an intransitive verb (S) are in the absolutive case and have no suffix, e.g. (12).

(12)

G (a) numpit + tu nqarin pa + n + ana

B (b) numpin + tu nqarin pa + r + a

M (c) narka + !i nqarina pa + n + ini

man ERG meat ABS hit CM PRES

'A man (Aborigine) is killing some game'.

The instrumental case, although it may have the same form as the ergative, is never cross-referenced by a clitic, e.g. (13), in which the plurality

of the instrument is usually left unexpressed. This indicates that surface case alone does not present sufficient information for the correct application of CLITIC ATTACHMENT. The (b) forms are alternatives in which instrumental case is expressed by PROPRIETIVE + ERGATIVE in G and B, and by a distinct INSTRUMENTAL case in M cognate with the PROPRIETIVE in the other languages.

(13)

G	(A)	kaṇa	(a) +ṅku (b) +yawuṅ+ku!u	(*ṅu + { 1u yina })
		spear	(a) ERG (b) PROP & ERG	(*AUX { 3PS 3PO })
			pa + n + ana ṅaṛin hit CM PRES meat	
	(B)	miḷaraṅ	(a) +ku!u (b) +yawuṅ+ku!u	(* { +1u +yina })
		spear	(a) ERG (b) PROP & ERG	(* { 3PS 3PO })
			pa + ra ṅaṛin hit PRES meat	
M		miḷaraṅ	(a) ti (b) jaṛu	(* pa + { 1i yina }) pa+n+ini)
		spear	(a) ERG (b) INST	(* AUX { 3PS 3PO }) hit CM PRES)
			ṅaṛina meat	

'He is killing game with spears.'

In the independent pronoun system, the situation is different. There is no distinction between absolutive and ergative cases in pronouns in any of the languages, with the exception of the M third singular pronoun in which the ergative suffix can be added to an apparently extended form of the pronoun to form an ergative. Otherwise all three functions, S, A and O, are realised by the same unmarked form of the pronoun without suffix. This is illustrated in examples (14), (15) and (16).

(14)

G	(a)	ṅayu ṅu + ṅa ya + ni yala + ṅkura	to PAST that ALL
M	(b)	ṅayi pa + ṅa ya + n + ana yalu + ṅkura	1S AUX 1SS go CM PERF that ALL
			'I went there.'

(15)

G (a) *ŋayu ŋu + ŋa pa + ni ŋaŋin*
hit PAST

M (b) *ŋayi pa + ŋa pa + n + ana ŋaŋina*
1S AUX 1SS *hit* CM PERF *meat*
'I killed game.'

(16)

G (a) *ŋayu ŋu + yi pa + ni yalu + ŋku + ma*
hit PAST

M (b) *ŋayi pa + yi pa + n + ana yalu + !u + ma*
1S AUX 1SO *hit* CM PERF *that* ERG #
'That one hit me.'

In the clitic system, case is not expressed by suffixes. In most cases the person and case (and sometimes number) markers are fused into one formative. As far as the 'nuclear' S, A and O functions are concerned, in all cases except for 3rd singular, for each pronominal category there are two clitics, one cross-referencing NPs with the S and A function ('subject' or S), and another, usually quite dissimilar in form, cross-referencing NPs with the O function ('oblique' or O). In other words, whereas the noun surface case system was 'ergative', the clitic case system is 'accusative'.

In the 3rd singular, neither S, A nor O have any overt clitic marking. Like the free pronouns, their system is neither 'ergative' nor 'accusative'. This bears out Silverstein's (1976) prediction that where there is a split-case system, ergative marking on agents will occur at the lower end of the hierarchy (e.g. here non-pronominal NPs), and accusative marking on patients at the upper end of the hierarchy (e.g. here oblique marking in pronominal clitics, with the exception of third singular).

In the middle of the hierarchy there may either be an 'overlap' between the two systems, in which case all three major functions are formally differentiated, or, as in this case, there is a 'gap' between the two systems, in which case all three major functions are neutralised into one form. Put more formally, if the rule which assigns marked case to agents is dependent on the agent being $[-F^i]$, whereas the rule which assigns marked case to patients is dependent on the patient being $[+F^j]$, the class of elements with the features $[\begin{smallmatrix} +F^i \\ -F^j \end{smallmatrix}]$ fails to satisfy the conditions for either rule, and these elements remain unmarked.

Clearly the case-marking hierarchy for the Ngumbin languages is (17).

(17) Case Marking Hierarchy:

1. 1 and 2 clitics and non-singular clitics

- ii. 3S clitics
- iii. 1 and 2 free pronouns and non-singular free pronouns
- iv. 3S free pronouns
- v. non-pronominal NPs

It is desirable then to generate this hierarchy from the inherent features of the elements involved. The placing of 1st, 2nd, and non-singular, above -rd singular is easily effected since the former all have at least one plus value for one of the features [\pm I], [\pm II], or [\pm NS], whereas the latter have none. Similarly, pronouns and pronominal clitics are distinguished from other nouns by having the feature [+pro]. But how are clitics to be assigned a higher place on the hierarchy than independent pronouns? One might make use of a feature [\pm aff], which would indicate whether an element is a suffix (+aff) or an independent word (-aff). [-aff] elements would be preceded by a word boundary.

In any case we are not here dealing with a universal aspect of nominal-case hierarchies. Pronoun case-systems may tend universally to be more 'accusative' than nouns, but it is not true to say that pronominal clitic case-systems are universally more 'accusative' than those of free pronouns, although this may be true of most Australian languages. In Ubyx for instance, (Dumézil 1931), a Causasian language that has a 'split-ergative' case system, the pronominal clitics are 'ergative' in their order and partially in their form even in the third person, whereas the free pronouns are 'accusative' in their order and neither 'ergative' nor 'accusative' in their form, except in the third person, which has ergative marking. The particular historical development of the clitic system in conjunction with the direction of shifts in the balance between 'ergative' and 'accusative' marking of pronouns like those described by Dixon (1976) could well have a bearing on the present day marking of clitics in individual languages or language families.

The fact that the case-system of the clitics is 'accusative', that of the nouns 'ergative' and that of the pronouns neither, indicates that, as we noted before, the different forms of the clitics cannot be derived directly from the surface forms of the nouns they cross-reference. It seems rather that the features transferred by the rule CLITIC ATTACHMENT must include the three-way distinction S/A/O present at underlying level, perhaps in the following form:

(18)		agent	patient
	S	-	-
	A	+	-
	O	-	+

This rule applies, [-pat] transferring the agreement features first of

elements followed by those of some [+pat] elements (and possibly some others: this point is examined below) into the clitic position. After this CASE MARKING applies to nouns, pronouns and pronominal clitics.

'Ergative' and 'accusative' local case-marking rules would be universally of the form (19) (Silverstein 1976, McConvell 1976). All one would have to do in the grammars of G and B would be to substitute [pro] for [Fⁱ] and $\left[\begin{array}{c} \text{aff} \\ \text{I} \\ \text{II} \\ \text{Ns} \end{array} \right]$ for [F^j]. In M, Fⁱ would be replaced by $\left[\begin{array}{c} \text{I} \\ \text{II} \\ \text{NS} \end{array} \right]$, instead of simply [pro].

(19) CASE MARKING

'ergative'
 $\left[\begin{array}{c} +\text{agent} \\ -\text{patient} \end{array} \right] \rightarrow [+case] / -F^i$

'accusative'
 $\left[\begin{array}{c} -\text{agent} \\ +\text{patient} \end{array} \right] \rightarrow [+case] / +F^j$

2.3. PERIPHERAL CASES

The question of the cross-referencing of NPs bearing peripheral cases (other than S,A,O) is a rather complex one, which I do not yet fully understand. The surface DATIVE case (suffix ku/wu/u on nouns, G and B n, nup M. na on pronouns) represents a number of underlying cases: dative (i.e. person to whom thing is given; M uses absolutive for this as in (20c)), genitive, purposive, benefactive (which itself could be broken down into a number of distinct 'implicative' functions), etc. Surface datives are generally cross-referenced by O clitics (identical to those used for the transitive object function), except for 3rd singular, which is represented by the 'indirect object' (IO) marker !a. This is illustrated in (20). (20)(c) shows an underlying dative realised as an absolutive, and not cross-referenced when 3rd singular in M. 3(d) shows a benefactive realised as a dative and cross-referenced by !a in M.

(20)

- G (a) naṛin nu +{!a } jayi +na ṅalawuṅ + ku
yina
- meat AUX 3SIO give PAST son DAT
3PO
- B (b) naṛin + pa +{!a } pina + na ṅalawuṅ + ku
yina
- meat LINK 3SIO give PAST son DAT
3PO

M (c) $\eta a \eta i n a$ $\left\{ \begin{array}{l} \emptyset \\ p a + y i n a \end{array} \right\} \eta u + \eta + a n a \eta a l i n a$
meat $\left\{ \begin{array}{l} \emptyset \\ A U X \text{ 3PO} \end{array} \right\}$ *give* CM PERF *son* ABS

'He has given meat to the $\left\{ \begin{array}{l} s o n \\ s o n s \end{array} \right\}$.'

M (d) $\eta a \eta i n a$ $p a$ $\left\{ \begin{array}{l} +! a \\ y i n a \end{array} \right\} w a \eta \eta a + \eta a \eta a l i n a + w u$
meat AUX $\left\{ \begin{array}{l} 3 S I O \\ 3 P O \end{array} \right\}$ *get* PERF *son* DAT

'He has got meat for the $\left\{ \begin{array}{l} s o n \\ s o n s \end{array} \right\}$.'

In G, at least, there is a third set of markers that consist of the normal O marker followed by !a as in (21). In the case of 3rd singular, the marker in this set generally consists of simply !a, as in (21)(a), but some Western speakers appear to use a distinct marker !a + panta, as in (21)(b). In the same dialect, !a + panta is also used to cross reference two dative NPs, e.g. an underlying dative and an underlying benefactive.

(21)

G (a) $w a l \eta i n \eta u + \eta k u + ! a w a n i + p a m i l a + \eta k a$
fly AUX 2SO IO *fall* PAST *eye* LOC
 'a fly has settled on your eye'

(b) $w a l \eta i n n u + \left(\begin{array}{l} (a) ! a \\ (b) ! a + p a n t a \end{array} \right) w a n i + p a m i l a + \eta k a$
fly AUX $\left\{ \begin{array}{l} 3 S I O \\ 3 S I O \end{array} \right\} ?$ *fall* PAST *eye* LOC
 'A fly has settled on his eye.'

This set of markers cross-references COMITATIVE case ('together with'), LOCATIVE with animate, especially human, nouns, with a comitative or locative meaning, DATIVE with a locative sense and ALLATIVE and ELATIVE with animate, especially human, nouns. Normally LOCATIVE, ALLATIVE and ELATIVE (with inanimate nouns) are not cross-referenced by clitics at all, like instrumentals. Sometimes even human NPs in locative cases are not cross-referenced. It is difficult to tell whether this distinct set of clitic markers arises from the fact that the locative cases here are distinct from the locatives used with inanimates in being possibly [+PAT] or that they are simply determined by the feature combination [+ANIM] [+LOC]. M appears to use the 'dative' clitic set for the above functions.

If the locative cases that are cross-referenced are in fact [+PAT], this is further evidence that underlying case distinctions, which are not manifested in surface structure, are relevant both to whether CLITIC ATTACHMENT applies or not, and to the form of the clitics

generated. A further point is that the clitic complex in the E. Ngumbin languages is limited to the maximal string: S-O-|a. Clearly if there are a number of NPs (other than the subject) that could be cross-referenced, a choice has to be made as to which one or two are in fact to be cross-referenced. In many circumstances, the choice is limited to one by various restrictions on the form of the clitic complex. Such restrictions probably make it necessary to introduce surface constraints in addition to rules: this is left an open question for the moment. Work has been done on related questions for Walmadjari by Hudson and Richards (to appear) and for Walbiri by Hale (1973).

2.4. CASE SYSTEMS AND THE FORM OF CLITIC ATTACHMENT

The relations of the case systems of nouns, pronouns and clitics are shown schematically in the charts below:

(22)

SURFACE CASE

G, B

Underlying Case

	Nouns	Pronouns	Clitics	
			3s	Others
Inst.	PROP + ERG			S
A	ERG			
S		∅		
O				
Dat.			I	O
Gen.	DAT			
Ben.				
Purp.		DAT + DAT		
Comit.	DAT + LOC			O + I
Loc.	LOC			
	ALL	DAT + ALL		
W. animates	ELAT	DAL + ELAT		
Loc.	LOC	DAT + LOC		
	ALL	DAT + ALL		
W. inanimates	ELAT	DAT + ELAT		
				∅

(23)

SURFACE CASE

M

Underlying Case

Nouns

Pronouns

Clitics

	3S		Others	3S	Others
Inst.	INST				
A	ERG	(?) + ERG			S
S					
O			∅		
Dat.					
Gen.	DAT + NP Clitics (see Section 4.2.)				
Ben.	DAT			I	O
Purp.					
Comit.	LOC	DAT			
Loc w.					
animates	ELAT	DAT + ELAT			
LOC w.	LOC				∅
inanimates	ALL				
	ELAT				
		?			

We may now tentatively formulate the rule of CLITIC ATTACHMENT as (24) (α , α' and α'' are used to mean distinct unconnected variables with the domain \pm). The rule as shown does not indicate any hierarchy of precedence among peripheral NPs, which hierarchy probably does exist. BASE indicates the *base* to which the clitics are attached: its nature in different languages and the details of attachment are discussed in Section 4. Further rules are needed to spell out the output of this rule and to eliminate impossible sequences generated by it: some of these are given here very roughly as (25)(a)-(d).

(24) CLITIC ATTACHMENT

	BASE	X	NP	Y	NP	Z	NP
			-pat -loc α I β II γ NS δ D		+pat -ag α' I β' II γ' NS δ' D		+pat -ag α'' I β'' II γ'' NS δ'' D
SD:	1	2	3	4	5	6	7
SC:		+aff +pro -pat α I β II γ NS δ D	+aff +pro +pat α' I β' II γ' NS δ' D	+aff -pro +pat α'' I β'' II γ'' NS δ'' D		2 3 4 5 6 7	
	1+		+	+			

C: 1, 3, 5, 6 within same simple S

(25)

(a) $\begin{bmatrix} +aff \\ +loc \end{bmatrix} + ([+aff]) \rightarrow 1 \quad !a$

1 2 1 2

(b) $\begin{bmatrix} \{ [+ben] \\ [+loc] \} \\ -I \\ -II \\ -P \\ -D \end{bmatrix} \rightarrow !a$

(c) $\begin{bmatrix} \{ [+pat] \\ -ben \\ -loc \} \\ [-pat] \\ -I \\ -II \\ -P \\ -D \end{bmatrix} \rightarrow \emptyset$

(d) $!a + !a \rightarrow \left\{ \begin{array}{l} 1 \quad \emptyset \text{ (most dialects)} \\ 1 \quad na \text{ nta (some W. dialects)} \end{array} \right\}$

1 2

2.5. NUMBER

Some of the independent pronouns of G and B show some signs of being analysable as roots indicating person: 1 excl. $\eta\text{ay-}$; 1 incl. $\eta\text{ali-}$; 2 $\text{p}\text{un-}$; 3 $\text{p}\text{an-}$; with various suffixes indicating dual and plural. The range of variation in the suffixes and the effect on the roots casts doubt on the idea of viewing this as a synchronic process. The same is true of oblique clitics, which in most cases display a strong similarity to the independent pronouns (see (15)-(23)). The fact that some of the M oblique clitics are similar to the independent pronouns in the other languages may indicate that it too possessed a full set of independent pronouns at an earlier stage in its history.

In one case only, the 2nd dual in G and B the oblique clitic $\eta\text{ku} + \text{w}\text{ula}$ is clearly analysable as the 2nd sing. oblique clitic plus the dual suffix. This circumstance in fact causes ambiguity between the 3 sing. S - 2 du. 0 and the 3 du. S - 2 sing. 0 clitic-complexes, as in (26). In M, the ambiguity is resolved as in (27), by the addition of the reciprocal suffix $-\eta\text{a}$ to the dual oblique form. The general rule (28) produces the surface form. For further discussion of the addition of $-\eta\text{a}$ to 0 clitics in M, see Section 3.2.

(26)

G	$\eta\text{u} + \eta\text{ku} + \text{w}\text{ula}$	$\text{pa} + \text{pa}$
	AUX $\left\{ \begin{array}{l} \text{(a) 2DO} \\ \text{(b) 2SO 3DS} \end{array} \right\}$	see PAST

(27)

M	$\text{pa} +$	$\left\{ \begin{array}{l} \text{(a) } \eta\text{ku} \quad \text{wu} \quad \text{na} \\ \quad \quad 2 \quad \text{DO} \quad \text{RCP} \\ \text{(b) } \eta\text{ku} \quad \text{w}\text{ula} \\ \quad \quad 2\text{SO} \quad 3\text{DS} \end{array} \right\}$	$\text{pa} + \eta + \text{ana}$
	AUX		CM PERF

(a) 'He saw you two.'

(b) 'They two saw you (sing).'

(28)

M	$\text{p}\text{ula} \rightarrow \text{p}\text{u} / \text{---} \eta\text{a}$
	RCP

In G and B, for each of the pronominal categories cross-referenced by the clitic system there is a corresponding free pronoun (the only possible exception is the obsolete 1st trial exclusive clitic in G, referred to in the notes to table (7)). So in G and B, the clitic attachment rule could be formulated as a feature-copying rule without problems.

If we compare tables (13) and (14), we see that M does not incorporate number into its free pronoun system. While it is possible to add the dual numeral suffix + kujara or the plural independent numeral taʔu to the pronouns, as to any other NP, as in (29) and (30), this is not obligatory, and in many cases it is only the appearance of the clitics elsewhere that marks the number of the pronoun, as in (29b) and (30b).

(29)

M	$\left\{ \begin{array}{l} \text{(a) } \eta\text{ayi} + \text{kujara} + \text{li} + \text{ma} \\ \quad 1 \quad \text{two} \quad \text{ERG} \quad \# \\ \text{(b) } \eta\text{ayi} + \text{ma} \\ \quad 1 \quad \# \end{array} \right\}$	$\left\{ \begin{array}{l} \text{pa} + \text{la} \quad \text{pa} + \text{n} + \text{ini} \\ \text{AUX} \text{ IEDS} \text{ hit} \quad \text{CM} \quad \text{PRES} \end{array} \right\}$
	<i>'We two (excl.) are hitting it.'</i>	

(30)

M	$\left\{ \begin{array}{l} \text{(a) } \eta\text{ayi} \text{ ta}\text{ʔu} + \text{lu} + \text{ma} \\ \quad 1 \quad \quad \quad \text{ERG} \quad \# \\ \text{(b) } \eta\text{ayi} + \text{ma} \\ \quad 1 \quad \# \end{array} \right\}$	$\left\{ \begin{array}{l} \text{pa} + \text{na} + \text{li} \quad \text{pa} + \text{n} + \text{ini} \\ \text{AUX} \text{ IES} \quad \text{PS} \quad \quad \quad \text{CM} \quad \text{PRES} \end{array} \right\}$
	<i>'We lot (excl.) are hitting it.'</i>	

Note too that where the dual or plural numeral is added, the ergative suffix can also be added as in (31)(a) and (35)(a). Thus these combinations depart from the normal rule in the E. Ngumbin languages that the absolutive/ergative distinction is neutralised in the independent pronouns. This is a further indication that the numerals do not form a true part of the pronominal system.

A further deficiency of the M pronominal system as compared with the other languages is its lack of an inclusive/exclusive distinction in the first person. As well as (29) and (30), the same pronominal forms may be used as in (31) and (32) with a different clitic to give an inclusive meaning.

(31)

M	$\left\{ \begin{array}{l} \text{(a) } \eta\text{ayi} + \text{kujara} + \text{li} + \text{ma} \\ \quad 1 \quad \text{two} \quad \quad \quad \text{ERG} \quad \# \\ \text{(b) } \eta\text{ayi} + \text{ma} \\ \quad 1 \quad \# \end{array} \right\}$	$\left\{ \begin{array}{l} \text{pa} + \text{li} \quad \text{pa} + \text{n} + \text{ini} \\ \text{AUX} \text{ IIDS} \text{ hit} \quad \text{CM} \quad \text{PRES} \end{array} \right\}$
	<i>'We two (incl.) are hitting it.'</i>	

(32)

M	$\left\{ \begin{array}{l} \text{(a) } \eta\text{ayi} \text{ ta}\text{ʔu} + \text{lu} + \text{ma} \\ \quad 1 \quad \text{many} \quad \text{ERG} \quad \# \\ \text{(b) } \eta\text{ayi} + \text{ma} \\ \quad 1 \quad \# \end{array} \right\}$	$\left\{ \begin{array}{l} \text{pa} + \text{laa} \quad \text{pa} + \text{n} + \text{ini} \\ \text{AUX} \text{ IIPS} \quad \quad \quad \text{CM} \quad \text{PRES} \end{array} \right\}$
	<i>'We lot (incl.) are hitting it.'</i>	

If inclusive and exclusive are to be distinguished as isolated forms, speakers may append a suitable AUX element to the independent pronouns as in (a) *ɲayi pa + ʔi* 'you and me' and (b) *ɲayi pa + ʔa* 'him and me'.

So while in G and B the pronouns reflect a full set of combinations of four features, Mudbura pronouns only have two inherent features [$\pm I$] and [$\pm II$], of which two of the possible combinations [$-\overset{+I}{-II}$] and [$+\overset{+I}{+II}$] are both realised by the pronoun *ɲayi*.

In order to retain the CLITIC ATTACHMENT rule for M in the form (24), it is necessary to say that the Mudbura pronouns are fully marked for all four features at the time that the rule applies, but lose some of their features later. In the case of the number features one could say that the numerals *kujara* 'two', *yukaʔu* 'three' and *taʔu* 'many' are within the NP of which the pronoun is head in underlying structure and that they are optionally deleted after CLITIC ATTACHMENT. From a functional viewpoint, CLITIC ATTACHMENT clearly makes a rule like NUMERAL DELETION more likely to occur, but there need not be any explicit syntactic connection between them. NUMERAL DELETION would probably also cover the case of non-pronominal NPs that are often not overtly marked for number in all the E. Ngumbin languages, but have their number clarified by associated clitics as in (33)(a), which is far more common than (33) (b) with overt number marking on the noun.

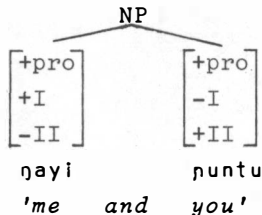
(33)

(a) <i>ɲarka</i>	}	<i>pa + li ya + n + ana</i>	<i>ɲura + ɲkura</i>
<i>man</i>		AUX 3PS <i>go</i> CM PERF	<i>camp</i> ALL
(b) <i>ɲarka + tara</i>	}		
<i>man</i> P			

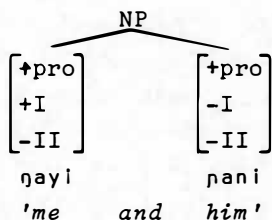
'The men went to the camp.'

Even if the above accounts for the presence of number in M clitics, how is the presence of the inclusive/exclusive distinction in M clitics to be accounted for? Presumably, 1st person non-singular pronouns derive from conjoined NPs, e.g. (34) for dual inclusive and (35) for dual exclusive.

(34)



(35)



At this level, features are added to the conjoined NP as a whole by adding together the number of singular NPs (which comes to two, i.e. dual in (34) and (35)), and assembling together the plus-valued person-features (yielding $[\begin{smallmatrix} +I \\ +II \end{smallmatrix}]$ for (34) and $[\begin{smallmatrix} +I \\ -II \end{smallmatrix}]$ for (35)). It is on the basis of this combination of features that CLITIC ATTACHMENT operates. In G and B, the pronouns are also generated directly by spelling out these combinations of features. In M, however, the pronouns are formed by taking only the feature [+I] into account, if it is present, and [+II] if [+I] is not present, and ignoring the right hand part of the conjunct, except for the purpose of counting the total number of NPs. This summed number then provides the specification for the segmentalised numeral within the NP.

One peculiarity of all the E. Ngumbin languages is the existence of a first person trial clitic (and pronoun in G and B). These forms are used nowadays mainly by older speakers, and in M, the plural seems to be an optional substitute for the trial. The obsolete exclusive trial form noted in G will not be considered here, as it is somewhat doubtful.

The form of the inclusive trial is that of the inclusive dual, with a further dual morpheme *-wula* suffixed to it. The fact that the trial is indicated by a dual suffix may be taken as evidence that the inclusive trial is somehow parallel to the duals of other persons.

If one takes the position that inclusive has a redundancy relationship with non-singular of the kind which applies without exception, i.e. that inclusive automatically means non-singular, then trial number cannot be distinguished from other numbers by using only the four features available, which are [+I], [+II], [+NS], [+D]. A new feature [+trial] must then be added. This new feature provides no explanation of why the trial form is limited to inclusive persons. But there is some evidence that inclusive duals do not behave like non-singulars [+NS] in some circumstances. In E. Ngumbin languages, all combinations of dual and dual, and dual and plural subject and oblique clitics undergo some change whereby either one or both of the dual elements becomes plural. This DUAL NEUTRALISATION rule is discussed fully in the following section. In WG, however, as seen in (II), 1st inclusive dual

pronoun subjects do not behave in this way: where they combine with third dual oblique, both subject and oblique clitic retain their dual form: $!i+wu!ip$. 1st incl. du. S. here behaves like a singular clitic in that it does not alter the form of the following oblique clitic. 1st inclusive trials, however, follow the pattern of duals of other persons in triggering the application of DUAL NEUTRALISATION. Further, inclusive dual is often used as the unmarked form of the inclusive in a plural sense as in (36).

- (36) $n!i\ a\ \eta\!a\!i\ +\ \eta\!u\!p\ \eta\!u\ +\ \eta\!a\!i\ \eta\!u\!r\!a\ +\ m\!a$
that 1ID DAT AUX 1IDO *country #*
'That is our (plural) country.'

This parallels the fact that the dual inclusive is the basic form upon which the trial and plural forms are built by suffixation.

Trial number is found in inclusives only elsewhere in Australia and is most often associated with the situation in which the inclusive 'dual' behaves in ways more like a singular than a non-singular. McKay (1975) has suggested for Rembarnga, which has such a system, that the feature system for number should involve the terms [+augmented] and [\pm unit augmented].

As far as I can tell, the difference between this system and the non-singular/dual system as used here is a purely terminological one that should be resolved by simply adopting either one or the other labelling. In this paper I retain the more traditional terms non-singular (NS) and dual (D). The real difference between pronominal systems like that of Rembarnga and the E. Ngumbin languages, on the one hand, and those in which there is no inclusive trial (and the inclusive dual is a full grammatical dual) is that in the former languages the counting procedure that yields number as a feature on conjoined NPs mentioned above (and more fully described in Hale 1973) treats the conjunction of a 1st singular and 2nd singular pronoun as if it were a singular unit, by counting only [+I] and [$\begin{smallmatrix} -I \\ -II \end{smallmatrix}$] units if [+I] is present and by counting all units if [+I] is not present.

The latter languages are less marked in that they count all units without discrimination, but as a result they produce redundant [+NS] marking on all [$\begin{smallmatrix} +I \\ +II \end{smallmatrix}$] pronouns.

The problem in the E. Ngumbin languages is that the occasions in which the inclusive dual behaves like a singular discussed above are outweighed by those in which it behaves like a non-singular:

- (1) In WG, the 1IDO causes neutralisation of a dual subject ($\eta\!a\!i\ +\ \eta\!k\!u\!l\!u$ in (11)).
- (2) In WG (b) the 1IDO behaves like the 1EDO in not being neutralised

by a plural subject.

(3) In EG, B and M, both lIDS and lIDO undergo dual neutralisation like other duals, although they still have trial inclusive forms.

(4) NG(K)U-INSERTION applies to !u following lIDO ɲa!i: this normally only applies where the O clitic is non-singular.

(5) Inclusive duals may be accompanied by the numeral kujara 'two' in agreement with it, e.g.:

(37)

G ɲu+!i ya+n+ku kujara
 AUX lIDS go CM FUT two
 '*Both of us will go.*'

Similarly trials may be accompanied by murkuɲ 'three'.

(38)

G ɲu + !i + wula ya + n + ku murkuɲ
 '*The three of us will go.*'

(6) In M, inclusive dual S clitic may be followed by the RCP suffix ɲa, which is not normally possible for singular S clitics.

(7) The $[-\overset{-D}{NS}]$ element left after SUBJECT NUMBER SHIFT has applied to plural inclusives is realised as plural inclusive !a(a), not dual !i (see Section 3.1.).

We must conclude that in these cases the more common type of counting procedure *has* applied to $[\overset{+I}{+II}]$ dual pronouns to mark them $[\overset{+NS}{+D}]$. We therefore propose that in the E. Ngumbin languages there are two sets of features accounting for number in inclusives:

(39)

		$[\overset{+I}{+II}]$			
		'dual'	'trial'	'plural'	
(a)	NS	-	+	+	
	D	-	+	-	
			└──────────┘		
(b)	NS	+	+		
	D	+	-		

The (a) system is used to determine the form of the pronouns and clitics and, anomalously, the grammatical behaviour of the S clitic with regard to DUAL NEUTRALISATION; the (b) system governs all other grammatical behaviour of inclusives that I am aware of. System (a) seems to be losing ground to system (b), presumably under the influence of the paradigms of other persons, so that the trial forms are losing currency.

It is possible that one could arrive at a generalisation about the use of the two systems by saying that (a) determines more superficial

processes (the morphophonological realisation of elements) and (b) deeper syntactic processes. It is shown in the following section that DUAL NEUTRALISATION in WG, is made up of two rules, one for S clitics and one for O clitics. If it could be shown that in addition the two rules are ordered S-D-N followed by O-D-N, then it might be possible to explain why O-D-N alone among syntactic rules uses the (a) number system, because of its more superficial nature. How all this might relate to the counting procedures that produce number remains unclear, however.

2.6. DUAL NEUTRALISATION

The term 'dual neutralisation' refers to the process that leads to the appearance of clitics which are semantically dual as surface-structure plural clitics because of their combination with other non-singular clitics. A similar phenomenon has been described for Walbiri and reported for Warramungu (Hale 1973). In the dialects of M, B and EG that I know, the DUAL NEUTRALISATION rule is quite simple. Wherever a subject clitic is combined with an oblique clitic, and both are non-singular, any clitic that is dual becomes plural. This rule can be formulated as (40) and is of the mirror-image type in order to avoid stating two rules, one for neutralisation of subject clitics and one for oblique clitics. In what follows it is assumed that clitics have the order S-O at the time that DUAL NEUTRALISATION applies. Changes to this order are discussed in Section 3.

(40)	DUAL NEUTRALISATION
EG, B, M, E. Walbiri	$+ \begin{bmatrix} + \text{pro} \\ + \text{NS} \end{bmatrix} \quad + \begin{bmatrix} + \text{pro} \\ + \text{D} \end{bmatrix}$
	SD: 1 2
	SC: 1 2
	[-D]
	C: mirror-image

The general easterly location of the languages using this simple rule accords well with Hale's (1973) observation that it is Eastern Walbiri and Warramungu that have a simple rule, whereas in Western Walbiri the rule is more complex. In the Western dialect of Walbiri dual clitics may retain their dual form on all occasions when they are combined with plurals. Where there are two duals combined, a hierarchy of persons (1st precedes 2nd precedes 3rd) and (occasionally) prominence in discourse determines which of the clitics remains dual and which becomes plural, the higher being the one that remains dual.

The dialect of Gurindji referred to here as WG (sometimes called Malngin, although it is somewhat more like EG than far northern and

western Malngin) also diverges from the simple rule but in a different way that gives the neutralisation rule a wider scope of application. Instead of allowing duals to remain intact where they are combined with plurals, as in Western Walbiri, WG changes all duals to plurals in such combinations (with the exception of 1st incl dual subjects, which have already been discussed in Section 2.5., and for some speakers 1st incl. and excl. dual obliques (dialect (b) forms)). It is only where *two duals* combine that one may remain dual, again the higher in a person hierarchy which is further discussed below, and which is similar but not identical to the Walbiri hierarchy.

So W. Walbiri adds [+D] to item 1 of the simple rule (40), a hierarchical condition, and a further condition dealing with topicality, labelled X here: (41). WG, on the other hand, adds [-D] to item 1 of (40) to produce (42) for the (a) dialect and (43) for the (b) dialect, and further rules that take care of what happens if item 1 is [+D].

(41)

W. Walbiri SD, SC as (40)
 C: (a) mirror-image
 (b) 1 is +D
 EITHER (c) 2 1 1. I
 ii. II
 OR (d) X

(42)

WG (a) SD, SC as (40)
 C: (a) mirror-image
 (b) 1 is [-D]

(43)

WG (b) SD, SC as (40) (but not mirror-image)
 C: (a) 1 is [-D]
 (b) 2 is [-I]

If we now consider the combinations of dual and trial clitics of WG in (11), we find the rather puzzling pattern set out in (44). If we ignore the addition of right-hand plural subject markers discussed in Section 3.1., it is clear that the pattern is based on a hierarchy similar to the familiar 1 > 2 > 3 hierarchy, but slightly different from that usually found. The explanation appears to be that instead of one unified ranking system, there are two slightly different systems, in which obliques are somewhat more prone to neutralisation than subjects. (This may be a syntactic reflection of the discursive hierarchy of Walbiri, since subjects are more frequently topics than obliques). The point of intersection of the two system is C, in which both the

subject and oblique clitics become dual.

Despite their apparent oddity, the whole set of neutralisations in (44) can be represented by two DUAL NEUTRALISATION rules with hierarchical conditions, one dealing with obliques, (45), and one dealing with subjects, (46).

(44) DUAL/DUAL COMBINATIONS

M	Group	Change	S	O	S	O
	A	S remains D, T	1 excl -	$\begin{Bmatrix} 2 \\ 3 \end{Bmatrix}$	$\begin{bmatrix} +I \\ +II \end{bmatrix}$	$[-I]$
		O becomes P	$\begin{Bmatrix} 1 \\ 2 \\ 3 \end{Bmatrix}$ incl T	- 3	$\begin{Bmatrix} [+II] \\ [-I] \\ [-II] \end{Bmatrix}$	$\begin{bmatrix} -I \\ -II \end{bmatrix}$
	B	S becomes P	$\begin{Bmatrix} 3 \\ 2 \end{Bmatrix}$	- 1	$[-I]$	$[+I]$
		O remains D, T				
	C	S and O become P	3	- 2	$\begin{bmatrix} -I \\ -II \end{bmatrix}$	$[+II]$

(45) OBLIQUE DUAL NEUTRALISATION

M		+	$\begin{bmatrix} +pro \\ +D \end{bmatrix}$	+	$\begin{bmatrix} +pro \\ +D \end{bmatrix}$
	SD:		1		2
	SC:		1		2
					$[-D]$
	C:	(a)	1 is +P		
		(b)	1 > 2 [I]		

(46) SUBJECT DUAL NEUTRALISATION

M	SD:	as (45)
	SC:	1 2
		$[-D]$
	C:	2 > 1 $\begin{Bmatrix} [I] \\ [I] \\ [II] \end{Bmatrix}$

The condition on (45) means 'where the subject clitic has more or the same number of plus values with respect to the feature I than the oblique clitic'. This rule accounts for the neutralisation of dual oblique clitics in groups A and C of (44). There is clearly a relationship between this 'global' rule and the 'local' rule (43) of WG (b) (for 'global' and 'local', see Silverstein (1976)). The condition on (46) means 'where the oblique clitic has more plus values with respect to either the feature I or the features I and II taken together, than the subject clitic'. This rule accounts for the neutralisation of dual subject clitics in groups B and C of (44).

It is interesting to compare the operation of the DUAL NEUTRALISATION rule of WG with that of Ngarinman, its north-easterly neighbour within the same group. Here I draw upon the notes made by Capell in 1939, as I have done no more than record some short texts in this language myself. Although incomplete, (47)-(50) show clearly that DUAL NEUTRALISATION operates in Ngarinman in a more limited way than in any of the other languages discussed. This confirms our earlier observation that DUAL NEUTRALISATION is at its strongest in the southeast, and the range of environments in which it applies decreases as we move farther northwest.

Ngarinman (=Ng) Non-Singular Clitic Combinations (after Capell; orthography changed).

(47)		DO			
		1I	1E	2	3
	1I	_____	_____	_____	!lwiln
	1E	_____	_____	jakula	jawiln
DS	2	_____	npula- ḡaylraḡ	_____	npula- wiln
	3	_____	(a) wula- ḡaylraḡ (b) ḡaylra- ḡkulu	(ḡ)kula	wiln
(48)		PO			
		1I	1E	2	3
	1I	_____	_____	_____	liyinln
	1E	_____	_____	januraḡ	jaylnln
DS	2	_____	npula- ḡantipa	_____	npulaylnḡ
	3	_____	ḡantipa- ḡkulu	(a) wula- nuraḡ (b) nura- ḡkulu	wulaylnḡ
(49)					
		1I	1E	2	3
	1I	_____	_____	_____	_____
	1E	_____	_____	_____	_____
PS	2	_____	(n)taḡaylraḡ	_____	(n)tawiln
	3	_____	ḡaylraḡkulu	(ḡ)kula	wiln
(50)					
		1I	1E	2	3
	1I	_____	_____	_____	_____
	1E	_____	_____	ḡalupura	_____
	2	_____	?ḡaylnḡta	_____	(n)taylnln
	3	ḡallwaḡkulu	ḡantipa- ḡkulu	nura- ḡkulu	luylnḡ

In Ngarinman as recorded by Capell, only subjects may be neutralised; both the mirror-image nature of the original rule and the rule OBLIQUE DUAL NEUTRALISATION are absent. The hierarchy 1 > 2 > 3 recurs in weakened form; neutralisation takes place at most only where the oblique is [+I] or [+II] and the subject is $[-\begin{smallmatrix} I \\ II \end{smallmatrix}]$. Assuming that the (a) and (b) forms of (47) and (48) represent different dialects, we have in dialect (a) the rule (51), by which the operation of DUAL NEUTRALISATION is confined to *only one* clitic combination. In dialect (b) there is the rule (52) in which the condition is hierarchical and applies to four combinations of clitics. Of the four, however, it does not appear to act in one case, that of 3 du. S-2 du. O. This combination is realised by (ŋ)kula (cognate with G. ŋkuwula), in which the subject dual is not marked. This also occurs with wilin, and it reminds me of the occasional omission of non-singular subjects that I have noted in G. It may represent a distinct type of neutralisation rule, but the available data support no further discussion of it at this point.

(51) DUAL NEUTRALISATION

Ng (a) SD as (45) except [+NS] instead of [+D] in 2; SC as (46)

C: 1 is $[-\begin{smallmatrix} I \\ II \end{smallmatrix}]$ (a) 2 is $[-\begin{smallmatrix} I \\ II \end{smallmatrix}]$ (b) 2 is $[-\begin{smallmatrix} D \\ I \end{smallmatrix}]$

(52)

Ng (b) SD, SC as for 'A'

C: 2 > 1 $\left\{ \begin{array}{l} I \\ II \end{array} \right\}$

3. THE ORDER OF CLITICS

3.1. SUBJECT NUMBER SHIFT

Up to now it has been assumed that clitics are first generated in the order S-O, with number features associated with the person features. The following sections examine deviations from this order and how they arise. Where an oblique clitic follows a plural subject clitic, the subject person morpheme is placed to the left of the oblique clitic and the subject number morpheme to its right, as in (53). Where the object is non-singular, an element ŋu in B and M and ŋku in G, is added between the oblique clitic and the subject number morpheme as in (54). ŋu takes secondary stress, but ŋku follows the syllable which takes secondary stress. As in (54)(a), ŋkulu becomes kulu by a general phonological rule when it follows a nasal cluster. The element ŋku originally arose from the fact that clitics had final ŋ: the link ku was then inserted. Reanalysis has now taken place in Gurindji. See also Section 4.8.

(53)

- G (a) ɲaja + ɲa + ɲku + lu pa + n + ana
hit CM PRES
- M (b) pi + ɲa + ɲku + lu pa + n + a + ra
ADMON. AUX 1S 2SO PS hit CM GEN
'We might hit you (sing.).'

(54)

- EG (a) ɲája + ɲa + ɲjurá + kulu
- WG (b) ɲája + ɲa + ɲurá + ɲkulu panana
- M (c) pʃ + ɲa + ɲjura + ɲulu panara
ADMON. AUX 1S 2PO PS hit
'We might hit you (plur.).'

One might reasonably suppose that the feature bundles referring to each cross-referenced NP are transferred as one unit by CLITIC ATTACHMENT. The subject number element is subsequently moved to the right by another rule, which we shall call SUBJECT NUMBER SHIFT.

One piece of evidence for this is the sporadic occurrence in texts by WG and sometimes EG speakers of forms like (55) instead of (54)(b) in which the subject number morpheme is not moved to the right.

(55)

- G (occasionally) and Ng ɲaja + ɲa + lu + ɲura panana
ADMON. AUX 1S PS 2PO hit

If such forms are pointed out to speakers, they will usually correct them to forms like (54)(b), but they do appear to be genuine alternatives. In G's northern neighbour Ngarinman, SUBJECT NUMBER SHIFT operates in far fewer cases, and the order of clitics in (55) is the regular one (see 47-50).

In the case of dual subjects combined with objects, the dual marker may appear to the right of the oblique when the dual is third person and the object non-third person, as in (26)(b) and (27)(b). On this evidence alone, the order might be interpreted as resulting from SUBJECT NUMBER SHIFT. But when the dual subject is 1st and the oblique 2nd, as in (55), or the dual subject is non-third person and the oblique 3rd person, or both subject and oblique are 3rd person, as we see in (11), the dual marker remains to the left.

(56)

- G (a) ɲaja + ja + ɲku panana
- M (b) pi + ja + ɲku panara
ADMON. AUX 1DS 2SO hit
'We two might hit you (sing.).'

The differential application of this movement is determined by a nominal hierarchy of the same kind as that involved in the rule CLITIC SWITCH, discussed in the following section. We may conclude from this that the movement of dual markers results from CLITIC SWITCH, not from SUBJECT NUMBER SHIFT.

Where SUBJECT NUMBER SHIFT operates on plural subjects the element remaining to the left is the singular person morpheme. In most languages, DUAL NEUTRALISATION prevents dual subjects co-occurring with non-singular objects. However, in WG, SUBJECT NUMBER SHIFT operates in some cases when dual subjects are retained. In such cases (+ja+yina+ŋkulu, +ja+nura+ŋkulu and +wula+yina+ŋkulu in (11)), the dual subject form is retained and a plural marker added to the right of the oblique clitic.

One way of handling this case together with the other cases of SUBJECT NUMBER SHIFT would be to say that where the subject clitic is [+NS], the [+NS] feature (i.e. the non-singular feature) is transferred away from the subject person marker to the right of the oblique clitic, and is realised as an otherwise unspecified [+NS] (i.e. plural) suffix. The subject marker, if originally plural, retains only the feature [-D] and is realised as singular, but if it was originally dual (or trial), it retains the feature [+D] and is realised as a dual or trial morpheme.

In the case of the inclusive forms in EG, B and M, the DUAL NEUTRALISATION rule has already reduced all subjects to [-D]. When the [+NS] feature is moved away to form the plural suffix, [-D] remains the only number specification on the subject clitic. Since the only [-D] inclusive form is the plural in the (b) number system discussed in Section 2.5., it is the plural form that is placed in subject position.

The rules SUBJECT NUMBER SHIFT and NG(K)U INSERTION may therefore be formulated as (57) and (58), respectively. (These rules are assumed to apply before 3rd sing. S is deleted).

(57) SUBJECT NUMBER SHIFT

G, B, M	+	$\left[\begin{array}{c} +\text{pro} \\ +\text{NS} \end{array} \right]$	+	$[\text{+pro}]$
SD:	1		2	
SC:	1		2 +	$\left[\begin{array}{c} +\text{pro} \\ +\text{NS} \end{array} \right]$
	$[-\text{NS}]$			

(58) NG(K)U INSERTION

	+	$[\text{+pro}]$	+	$\left[\begin{array}{c} +\text{pro} \\ +\text{NS} \end{array} \right]$	+	$\left[\begin{array}{c} +\text{pro} \\ +\text{NS} \end{array} \right]$
SD:	1		2		3	
SC:	1		2	(M, B) ŋu		3
			(G)	ŋku		

Since we have proposed that all plural suffixes to the right of the oblique clitic are placed there by a general rule of SUBJECT NUMBER SHIFT, we must also explain why the plural suffix is *not* present in some cases when it might be expected.

In fact, there is dialectal variation in this area of the grammar. Hale made some notes of a dialect of Gurindji spoken by Smiler Major (SMG) in Alice Springs in 1959, in which, as in WG, DUAL NEUTRALISATION does not apply in every case. As in WG, one of the cases in which it does not apply is when there is a second dual subject and a third dual oblique, in which only the latter is neutralised to plural. In WG, there is no plural subject suffix as in (59), while in SMG there is a plural subject suffix but no oblique suffix, as in (60).

In (60), the presence of *ŋku* indicates that the oblique clitic, which is missing in surface structure, was [+NS], and, given the dual subject clitic, could only have been an underlying dual. We seem to be dealing here with two rules, one of which deletes the right-hand subject number marker (SUBJECT PLURAL DELETION) and, another (OBLIQUE PLURAL DELETION), which occurs in SMG, which deletes plural oblique clitics after NG(K)U INSERTION has applied, rendering the object clitic redundant.

OBLIQUE PLURAL DELETION also applies where the subject is 1st inclusive and the object dual or plural in SMG (61) (cf. EG 62) and M (63). The rule may therefore be formulated as (64).

Returning to SUBJECT PLURAL DELETION, it occurs where the underlying subject is dual and the oblique singular, in all languages as in (56). In WG, it also applies precisely in those circumstances in which OBLIQUE PLURAL DELETION occurs in SMG, where the subject is 1st incl. or 2nd person, and so can be formulated as (65). In WG, and for some speakers of EG, as in (62)(a), SUBJECT PLURAL DELETION also applies when the subject is 1I, but in B and for other speakers of EG, it does not, producing (62)(b).

(59)

WG *ŋu + n + pula + yina ma + ŋi*
AUX 2S DS 3PO(D) *say* PAST
'You two told them two.'

(60)

SMG *ŋu + n + pula + ŋku+lu ma + ŋi*
AUX 2S DS PS *say* PAST (=59)
'You two told them two.'

(61)

SMG pa + ru + |aa + ŋku + lu
 hit FUT 1IPS LING PS
 'let's hit them.'

(62)

EG (a) pa + ru + |aa + yina
 (b) pa + ru + laa + yina + ŋku + lu
 hit FUT 1IPS 3PO LINK PS
 'let's hit them'

(63)

M pa + |aa + ŋu + lu + nu + ŋ + ku
 AUX 1PS LINK PS give CM FUT
 'we (incl.) will give it to them.'

(64) OBLIQUE PLURAL DELETION

	+ [+pro]	+ $\left[\begin{array}{c} +pro \\ +NS \end{array} \right]$	+ $\left[\begin{array}{c} +pro \\ +NS \end{array} \right]$
SD:	1	2	3
SC:	1	∅	3
C:	(SMG) 1 is [+II]		
	(M) 1 is $\left[\begin{array}{c} +I \\ +II \end{array} \right]$		

(65) SUBJECT PLURAL DELETION

	+ [+pro]	+ [+pro]	+ $\left[\begin{array}{c} +pro \\ +NS \end{array} \right]$
SD:	1	2	3
SC:	1	2	∅
C:	(M, B) 1 is [+D] and 2 is [-NS]		
	(G) either 1 is [+D] and 2 is [-NS]		
	or 1 is $\left\{ \begin{array}{c} [+II] \\ [+D] \\ [+I] \\ [+II] \end{array} \right\}$	and 2 is [+NS]	

SUBJECT NUMBER SHIFT, as well as DUAL NEUTRALISATION, suffers a diminution of its scope of application in Ngarinman, as remarked earlier in relation to the apparent sporadic optionality of the rule in G. In Ngarinman, the rule applies only when the subject NP is $\left[\begin{array}{c} -I \\ -II \end{array} \right]$ and the oblique is [+I] or [+II]. The hierarchical nature of this rule leads us to speculate about whether CLITIC SWITCH and SUBJECT NUMBER SHIFT do not both arise from an original tendency to move $\left[\begin{array}{c} -I \\ -II \end{array} \right]$ elements (either 3rd person or segmentalised number markers) to the right of

1st and 2nd person elements. In Ngarinman, it might be possible to collapse CLITIC SWITCH and SUBJECT NUMBER SHIFT, although the rule would have to follow SUBJECT NUMBER SEGMENTALISATION and refer to number markers only in some cases to account for the clitic complex (65), in which the person and number elements are split. We shall see in the next section that CLITIC SWITCH and SUBJECT NUMBER SHIFT are distinct rules in M. Assuming that the Ngarinman SUBJECT NUMBER SHIFT rule is also distinct from CLITIC SHIFT, it has the condition (66).

(65)

Ng +*ŋa* + *ŋku* + *lu*
1S 2SO PS

(66) SUBJECT NUMBER SHIFT

Ng, marginal in G SD, SC as (57)
C: (a) 1 is [-D]
and either (b) 2 is [-NS]
or (c) 2 > 1 $\begin{cases} \text{I} \\ \text{II} \end{cases}$

3.2. CLITIC SWITCH

Apart from the reordering resulting from SUBJECT NUMBER SHIFT, there are a number of cases in which the order of subject and oblique clitics as units is reversed to yield a surface order oblique-subject. A hierarchy of persons is involved in all the E. Ngumbin languages, but it works differently in G and B on the one hand, and M on the other.

Let us first examine the simpler case, that of G and B. Here, as with M and many other neighbouring languages, the first person singular clitic must precede any second person clitic, so that where the first person is oblique, the surface order is oblique - subject as in (67). In G and B (if the 1st person marker is non-singular), however, as in (68), the normal subject-oblique order is maintained.

(67)

G *kuya ŋu + yi + n ma + ŋi*
thus AUX 1SO 2SS *say* PAST
'You (sing.) told me that.'

(68)

G *kuya ŋu + n + ŋantipa ma + ŋi*
thus AUX 2SS 1EPO *say* PAST

As for combinations involving third persons, order is difficult to determine since the third singular forms are generally \emptyset . The 'indirect-

object' form !a is always final in the clitic complex, but this may result from its particular function rather than its person features. As we mentioned in 3.1., the movement of dual subject markers to the right of the oblique clitic does not result from SUBJECT NUMBER SHIFT. The cases in which the dual marker is on the left are where the subject is first person and the object second, as in (56), or third person, when the subject is second person and the object third person, as in (59), and when both are third person. The cases in which the dual marker follows the oblique clitic are those in which the subject is third person and the object first or second person, as in (26)(b). This accords well with the precedence of first over second person already noted, and with the person hierarchy $1 > 2 > 3$ recognised for numerous Australian languages (Capell, Wurm). It is highly likely therefore that the position of dual markers is determined by the rule that reverses the order of clitics as a whole, which I shall call CLITIC SWITCH.

It is hard to tell in most cases whether third plural subjects are effected by CLITIC SWITCH or solely by SUBJECT NUMBER SHIFT. In Mudbura, both SUBJECT NUMBER SHIFT and CLITIC SWITCH may apply to the clitic complex under certain conditions (see below).

A hierarchy (69) can now be established that determines the operation of CLITIC SWITCH in G and B. When an oblique clitic is higher on the hierarchy than the subject clitic, the order is reversed so that the oblique precedes the subject.

(69) Clitic Switch Hierarchy:

- G, B 1. 1 sing. [^{+I}_{-NS}]
 ii. 2 sing. [^{+II}_{-NS}]
 iii. 1 and 2 non-sing. [^{+I}_{+NS}] [^{+II}_{+NS}]
 iv.(?) 3 [^{-I}_{-II}]

In an earlier paper on Yukulta (McConvell 1976), I attempted to show that nominal hierarchies are based on the number of plus-values of the features of the nominals concerned. This may be true for case-marking, but in the light of (69), in which the unmarked category singular takes precedence over dual and plural, this now seems incorrect insofar as the operation of nominal hierarchies in the order of clitic sequences is concerned.

The CLITIC SWITCH rule is in fact formulated as (70) without the hierarchical conditions of the type suggested in my earlier paper. It might be possible to eliminate some of the values of the features referred to in the rule (e.g. to replace +I by I), if one could arrive

at the equivalent of a set of markedness conventions for clitic ordering on the basis of comparative work.

(70) CLITIC SWITCH

	+	+pro +pat	+	+pro +pat
SD:	1		2	
SC:	2		1	
C: (G, B)	1. 2 is	+I -NS		
	11. 2 is	+II -NS		

The conditions on the rule are marked 1 and 11. This indicates that the rule (70) is an abbreviation of two ordered rules which are identical except that the first has condition 1 and the second as condition 11. After rule 1 moves all 1st sing. objects to the left, rule 11. moves all 2nd sing. objects to the left. Rule 11. cannot reapply to structures to which 1. has already applied, since the order of the [+pat] and [-pat] features has been reversed, so that the structural description of the rule 11. is no longer met.

One might argue that to introduce ordered movement rules into the grammar at the level of clitic placement unnecessarily complicates matters. It might be suggested that perhaps surface structure constraints could be used instead to provide a 'template' on to which clitic sequences would either fit or be discarded (Perlmutter 1972). Despite the merit this proposal might have for clitics in other languages, there is strong evidence in M that CLITIC SWITCH is a movement transformation not a surface constraint.

In M, as in G and B, a 1st sing. oblique clitic precedes a 2nd or 3rd person subject clitic, and a 2nd sing. oblique clitic precedes a 3rd person subject clitic. Arguments parallel to those adduced for G can be brought to show this in cases where there may be doubt. M clitic sequences differ in four respects from those of G and B:

(a) Not only do 1st sing. obliques precede second and third person subjects, but so do 1st du. and plur. obliques. Where such orders are found, *ŋu* still intervenes between the second person subject to the right of the oblique, and the right-hand subject number marker, as in (71).

(71)

M pa + ŋanta + n + ŋulu wa ŋu + ŋ + ku?
 AUX 1EPO 2S PS Q *give* CM FUT
 'Will you (plur.) give it to us (plur.)?'

(b) Where S is third singular and O is second dual or plural or first inclusive, the 'reciprocal' suffix *na* is normally added to the right of O, as in (27)(a) (repeated here for convenience) and (72).

(27)(a) pa + ŋku + wu + na na + ŋ + ana
 AUX 2O DO RCP see CM PERF
 'He has seen you two.'

(72)

pi + ŋala + na pi + ŋ + a + ra
 AUX 1IPO RCP bite CM GEN
 'It might bite us.'

(c) In the dialect of M, referred to as WM in 6 (I call it Western as I did not encounter it in the eastern part of Mudbura country), when a second person singular subject appears with a third non-singular oblique clitic, it occurs *both to the right and to the left of the oblique*, as in (73)(a) and (74)(a). In the same dialect W, when the subject is non-singular, the subject clitic appears only once, to the right of the object, as in (75)(a).

There is dialectal variation in this area: the dialect I have called E in 6 has second person subjects occurring only once to the right of the obliques, in all numbers as in (73)(b) and (74)(b), whereas a dialect recorded by Capell (CM), has the second person subject occurring twice even in the plural, as in (75)(b).

(73)

WM	(a)	pa + n + pulli + n	}	ju + n + tu
		AUX 2SS 3DO 2SS		}
EM	(b)	pa + wull + n	}	
		AUX 3DO 2SS		}

'you (sing.) will scold two'

(74)

WM, CM	(a)	pa + n + jina + n	}	juntu
		AUX 2SS 3PO 2SS		
EM	(b)	pa + yina + n	}	
		AUX 3PO 2SS		

'you (sing) will scold them'

(75)

WM, EM	(a)	pa + yina + n + ŋulu	}	juntu
		AUX 3PO 2SS PS		
CM	(b)	pa + n + jina + n ŋulu	}	
		AUX 2SS 3PO 2SS PS		

'you (dual or plur.) will scold them (dual or plur.)'

(d) In G and B, reflexives and reciprocals are both represented by the same clitic, G *ɲunu*, B *ɲanu*, which follows the subject clitic in all cases. Following the 2nd person subject *n*, *ɲunu* becomes *junu*.

In M, the reflexive is *ɲanu* (except for 1st sing. when the normal oblique *+yi* is used), but there is also a distinct reciprocal suffix *+ɲa*. For the purposes of this paper I consider both forms to be derived from combinations of subject and obliques that have the same reference, (or perhaps one should say include the same referent and have the same person features, to account also for *+na+ɲantipa+ɲunu* 1SS-1EPO-RFL, etc. in G and B). Naturally, *ɲa* described in (b) has a somewhat different derivation.

In 2nd sing. reflexive and 2nd dual and plural reciprocal, the subject marker again occurs *both to the left and right of the reflexive/ reciprocal marker that replaces the oblique clitic*, as in (76) and (77).

(76)

M *nampa + ka pa + n + ɲanu + n tut waŋta + j + waŋta + ɲ + ini?*
what LOC AUX 2SS RFL 2SS hold get REDUP CM PRES
'What's wrong that you are holding yourself?'

(77)

M *nampa + ka pa + n + pu + ɲa + n punpa ɲa + ɲan + ini?*
what LOC AUX 2S DS RCP 2S fight see CM PRES
'What's wrong that you two are looking for a fight with each other?'

So we have the situation that in a widespread dialect of M under specific regular conditions, a subject clitic appears twice in the clitic complex. The rule CLITIC ATTACHMENT, as shown in (24), or modified in any reasonable way that I can conceive of, could not generate two occurrences of a subject clitic, just in case the oblique clitic is of a particular type. In order that a surface constraint might account for it, all subject clitics would have to be generated in two positions by CLITIC ATTACHMENT and the filter would have to throw out huge numbers of ungrammatical clitic complexes.

It seems to me more likely that the double appearance of the subject clitic results from a rule that *copies* the S clitic to the right of the O clitic, after the clitics have been attached. If we consider this proposed rule of CLITIC COPYING in relation to CLITIC SWITCH in M, the copying rule occupies the middle ground between the O-S order, which appears where the O clitic is higher on a nominal hierarchy than S, and the S-O order which appears where the S clitic is higher on the hierarchy than O. Since CLITIC COPYING and CLITIC SWITCH appear to be related in this way, if CLITIC COPYING must be a movement rule, it is likely that CLITIC SWITCH is a rule of the same type, the difference

between them being that the former is a copying rule and the latter is a chopping rule (Ross 1967).

The relation between the two rules is not however a straightforward one. There is a Clitic Switch hierarchy in M (78) which is similar to that of G except that 1 replaces 1 sing.

(78) Clitic Switch Hierarchy

	i.	1	[+I]
m	ii.	2 sing	$\begin{bmatrix} +II \\ -NS \end{bmatrix}$
	iii.	2 non-sing	$\begin{bmatrix} -I \\ +II \\ +NS \end{bmatrix}$
	iv.	3	$\begin{bmatrix} -I \\ -II \end{bmatrix}$

Where the O clitic is higher on the hierarchy than the S clitic, the order of the clitics is switched to O-S. This change can be expressed by the rule (79).

(79) CLITIC SWITCH

SD, SC as (70) (conditions represent ordered sub-rules as in (70))

C:	i.	2 is	[I]
	ii.	2 is	$\begin{bmatrix} +I \\ II \\ -NS \end{bmatrix}$

For CLITIC COPYING in WM there is a slight change in the hierarchy:

(80) WM Clitic Copying Hierarchy

	i.	2 sing, 3 non-sing	$\begin{bmatrix} +II \\ -NS \end{bmatrix}$	$\begin{bmatrix} -I \\ -II \\ +NS \end{bmatrix}$
	ii.	2 non-sing	$\begin{bmatrix} -I \\ +II \\ +NS \end{bmatrix}$	
	iii.	3 sing	$\begin{bmatrix} -I \\ -II \\ -NS \end{bmatrix}$	

All [+I] elements are disregarded, and 3rd non-sing. rises from the lowest level to the same level as 2nd sing. CLITIC COPYING causes all second person S clitics that are *on the same level* as the following O clitic to be copied to the right of O. Reflexives and reciprocals have O clitics on the same level as S, as the S clitics are identical to the O clitics in underlying structure.

The CLITIC COPYING rule can be written as (81).

(81)

SD as (70)

SC: 1 2 1
C: either (a) 1 and 2 are $\begin{bmatrix} -I \\ +II \\ \alpha NS \end{bmatrix}$
or (b) 1 is $\begin{bmatrix} +II \\ -NS \end{bmatrix}$
and 2 is $\begin{bmatrix} -II \\ +P \end{bmatrix}$

The differences in dialects for this rule can be seen as reflecting slight variations in the hierarchy and conditions on the rule. In EM, where only reflexives and reciprocals trigger CLITIC COPYING, condition (b) of the above rule would be absent and the hierarchy would be more like that of CLITIC SWITCH (82) with 3rd non-sing. once again on the same level as 3rd sing. For CM, in which non-singular second person S clitics are also copied across third person non-singular clitics, the hierarchy would be (83), and [-NS] would be absent in the first feature combination of condition (b) of (81).

(82)

EM 1. 2
ii. 3

(83)

CM 1. 2, 3 non-sing
ii. 3 sing.

The rule of SPURIOUS RECIPROCAL INSERTION (ηa), which occurs only in M, not in G or B, is a puzzling rule, for whose existence I can offer no grammatical, functional or historical explanation at my present stage of knowledge. However, it does appear to have some connection with the hierarchies under discussion. It could be said to have its own hierarchy (84), which is similar to the bottom two lines of both the CLITIC SWITCH hierarchy (78), and the CLITIC COPYING hierarchy (80).

(84)

1. 2 non-sing, 1 incl $\begin{bmatrix} +II \\ +P \end{bmatrix}$
ii. 3 sing. $\begin{bmatrix} -I \\ -II \end{bmatrix}$

The rule would have the form (85).

(85) SPURIOUS RECIPROCAL INSERTION

SD as (70)

SC: 1 2 RCP
(ηa)
C: 1 is $\begin{bmatrix} -I \\ -II \end{bmatrix}$
2 is $\begin{bmatrix} +II \\ +NP \end{bmatrix}$

One might suggest collapsing this rule with true RECIPROCAL INSERTION, but this possibility will not be discussed here.

There is a further argument that can be adduced to show that CLITIC SWITCH and CLITIC COPYING in M exist as movement transformations, not as reflections of surface constraints. We have seen that when the 2PS clitic occurs with number markers separated it has the form $n... \eta u + lu$ in M and B, $n... \eta ku + lu$ in G, but when the two markers are adjacent it has the form nta in all the languages. This is true also when the 2PS clitic has been moved to the right of a singular O clitic by CLITIC SWITCH.

(86)

M $pa + yI + nta$
 AUX 1SO 2PS

However, when the 2PS clitic has been moved to the right of a *non-singular* O clitic by CLITIC SWITCH (87) or CLITIC COPYING (88), the rule that produces nta cannot apply (89).

(87)

M $pa + \eta anta + n + \eta ulu$
 AUX 1EPO 2S PS

(88)

CM $pa + n + jIna + n + \eta ulu$
 AUX 2S 3PO 2S PS

(89)

M * $pa + \eta anta + nta$
 AUX 1EPO 2PS

The rule of NGU-INSERTION normally only operates when a right-hand plural marker lu immediately follows a non-singular clitic. If we order CLITIC SWITCH (and CLITIC COPYING) after SUBJECT NUMBER SHIFT and NGU-INSERTION, we can retain this form of the rule and generate (86) by the rules (90) and (87) by the rules (91).

(90)

SUBJECT NUMBER SHIFT $n + lu + yI$
 2S PS 1SO
 CLITIC SWITCH $n + yI + lu$
 NTA-FORMATION $yI + n + lu$
 $yI + nta$

(NGU-INSERTION does not apply
 as the O clitic is singular)

(91)

SUBJECT NUMBER SHIFT n + lu + ŋanta
 2S PS 1EPO
 n + ŋanta + lu

NGU INSERTION n + ŋanta + ŋu + lu

CLITIC SWITCH ŋanta + n + ŋu + lu

(NTA FORMATION does not apply as n and lu are not adjacent)

CLITIC SWITCH must therefore apply not at surface structure, but before NTA-FORMATION. Furthermore, if n were to be generated to the right of ŋanta in the underlying structure of the clitic complex, this would incorrectly prevent NGU-INSERTION from applying since this rule has as its environment an immediately preceding [+NS] O clitic. One could not argue that underlying n + lu normally becomes n + ŋu + lu, since it in fact normally becomes nta. n must therefore have been moved to its surface position to the right of O in the course of the derivation.

4. THE CLITIC BASE

4.1. TYPES OF BASE

The following section should be considered as preliminary. The question of which base is chosen in the several E. Ngumbin languages in different circumstances is a very complex one. In some cases the data are not sufficient to make a definitive statement; in others the nature of the data seems to require an extension of linguistic theory in areas in which there is still little of theoretical significance that is generally accepted by linguists. The latter comment applies particularly to the effects of *discursive* factors such as *topic*, *focus*, *contrast*, etc. on clitic attachment. What is offered here therefore is a brief statement of some of the more salient facts about the clitic base, with some additional fairly speculative comments by way of explanation. I hope to produce a fuller account of clitic attachment and clitic bases in one of the languages discussed (Gurindji) in the near future.

I have provisionally divided the elements that may act as clitic bases into seven categories.

- (92)
- i. Auxiliaries (Aux)
 - ii. Complementisers (Comp)
 - iii. The Negation marker (Neg)
 - iv. Special Question Words (Q)
 - v. Initial demonstratives (ID)
 - vi. Other initial constituents (IC)
 - vii. Verbs (V)

For easy reference I have classed CLITIC ATTACHMENT to i. as AUX Attachment; to ii-iv as Presentence Attachment; to v-vi as Initial-attachment, and to vii as V-attachment. Although attachment to Q-words might be thought to be a form of Initial Attachment, we shall see below that it has a number of characteristics quite different from those of Initial Attachment, and more akin to those of Pre-sentence-Attachment. Under iv and vi is subsumed both attachment to Q or initial constituents as a whole (where these consist of more than one word) and attachment to the initial word, where this is also the initial word of a larger constituent. The difference between these two probably results from the breaking-up of constituents by SCRAMBLING (or minor topic-movement) rules which precede CLITIC ATTACHMENT. This question is not discussed in detail here: it is assumed that clitics are attached to *constituents*, whether these consist of one or more than one word at the time of the application of CLITIC ATTACHMENT. By 'Verbs' (vii) I mean members of the small set of items (under 40 members for the languages discussed) which include such roots as *ya* + '*go*' *ka* + '*take*' which fall into conjugations and are inflected with tense suffixes. These may occur either alone with nominal arguments, or together with qualifying elements similar to adverbs which I call 'pre-verbs'. Unlike similar prefixes in other Western Desert languages, the E. Ngumbin pre-verbs are free, not bound, may be moved around in the sentence with some degree of independence from the accompanying verb, and may sometimes appear without the verb.

4.2. AUX AND PRESENTENCE ATTACHMENT

In this section I shall deal with attachment to AUX, COMP and NEG. Q-word attachment is dealt with in the following section.

The neutral unmarked auxiliaries are G *nu* and M *pa*. These occur in all cases in which there are overt clitics, and which are not provided for by the other forms of attachment to be described below: i.e. in neutral positive declarative non-contrastive sentences as in (93)(a) and (b). In G *nu* may also be used where there are no overt clitics attached to it, as in (94)(b), but I have found no examples of this in M e.g. (95), but cf. M (95c) *pa* may be an allomorph of *pa* here, but this *pa* appears distinct from AUX *pa*; see further below.

(93)

- G (a) *kaylra nu + wula ya + ni*
north AUX 3DS go PAST
- M (b) *klrawara pa + wula ya + ni + ra*
north AUX 3DS go PAST DIST
'they two went north'

(94)

- G { (a) kayira yani
 (b) kayira ŋu ya + ni }
- M { (a) kirawara yani
 (b) *kirawara pa ya + ni + ra }
 'he went north'
 (c) kirawara paa ya + ni + ra...
 'after he had gone north...'

The neutral AUX most frequently immediately follows the S-initial constituent or word as above, but may also itself occupy the initial position:

(96)

- (a) ŋu + wula kayira ya + ni
(b) pa + wula kirawara ya + ni + ra
 'the two went north'

The difference in meaning between (93) and (96) is slight: (93) does appear to imply however that the fact that they two went is to some extent presupposed (*topical*) or at least predictable; the direction 'north' is relatively new information. In (96) both the going and the direction are new information (non-topical).

Occasionally in G and more rarely in M Aux occurs to the right of V, or of a V-centred constituent like VP, as in (97).

(97)

- wa!u yuwa + ni wa!i!ik ŋu + nunu + ŋku!a
fire put PAST *round* REDUP AUX RFL 10
 'he put firewood around himself'

Aux frequently intervenes between pre-verbs and verbs even where these are close-knit, otherwise inseparable elements as in (98).

(98)

- (a) paraj ŋu + iu pu + ŋ + ku
 find AUX 3PS *pierce* CM FUT
(b) k!ŋaŋ pa + !i ku + ya
 find AUX 3PS *throw* FUT
 'they will find it'

In G clitics are attached directly to COMP, NEG and Q-words; if S contains such items in M however, clitics are still attached to the AUX pa, which immediately follows the COMP, NEG or Q-word as in (99), (100), and (101).

(99)

M apala pa + li kiŋaŋ ku + ŋa + na jlyā + ma...
 REL AUX 3PS find throw PERF kangaroo #...
 'the kangaroo which they found...'

(100)

M kula pa + li kiŋaŋ ku + ŋa + na
 NEG AUX 3PS find throw PERF
 'they have not found it'

(101)

M nampa pa + li kiŋaŋ ku + ŋa + na?
 what AUX 3PS find throw PERF
 'what have they found?'

The M temporal-conditional complementiser paa referred to above does not follow this pattern. It follows the AUX + clitic complex if it is present, as in (102); and otherwise it follows the initial constituent of the clause as in (95)(c).

(102)

pa + li paa la + ŋa + ni mi|araŋ + ti paŋi + ma ŋuku + ŋkura pa + li
 AUX 3PS TEMP spear CM past Spear ERG 3 # water ALL AUX 3PS
 waŋ ku + ŋi
 throw throw PAST
 'when they had speared him they threw him into the water'

In M there are two more Auxiliaries apart from pa: pi (plya where no clitics are attached) 'possibility with adverse results', pa 'possibility (with no adverse connotation)'. Syntactically these behave in the same way as pa, except that they may not be deleted where no clitics are attached to them. They may occur in main clauses (103) or introducing subordinate clauses (104). When combined with a following paa, they form the hypothetical conditional complementisers pi...paa (if S with adverse results, as in (105) and pa...paa 'if', as in (106)).

(103)

M kaŋu pi + yina + ŋulu pi + ŋa + ra kaya + |i + ma
 child LEST 3PO 3PS bite GEN ghost ERG #
 'ghosts might bite the children'

(104)

M kaŋu + ma + yina + ŋulu wara pa + ŋ + ka pi + yina + ŋulu
 child # 3PO PS care see CM IMP ADM AUX 3PO PS
 pi + ŋa + ra kaya + |i + ma
 bite GEN ghost ERG
 'take care of the children lest ghosts bit them'

(105)

M kawaraj pi + n paa waŋta + ta na + n tuŋ mara + ŋta
lose LEST 2SS TEMP get FUT.IRR AUX 2SS hold say FUT.IRR
wumaŋku + ma
dreaming #
*'if you were in danger of forgetting your totemic designs, you
would have to hold on to them'*

(106)

G na + n paa ya + n + ta + !a + ŋi yali + ma + ŋa + ŋku
DOUBT AUX 2SS TEMP go CM IMP IRR ALL that # 1SS 2SO
kataj pa + ra + !a
cut hit IMP IRR
'if you had come I would have cut you'

There are a number of elements in G which could be classed either as auxiliaries or complementisers, to which clitics are attached. Since they also occur and attract clitics in B which does not have a neutral AUX, it is convenient to call them all complementisers.

Of these, G *pamu* is most clearly a complementiser in the usual sense, as it normally occurs in subordinate clauses and only rarely in main clauses (probably as a result of ellipsis). It is a type of complementiser familiar in Australian languages, by means of which either relative clauses, or temporal clauses, or conditional clauses can be formed as in (107), (108) and (109) respectively. In both G and B the DOUBT suffix +*ŋa* is usually suffixed to the clitic complex where the clause is conditional.

(107)

G *pamu* + lu luwa + ŋi miŋawut + ma, nila + wa!a ŋu + lu kampa + ŋi
REL 3PS spear PAST kangaroo # that FOCUS AUX 3PS cook PAST
'they cooked the kangaroo which they speared'

(108)

pamu + lu luwa + ŋi miŋawut + ma, kuya + ŋka + wa!a ŋu + lu
REL 3PS spear PAST kangaroo # thus LOC FOCUS AUX 3PS
wa!u pirka ma + ni
fire make get PAST
'when they speared a kangaroo they made a fire'

(109)

namu + lu + na miṅawut + ma luwa, wayi + lu + na
 REL 3PS DOUBT kangaroo # spear IRR INDEF AUX 3PS DOUBT
 wa!u pirka ma + n + ta
 fire make get CM IRR
 'if they had speared a kangaroo they would have made a fire'

In namu clauses in G clitics are occasionally attached to a nu AUX, rather than to namu, especially by younger speakers.

G, B ṅaja means the same as M pi: 'possibility of S occurring with adverse results'. As with pi it may occur wither in main or subordinate clauses, as in (110) and (111) respectively, the translations of (103) and (104).

(110)

G kaṛu + ma ṅaja + yina + ṅkulu paya + n + ana kaya + ṅku + ma
 child # LEST 3PO 3PS bite CM PRES ghost ERG #
 'the ghosts might bite the children'

(111)

G kaṛu + ma wara ka + ṅ + ka + yina + ṅkulu ṅaja + yina + ṅkulu
 child # care take CM IMP 3PO 3PS LEST 3PO 3PS
 paya + n + ana kaya + ṅku + ma
 bite CM PRES ghost ERG #
 'take care of the children lest the ghosts bit them'

wayi is used as an interrogative particle in G and B as in (112)(a). It is also used as an interrogative AUX in G, as in (112)(b). When it follows a Q-word it means 'the speaker does not know the value of the variable indicated by the Q word'. In this construction clitics may either be attached to wayi or to a further nu AUX, as in (113).

(112)

G (a) nu + lu kataj pa + ni wayi?
 AUX 3PS PAST Q
 (b) wayi + lu kaṭaj pani?
 Q AUX 3PS cut PAST
 'did they cut it?'

(113)

wanji + ka $\left\{ \begin{array}{l} \text{(a) wayi + lu} \\ \text{INDEF 3PS} \\ \text{(b) wayi nu + lu} \\ \text{INDEF AUX 3PS} \end{array} \right\}$ tirip kari + na
 which LOC camp be PAST
 'they camped somewhere; I don't know where they camped'

A further use of wayl in EG is as the AUX used with the imperative/irrealis form of the verb to form a past irrealis tense as in (109). Usually +ŋa is also suffixed to the clitic complex in this tense. In WG in the past irrealis, the complex clitic + ŋa is attached either to the initial constituent or ŋu.

There are a number of other lesser-used AUX or Comp elements in G and B to which clitics are added: in the case of kaŋa ... ŋa 'I thought (incorrectly) that...' walima 'Q...any?' obligatorily; and in the case of e.g. ŋanta 'assertion modified by doubt', kayi 'assertion and surprise' and kuŋi 'soon, shortly after', optionally.

The complementiser in M which is closest to G, B ŋamu is apala. It seems to be confined to relative clauses as in (99), comparatives, and simultaneous temporal clauses; conditionals and sequential temporal clauses are handled by combinations of various Aux and paa, as already discussed. apala does not attract clitics, and is followed by the Aux pa. Apart from pa, pi and ŋa there are no other auxiliaries or complementisers in M which attract clitics.

In B there is no AUX, and the unmarked form of attachment is to the initial constituent. Clitics may be attached to COMP in second position as in G, however.

The negation marker is the free form kula in G, B, and M, and usually either follows the initial constituent or itself takes initial position. In G and B clitics are normally attached to kula, even where there is a complementiser or Q-word in initial position, as in (114), where ŋamu is initial, however, the clitics are usually suffixed to ŋamu and kula without clitics follows it as in 114(b). Where kula has a scope less than S., e.g. an NP, clitics are attached to Aux instead:

(114)

- G (a) pampa + wu kula + n ya + ni?
 what DAT NEG 2SS go PAST
 'why didn't you go?'
 (b) ŋamu + n + ŋa kula ya + n + ku
 COMP 2SS DOUBT NEG go CM FUT

(115)

- G kula ŋayu + ŋiŋi ŋu + ŋa ya + ni
 NEG 1S only AUX 1SS go PAST
 'not only I went'

In M, as already mentioned, kula does not attract clitics, but is followed by the neutral Aux pa with clitics attached.

In addition to the cross-referencing of NP's within the domain of simple S by clitic attachment, M (and B too but not G) has the possibility

as in (119)(b). Where the Q-constituent consists of more than one word, the clitics may be attached to the final word of the constituent but this is rather rare. More often the clitics are either attached to *nu* as in (120)(a), or the Q-constituent is broken up and the clitics attached to an initial Q-word, as in (120)(b).

(119)

- G (a) *wapjl + ka + lu tirip kari + na?*
which LOC 3PS camp be PAST
- (b) *nu + lu tirip kari + na wapjl + ka?*
AUX 3PS camp be PAST which LOC
'where did they camp?'

(120)

- G (a) *wapji + ka nura + nka nu + lu tirip kari + na?*
which LOC place LOC AUX 3PS camp be PAST
- (b) *wapjl + ka + lu tirip kari + na nura + nka + ma?*
which LOC 3PS camp be PAST place LOC
'which place did they camp at?'

Attention should be paid to the ordering of the clitic complex with respect to other suffixes, as this is different in the case of Q-word attachment on the one hand and contrastive initial attachment on the other. The clitic complex follows *pa|a/wa|a* the focus marker which itself follows the case-suffixes on Q-words. *pa|a/wa|a* marks something either new in time ('now', sequential 'then';) or new in information content (non-topical, focus). In its latter meaning it has a particular attraction to Q-words, which are by nature non-topical or non-presupposed, hence Q-words are frequently found with the *pa|a/wa|a* suffix as in (121). The topic marker *ma*, for parallel reasons, is hardly ever found on Q-words unless, by ellipsis, they occur alone in the sentence. More frequently, *ma* is found on the remainder of the sentence which is relatively topical, often the verb (which does not normally take the *ma* suffix) as in (121)(a).

Occasionally, perhaps because of the topical nature of one of the clitics, *ma* may occur on the Q-word. When it does so, it follows the clitic complex, as in (121)(b).

(121)

- (a) *nampa + wu + wa|a + yl + ta pa + ni + ma?*
what DAT FOCUS 1SO 2PS hit PAST #
'why did you lot hit me?'
- (b) *nampa + wu + wa|a + yl + ta + ma pa + ni?*
what DAT FOCUS 1SO 2PS # hit PAST

Where the Q-word ends in a consonant e.g. *patjaŋ* 'how much, how many?'. and is immediately followed by a clitic complex, an epenthetic linking syllable *pa* intervenes between the Q-word and the clitic complex as in (122)(b). This is the same link *pa* which occurs with other suffixes in G, e.g. *ŋi*, as in (123)(b), and separating final consonants of initial consonants and clitic complexes in B.

(122)

- G (a) *patjaŋ jɪya + ŋi?*
how much win PAST
'how much did he win?'
- (b) *patjaŋ + pa + ku jɪya + ŋi?*
how much LINK 2SO win PAST
'how much did he win from you?'

(123)

- G (a) *jintaku + ŋi* } *jɪya + ŋi*
one only } *win PAST*
- (b) *murkuŋ + pa + ŋi* }
three LINK only }
'he won only {one
three}'

According to most criteria, the clitic complex forms part of the same phonological word as the Q-word to which it is attached:

(i) it is unstressed, except for secondary stress on the syllable preceding *ŋkulu*, where this occurs in G. A separate word would normally have primary or at least secondary stress on the initial syllable.

(ii) phonological rules operate from the Q-word onto the clitic complex. In (114) NASAL CLUSTER DISSIMILATION (DENASALISATION) has changed *n* into *t* because of the preceding cluster *mp*. In (121) and (122), NASAL CLUSTER DISSIMILATION (DELETION) has operated, changing *nta* into *ta* and *ŋku* into *ku* because of the preceding clusters, respectively *mp* and *np*.

(iii) the clitic complex is inseparable from the Q-word except by a well defined class of other *suffixes*.

(iv) the clitic complex precedes the topic marker *ma* which is normally last in a sequence of suffixes and thus acts as a word boundary marker. In M clitics are not attached to Q-words, but to Aux *pa*; see (101).

4.4. INITIAL ATTACHMENT

In B attachment of clitics to the S-initial constituent as in (124) is the normal unmarked form of attachment. There is no unmarked Aux in B and attachment to V has a special use discussed in section 6. Where

the word to which clitics are attached has a final consonant as in (124) (b) the link *pa* is inserted before the clitics, (as with *patjaŋ* in G.). Phonological rules operate between the base word and the clitic complex, as with G. Q-words. Unlike with Q-words, however, *ma* may be suffixed to the clitic base word and in this case the clitics follow *ma*, as in (124)(c).

(124)

- B (a) *ya + ni + ŋi + ŋa + ŋku ɲunu + ɲ*
go PAST ALL 1SS 2SO 2S DAT
'I came to you'
- (b) *ɲunu + n + pa + ŋa + ŋku ya + ni + ŋi*
2S DAT LINK 1SS 2SO go PAST ALL
- (c) *ɲunu + ɲ + ma + ŋa + ŋku ya + ni + ŋi*

As in the other languages, the link *pa* becomes *wa* following a liquid by a general phonological rule:

(125)

- B *ku! + wa + ŋa paya + ŋi*
drink LINK 1SS drink PAST
'I drank it'

In B the attachment of clitics to the final word of a complex initial constituent is more common than in the other languages, e.g. (126)(a), but again the initial constituent may be split and the clitics attached to the first word e.g. (126)(b). In (126) pre-verb and verb together form a constituent (V).

(126)

- B (a) *jaɾakap ma + !a + ŋa + !a*
talk say PRES 1SS 3SIO
'I am talking to him'
- (b) *jaɾakap + pa + na + !a ma + !a*
talk LINK 1SS 3SIO say PRES

Attachment of clitics to V may happen coincidentally in B because V is the only or final word of the initial constituent, as in (124)(a) and (126)(a) respectively. V-attachment conditioned by a particular type of discursive environment in B is discussed in the following section.

Attachment to initial constituents in G (other than to AUX, COMP, NEG or Q-words) and M (other than to AUX) represents a marked sentence-type which is not frequently found. Upon investigation this marked sentence-type can be shown to have a distinct set of functions related to discourse pattern.

4.5. CONTRASTIVE INITIAL ATTACHMENT

The most important form of S-domain initial attachment is that which I refer to as *contrastive*. This will require a fairly lengthy explanation before the data can be introduced. It has two main forms which appear to be related: that in which clitics are attached to a demonstrative pronoun (G n̄ila 'that'/n̄awa 'this', M yali 'that'/ŋina 'this') with a ma suffix; and that in which clitics are attached to another NP with a ma suffix. The two types share a discursive function of *contrast*, which I believe to be distinct either from the topic-comment structure to be found within a normal topic-chain organisation of discourse, or from the focus-presupposition structure, which is (somewhat confusingly) called 'contrastive' by some authors, both of which have been more investigated than contrast. The forms of contrastive initial attachment also share a number of syntactic characteristics, which are quite different from those of Q-word attachment in G.

The unmarked form of discourse is that which proceeds in a *linear* fashion. In each succeeding sentence some new information is added to old information (*topic*) which is carried over from the previous sentences or drawn from a pool of presuppositions available in other ways to the speaker and hearer. Typically, such a discourse describes a temporal sequence of events, or a logical sequence of statements, or both. Essentially, focus-presupposition sentences (such as clefts etc) are generated in the same mode of discourse, except that it is the new rather than the old information which is placed in the foreground.

However, a different mode of joining sentences in discourse is also available to speakers, which I shall call *lateral*. By this I mean that such a joining of sentences in the normal chain of new building on old information, and its implications of temporal, causal or logical sequence is temporarily suspended. Given a topic as a starting point sentences are joined in lateral sequence, as it were, by shifting paradigmatically, rather than moving on syntagmatically. A pair of sentences in a lateral sequence have a symmetrical relationship with each other with respect to time, cause or implication, so that reversing their order in itself does not alter the meaning of their relationship. This is unlike a pair of sentences in a linear sequence, which bear an asymmetrical relation to each other of the kind 'first S1 then S2' or 'if S1 then S2'.

One type of lateral sequence could be a *cumulative* list of factual statements on a particular topic. Probably more common is a *contrastive* sequence. In English, contrast may be expressed by stress and intonational marking of the elements contrasted. The stress added to

contrasted elements appears to be the same as that used to mark focus (indicated by " in (131)) perhaps because contrastive elements are by their nature new (non-topical). I have not investigated whether any intonation pattern is uniquely associated with contrast.

(131) "Jack "swam across. "Jill "waded across.

Contrast in English may be further indicated by conjunctions and particles, e.g.:

(132) "Jack "swam across, but "Jill "waded across.

(133) Whereas "Jack "swam across, "Jill "waded across.

It should be noted that there is nothing inherent in the meaning or referents of pairs of sentences in a discourse which determines whether they form part of a linear or lateral sequence, or of a cumulative or contrastive sequence. (Although, of course, for certain pairs these factors do make one or other interpretation highly likely.) The choice of type of sequence is something within the autonomous discursive domain, which is added by the speaker by means of grammatical markers (such as stress and intonation in English). Thus (134), which is the same as (131) except for the lack of marked stress, is either a linear (temporal) sequence, or a lateral cumulative sequence.

(134) Jack swam across, (and) Jill waded across.

Contrast is taken to be an irreducible notion in this paper. It appears to shade imperceptibly off into cumulation yet appears to be a basic building block of human thought: perhaps the two concepts are the two sides of the same coin of a symmetrical paradigmatic relationship one or other of which may be foregrounded.

(135) A is x; A is not y
 B is y; B is not x
 cumulative contrastive
 aspect aspect

'Focus' is called 'contrastive' by some authors because it identifies the value of a variable and thereby asserts that other values are discounted.

(136) A is X (variable); A is either x or y or z or....
 X = x (value); A is not y nor z nor ...

Contrast in the sense used here, on the other hand, means contrast with only *one*, not many, possible values.

In G and M *contrast* has a specific syntactic effect: attachment of clitics to the first constituent of a sentence. In the case of attachment to initial demonstratives, the contrast is frequently with a

preceding or following relative/temporal/conditional clause of the same complex S, as in (137), but this is not necessarily so as we see in (138). The demonstrative does not have a normal deictic or anaphoric significance in this construction. If the distal (G *ɲila*, M *yali*) is used to introduce one of the pair of sentences and the proximal (G *ɲawa*, M *ɲipa*) the other, this indicates a contrast in time of the two contrasted sentences, that with the proximal initial being closest to the present, as in (138). A similar temporal contrast may be effected by a proximal initial in the main clause, but with a relative-type clause indicating the farther-removed contrasted event as in (138). Where the distal introduces a sentence of main clause, without a corresponding proximal in the other sentence, this indicates that there is no temporal contrast, but the two sentences are equally removed from the present, e.g. (139).

(137)

G *ɲawa* + *ma* + *ɲa* *kulukulup* + *pa**ɲa* *ɲamu* + *ɲa* *kari* + *ɲa* *wankaj* + *ma*
this # 1SS *happy* FOCUS REL 1SS *be* PAST *bad* #
purinji! + *ɲa* + *ma*
yesterday LOC #
'I am happy now although I was bad yesterday'

(138)

M *yali* + *ma* + *n* *ya* + *n* + *ta* + *ɲa* + *ɲi* *ɲali**ɲa* + *ɲi* *ɲipa* + *ma* + *n*
that # 2SS *go* CM IMP IRR *all* *new* EMPH *this* # 2SS
*ɲu**ɲuku*! *wanti* + *ɲa* + *ra*
overlap *fall* PAST DIST
'you should have come (when you rib was) still new(ly broken),
now it has doubled over'

(139)

G *ma**ɲuka* + *ɲu* *yalu* + *ɲku* *ɲamu* + *ɲa* *yunpa* + *wu* *yar**ɲi*! + *ɲu* *kula*
old man ERG *that* ERG REL DOUBT *sing* FUT *sorcery* *song* ERG NEG
*wan**ɲi* *kar* + *u* *ɲila* + *ma* *yarulan* + *ma* *ɲila* + *ma* + *ɲa* *tempan*
alive *be* FUT *that* # *young man* # *that* # DOUBT *dead*
kar + *u* *waj**ɲa* + *ɲi*
be FUT *quick* EMPH
'if that old man sings him with a sorcery song, that young man
won't stay alive but will die quickly'

In (139) it is unclear whether the contrast in the final clause is with the immediately preceding clause or with the protasis of the condition. Conditionals with initial attachment to demonstratives in the apodosis without a clear contrastive meaning are fairly common.

In all of the above examples the two sentences in a contrastive pair (with the possible exception of 139) share their subject: this appears to be particularly common (but not completely without exception e.g. (140)) for initial demonstrative attachment. Where the subjects are different, they are usually contrasted, and themselves become the initial element to which clitics are attached.

It will have been noted that all demonstratives in this construction are immediately followed by the suffix *ma* which *precedes* the clitic complex; this is indeed obligatory for all contrastive initial attachment, whether of demonstratives or otherwise. In this respect the construction differs markedly from Q-word-attachment, in which *ma* is rarely suffixed, to the initial constituent, and if it is, *follows* the clitic complex. Another difference between the two constructions is in the position of the focus marker (G *pa|a/wa|a*, M *wapa*).

In G Q-word attachment (and in the related focus attachment), *pa|a/wa|a* immediately follows the Q-word and *precedes* the clitic complex. In initial attachment, however, it *follows* the clitic complex as in (140). As with Q-word attachment, where an initial element co-occurs with NEG in a contrastive construction, as also shown by (140), it is *kula* to which the clitics are attached:

(140)

ma + lu + ra yipurk nila + ma + wa|a kula + na + |a jayi +
say FUT HORT in vain that # FOCUS NEG 1SS 3SIO give
ŋ + ku
 CM FUT
 'whatever he says I won't give it to him'
 (lit: 'let him talk in vain (but) I won't give it to him')

Attachment to initial demonstratives (*nila*, *nawa*) which do not have a normal deictic or anaphoric meaning is common in B. This does appear to have the contrastive meaning associated with it in G on some occasions, as in (141) and (142). On other occasions the distal appears to indicate simply relevance of S to a temporally distant state of affairs, (past or future), and the proximal, relevance of S to the present state of affairs.

(141)

1. *kula + ŋa pina + ŋu + |a + wu ya + n + ku*
 NEG 1SS give GER LOC DAT go CM FUT
 'nobody gives me anything'
 (lit: 'I can't go for when (someone) is giving')

11. pawa + ma + ŋa + ŋa waŋaak
this # 1SS DOUBT waif
'I am (like) a waif' (unsupported by kin)

(142)

1. liwaŋ + pa + yi kar + a
wait LINK 1SO be PRES
'he is waiting for me'
11. pawa + ma + ŋa + ŋku liwaŋ kar + a
this # 1SS 2SO wait PRES
'I am waiting for you'

Another initial element to which clitics are attached in B is *pala*. It is used to introduce temporally new sentences or sentences having a relation of result or purpose with what precedes.

(143)

- pala + ŋa + ŋku ma + lu maŋu + kaŋi + !i*
 FOCUS 1SS 2SO *say put language other ERG*
*'^{SO}
 now } I'll tell you in a different language'*

Contrastive initial attachment of elements other than the demonstratives discussed above seems to have two major functions. The first is marking of the second sentence in a lateral contrastive pair such as the English sentences in (131). This is organised in the following way: one constituent of the second sentence, usually an NP (frequently a pronoun) is foregrounded as contrasting with one constituent of the preceding contrastive sentence. This element although non-topical in the normally-used sense may be regarded as a sub-topic which is a member of a paradigmatic topic-set, including e.g. JACK and JILL in (131). It is this element which is sentence-initial and to which clitics are attached. The properties of the second sub-topic which contrast with those of the first are expressed in the remainder of the sentence. In G and M the sub-topic is not confined to any particular grammatical function: it may be the subject, as in (144), the direct object as in (145), or an adverbial as in (146). The sentences (111) in (144) and (145) return to a linear sequence after the lateral parenthesis: in the case of (144), (111) continues from (1), in (145) (111) continues from (11). In these passages, C marks the contrastive sentences.

(144)

- G 1. wayi + !i ya + n + ta kujara
 INDEF 1IDS *go CM IRR two*
'we should both have gone'

C 11. nuntu + waɾɪj + pa + ɲi + n ya + ni
 2S alone LINK only 2SS go PAST
 'YOU went on your own'

111. wayi + ɲa + ɲku jarara ma + n + ta waɪu + wu
 INDEF AUX 1SS 2SO follow get CM IRR fire DAT
 'I would have gone with you for firewood'

(145)

G 1. yirap + ma ɲu + ɲa + yina paɾik wanja + ni V.R.D. + ɪa
 one mob # AUX 1SS 3PO behind leave PAST LOC
 'one lot (A) I left them at V.R.D.'

C 11. yirap + ma + ɲa + yina waɪ ka + ɲa muɪa + ɲkura
 one mob # 1SS 3PO back take here ALL
 'THE OTHER LOT (B) I brought them back here'

111. muɪa + ɲka + ɲi ɲu + lu kari + ɲ + ana
 here LOC still AUX 3PS be CM PRES
 'they are still staying here'

(146)

M 1. pa + ɪa ɲuɲjuɲju ka + ɲa + ra
 AUX 3SIO special kind of yellow ochre take PAST DIST
 waɾiɪila + wu maɪaɪuka + li kampara + ma
 hook-boomerang DAT oldmen ERG before #
 'in the old days, the old men used to bring a special kind
 of yellow ochre for the hook boomerangs'

C 11. jaɪajaɪa + ma + ɲa + li wampal + wana yuwa + ra waɾiɪila +
 today REDUP # 1EPS nothing FOCUS put HAB hook.boomerang
 ma kula ɲuɲjuɲju + wuru + ɪu
 # NEG special kind of yellow ochre PROP ERG
 'NOWADAYS, WE make the hook boomerangs without it because
 we do not have the special ochre'

Contrastive initial attachment is often found in conversational dis-
 course, where the contrast is between the behaviour or properties of
 speaker and addressee as in (147) and (148).

(147)

G 1. A: "ɲu + ja ya + n + ku kani + mpara"
 AUX 1EDS go CM FUT downstream ALL
 'we two will go downstream'

C 11. B: "ɲantipa + ma + ɲalu + kar + u muɪa + ɲka + ɲi"
 1EP # 1EPS be FUT here LOC EMPH
 'WE will stay here'

(148)

- M 1. A: "tanku pa + ŋa + yɪ wəŋja + na kaja + ŋka"
supplies AUX 1SS 1SO leave PERF bush LOC
"I have left my swag in the bush"
- C 11. B: "ŋayi + ma + ŋa ka + ŋ + ana + ŋi"
1 # 1SS take CM PERF ALL
"I have brought it (mine) back"

Sometimes contrastive initial attachment takes place without an explicit preceding sentence to contrast with. In such cases such a preceding sentence can be said to be presupposed.

(149)

- G 1. PRESUPPOSITION
'(you (A) said that he is coming to see me (B))'
11. "nawa + ma ŋu + yi + n kuŋan ma + ŋi"
this # AUX 1SO 2SS lie say PAST
?"you told me a lie"
- C 111. "kapjura ŋu ya + n + ana ŋayu + ma + ŋa ŋa!aka + !u ma +
down AUX go CM PRES 1 # 1SS head ERG say
ŋ + ana"
CM PRES
"I think he is going down (to the Settlement)"

(150)

- M 1. PRESUPPOSITION
'(you are just women)'
- C 11. ŋayi + ma + na piŋiŋja
1 # 1SS initiated man
"I am an initiated man" (said by mythical snake to women
who are trying to keep him out of a sacred ritual)

The fact that linear and lateral contrastive sequences can be alternative ways of joining the same pair of sentences is illustrated in the following passage (151). The transition from 111. to iv. or v. (which have the same information content) can be seen as either primarily one of paradigmatic contrast or primarily one link in a temporally sequential topic-chain. In fact, here both these possibilities are realised. The former is realised as sentence iv. with the sub-topic *kiŋa* 'father' contrasted with *lampara* 'father-in-law' in 111., receiving initial-attachment. The topic-chain alternative is realised as v. in which *kiŋa* of 111. becomes the topic of v., in the typical subject-topic position immediately preceding the compound verb.

(151)

- M 1. *ɲayl + ɲa pa + yl jawljl*
 1 DAT AUX 1SO MF
'my mother's father...'
- ii. *ɲayl + ɲa pa + yl jakaʔl jawijl + !l kɪɲaŋ ku + ɲi + ra*
 1 DAT AUX 1SO MF ERG PAST DIST
'my mother's father fathered my mother'
- iii. *lampara + !l nu + ɲa + ra ɲayl + ɲa + ma kiʔa + ma*
 WF/DH ERG give PAST DIST 1 DAT # father #
'as father-in-law he gave her to my fathers'
- C iv. *kiʔa + !i + ma + ɲanta + ɲulu kiɲaŋkiɲaŋ ku + ɲi + ra*
 father ERG # 1EPO 3PS find REDUP put PAST DIST
'OUR FATHERS fathered US'
- v. *pa + ɲanta + ɲulu kiʔa + !i + ma kiɲaŋkiɲaŋ ku + ɲi + ra*
 AUX 1EPO 3PS father ERG find REDUP put PAST DIST
kampara + ma
ahead #
'our fathers fathered us before'

The second, and less significant, function of contrastive initial attachment is in correcting an incorrect or vague specification of an element in a preceding sentence, or in correcting an impression that an element has been carried over as a topic, whereas in fact a new element has been substituted for it. It is this new element which receives contrastive clitic attachment, like the locative NP in (152). Here iii. is paired with ii., in which the location is assumed to be unspecified, or the same as that mentioned in i. Incidentally, the attachment here is to the last word of a complex constituent.

(152)

- M 1. *yali kaʔa karampaʔji + !a ɲura + ɲka pa + ɲanta ɲura*
that TOP Karimbaldi LOC place LOC AUX 1EPO camp
'our camp was Karimbaldi Yard then'
- ii. *pullki pa + ɲa + li kiʔlkiʔl waŋʔa + ɲi + ra*
cattle AUX 1S EPS chase REDUP get PAST DIST
'we were mustering cattle'
- C iii. *Gum Creek + ku!a paddock + ku!a + ma + ɲa + !l waŋʔa + ɲi*
 LOC LOC # 1EPS get PAST
+ra pullki
 DIST *cattle*
'we were mustering cattle AT GUM CREEK PADDOCK'

- iv. ḡayl + ḡi + wapa pa + ḡa kiḡlkiḡi waḡta + ḡi + ra pullki + ma
1 ONLY FOCUS AUX 1SS *chase* RED *get* PAST DIST *cattle*
'I was mustering the cattle myself'
- v. karakara pa + ii pullki + ma ya + ni + ra
run REDUP AUX 3PS *cattle* # *go* PAST DIST
'the cattle ran off'
- vi. kula + wapa pa + ḡa wujuk pa + ni yaii + ma puliki + ma
NEG FOCUS AUX 1SS *let go hit* PAST *that* # *cattle* #
'it wasn't that I let the cattle go...'

In ii. pullki 'cattle' is new (non-topical); it is marked as such by its initial position and by the lack of a topic suffix ma. In iii. puliki is shifted to the right by the presence of a contrastive element in initial position, but still has no ma suffix. This indicates that unlike in sentences iv. - vi., puliki in iii. is not topical, although it is preceded by an instance of the same word in ii. This results from the fact that the pair ii. and iii. is a *lateral* sequence, whereas the sequence iii. - vi. is a *linear* topic-chain.

Although the property asserted by each sentence of a contrastive pair of this type is formally the same (although not strictly referentially identical), contrast is still present since the two sub-topics are contrasted in this way.

(153)

- i. A is x
ii. A is not x
iii. B is x

Since stage (ii) of (153) presupposes an earlier statement (i), contrastive pairs of the type (ii)-(iii) are found, often conjoined, with backward gapping as in (154).

(154)

- G kula panawu + ḡḡiḡi, ḡawa + ma + lu ḡumpit + kaḡl ya + ni
NEG *that occasion people this* # 3PS *man* OTHER *go* PAST
(contrast)
'not the same ones as that time (came), but THESE OTHER MEN came'

4.6. V-ATTACHMENT

In G where the mood of the sentence is imperative or hortative, as in (155) and (156), the clitics are suffixed to the verb, following the tense/mood suffixes. In the imperative in M the clitics are attached either to the verb or to the S-initial constituent, as in (157)(a & b). As in (157)(b) the clitics are more often attached to the first word than to the whole initial constituent.

(155)

G nila + ma wa!u + ma wara ka + ŋ + ka + lu
that # fire # care take CM IMP PS
'you lot watch out for that fire'

(156)

G nila + ma wa!u + ma wara ka + ŋ + ku + ra + lu
that # fire # care take CM FUT HORT PS
'let them watch out for that fire'

(157)

M (a) yali + ma pupa + ma wara na + ŋ + ka + li
that # fire # care see CM IMP PS
'you lot watch out for that fire'
 (b) yali + ma + li wara na + ŋ + ka + li pupa + ma
that # PS care see CM IMP PS fire #
'you lot watch out for that fire'

In M the irrealis (IMP + !a) does duty both as hortative and past irrealis. Both hortative and past irrealis may be formed by Aux-attachment as in (158) and (159)(b), but the past irrealis may alternatively be formed by Initial-attachment as in (159)(a).

(158)

M yali + ma pupa + ma wara na + ŋ + ka + !a pa + li
that # fire # care see CM IMP IRR AUX PS
'let them watch out for that fire'

(159)

M	(a) yali + ma + li	}	wara na + n + ka + !a pupa + ma
	<i>that # PS</i>		<i>care see CM IMP IRR fire #</i>
	(b) yali + ma pa + li	}	
	<i>that # AUX 3PS</i>		

'they should have watched out for that fire'

A similar pattern is found in B where IMP !a also realises both hortative and past irrealis, except of course that there is no Aux-attachment in B. A suffix +ŋa is also added to the clitic complex in the case of past irrealis, as in (98). In B imperatives, attachment to the verb is the rule.

(160)

B nila jawl + ma + lu + ŋa wara ka + ŋ + ka + !a
that fire # PS DOUBT care take CM IMP IRR
'they should have watched out for that fire'

Clitic attachment in the imperative and hortative is however different

in B on the one hand and G and M on the other. In B, if the focus suffix *pa|a/wa|a* is attached to these forms of the verb, the clitics follow this suffix, as in (161 a and b), but in G the clitics are directly attached to the V-tense suffix, and precede *pa|a/wa|a* as in (162 a and b).

(161)

- B (a) *ka + ŋ + ka + wa|a + lu*
take CM IMP FOC PS
'you lot take it now'
- (b) *ka + ŋ + ka + |a + wa|a + lu*
take CM IMP HORT FOC PS
'let them take it now'

(162)

- G (a) *ka + ŋ + ka + lu + wa|a*
take CM IMP PS FOC
'you lot take it now'
- (b) *ka + ŋ + ku + ra + lu + wa|a*
take CM FUT HORT PS FOC
'let them take it now'

In B therefore, the order of suffixes where the clitics are attached to imperative and hortative forms of the verb is the same as that in other tenses of the verb in B, as in 163, and the same as that in COMP, NEG and Q-word attachment in G, where *pa|a/wa|a* also precedes the clitic complex (see section 4.2.).

(163)

- ka + ŋ + a + wa|a + lu*
take CM PRES FOC 3PS
'they are taking it now'

In G (and M) however, the order of suffixes in 162 shows attachment to V to be a distinct rule from other types of clitic attachment.

In WG, but not in EG, clitics may be attached to the verb in the future and irrealis tenses. The former is the same as the future tense in the other languages, but frequently adds the *+ŋa* DOUBT suffix to the clitic complex. The past irrealis is realised by the same verbal suffix as the imperative, but the suffix *+ŋa* is obligatorily present on the clitic complex. Clitics are usually attached to the verb, but sometimes to the initial constituent. In both the future and irrealis, clitics may alternatively, and less commonly, be attached to the Aux *ŋu ... (+ŋa)*. In EG the Aux *wayl ... (+ŋa)* is used with the past irrealis, instead of *ŋu ... + ŋa*. Examples of the above tenses are given in (161)-(165).

(164)

- WG (a) kayira ya + n + ku + lu (+ŋa)
north go CM FUT 3PS (DOUBT)
- (b) kayira ŋu + lu (+ŋa) ya + n + ku
north AUX 3PS (DOUBT) go CM FUT
'they will (possibly) go north'

(165)

- WG (a) kayira ya + n + ta + lu + ŋa
north go CM IRR PS DOUBT
- (b) kayira + ma + lu + ŋa ya + n + ta
north # PS DOUBT go CM IRR
- (c) kayira ŋu + lu + ŋa ya + n + ta
north AUX PS DOUBT go CM IRR
'they would have gone north'

(166)

- EG kayira ŋu + lu ya + n + ku
north AUX 3PS go CM FUT
'they will go north'

(167)

- EG kayira ŋanta + lu ya + n + ku
north DOUBT AUX 3PS go CM FUT
'they may/want to go north'

(168)

- EG kayira wayi + lu + ŋa ya + n + ta
'they would have gone north'

Attachment of clitics to verbs may come about in B coincidentally, because V happens to be the first constituent, as already illustrated in (124)(a). There is also in B clitic attachment to V irrespective of V's position in the sentence. Like initial-attachment in G and M, this appears to be determined by a discursive environment, but at the present stage of investigation I cannot be sure of the exact nature of this environment. Some examples like (169) and (170) appear superficially similar to those of lateral contrast described above for G and M. (170) shows that what is being dealt with is not strictly V-attachment, but also includes attachment to preverbs (\bar{V} -attachment).

In examples (171) and (172) however there is strictly no contrast of the type described here. What seems to characterise the sentences in which V-attachment occurs is a temporary (usually parenthetical) break in a topic chain in which a new (non-topical) element acquires prominence. In all the examples here, the new element takes over

sentence subject status. I have not found any clear examples of the new element being anything other than a new subject, but the corpus analysed at the moment is too small to be conclusive.

(169)

- B 1. niɟpuɾu + ŋuɟu + ŋa + lu ya + ni
Pigeon Hole ELAT 1EPS go PAST
'we went away from Pigeon Hole'
- ii. Sanford + ta + ŋa kari + pa jaŋkaŋi + k ŋayu + ma
LOC 1SS be PAST big INCHOAT 1S #
'I grew up at Mt. Sanford'
- ?C 111. ŋayi + ŋ + ma ŋamayɪ + ma ŋaji + ma kari + pa + wula
1S DAT # mother # father # be PAST 3DS
pɪɪmatjuru + ɟa
Bilinara Hill LOC
'my mother and father lived at Bilinara Hill'
- iv. ŋayu + ma + ŋa kari + pa Sanford + ta
1S # 1SS be PAST LOC
'I lived at Mt. Sanford'

(170)

- B 1. ya + n + ta + ɟa + ŋa + ŋa
go CM IMP IRR 1SS DOUBT
'I wanted to go'
- ?C 11. ŋumpɪn + kaɾɪ + ɟɪ kaɟɪ + yɪ ma + ŋɪ
man OTHER ERG stop 1SO say me
'another man stopped me'

(171)

- B 1. yɪkarp + pa + ŋa + paŋu ma + n + a
scratch LINK 1SS RFL get CM PRES
'I am scratching myself'
- ii. kanamuru + ɟu paya + ŋɪ + yɪ
mosquito ERG bite PAST 1SO
'mosquitoes have bitten me'
111. janarjanar + wa + yɪ kampa + ŋɪ
sore REDUP LINK 1SO burn PAST
'they have made me sore'

(172)

1. kari + pa + ŋa yapakaɾu + ma pakaɟi + ɟa + ma
be PAST 1SS baby # paperbark LOC #
'I was a baby in a paperbark cradle'
- ii. ŋayi + ŋ + ju ŋamayɪ + ɟɪ kampa + ŋɪ + yɪ
1S DAT ERG mother ERG cook PAST 1SO
'my mother cooked me (in antbed for strength)...'

- iii. jaŋkaŋi + k kari + pa + ŋa
big INCHOAT be PAST 1SS
'...and I grew up'
- iv. luku + ŋa kari + pa
marry 1SS be PAST
'I was married'

4.7. THE VARIETIES OF CLITIC ATTACHMENT

The chart below summarises the environments in which different clitic bases appear in the four languages and dialects examined:

(173)

	B	WG	EG	M
(i) AUX	no AUX	unmarked	unmarked	unmarked
(ii) COMP	yes	yes	yes	no
(iii) NEG	yes	yes	yes	no
(iv) Q-words	yes	yes	yes	no
(v) ID	?contrast	contrast	contrast	contrast
(vi) IC	unmarked	contrast past irrealis	contrast	contrast imperative past irrealis
(vii) V	?subject/ topic change imperative hortative	imperative hortative past irrealis future	imperative hortative	imperative

We have seen that COMP, NEG, Q-words (and focus elements) behave similarly with regard to clitic-attachment.

- (i) they usually occur initially, but sometimes do not;
- (ii) they attract clitics in G and B, but not in M;
- (iii) even in G they can co-occur with the neutral auxiliary (which attracts clitics) under certain circumstances;
- (iv) they may not have *ma* suffixed to them preceding the clitic complex and rarely have it following the clitic complex, but may take the *pa* link where the Q-words has a final consonant;
- (v) they may have *pa|a/wa|a* suffixed to them preceding the clitic complex;
- (vi) they are not contrastive (in the sense defined in this paper).

ID and IC attachment, on the other hand, share the following characteristics, which are, with the exception of iii, different from the above set:

- (i) they always occur initially;
- (ii) they attract clitics in M as well as in G;
- (iii) ID possibly does occasionally co-occur with the neutral

auxiliary; as in (146)(ii); it is difficult to say whether other IC do or not;

(iv) they must have *ma* suffixed to them preceding the clitic complex and must not have it following the clitic complex;

(v) they must not have *pa|a/wa|a* suffixed to them preceding the clitic complex, but may have it following the clitic complex;

(vi) they are contrastive (in the sense defined in this paper).

One feature that is absent from the above lists is a positive semantic characterisation of COMP, NEG, Q-word and focus-attachment together, (rather than the negative one of (vii)) to complement the syntactic facts which link them together. I believe that it is possible to provide such a characterisation in terms of the topical or presuppositional nature of the remainder of the sentence when it is introduced by COMP, NEG, Q-word or a focus. The last implies that the clause which follows it is presupposed by definition, as in (174)(a and b). Special questions like (174)(c) are similar in their organisation to other focus structures. Schachter (1973) has shown that relative clauses are also presupposed as in (174)(d). This analysis can probably be extended to other subordinate clauses like (174)(e). Negation as in (174)(f) also implies that the equivalent positive statement has occurred or is in some other way topical in the discourse. On the other hand in the simple sentence (174)(g) there is not necessarily any presupposition.

(174)	PRESUPPOSITION
(a) "Jack swam across	(someone swam across)
(b) It was Jack who swam across	(someone swam across)
(c) Who swam across?	(someone swam across)
(d) The boy who swam across is here	(a boy someone swam across)
(e) After Jack swam across he came here	(Jack swam across)
(f) Jack did not swim across	(Jack someone swam across)
(g) Jack swam across	(Jack was expected to swim across etc)

Thus it is the meaning of the COMP, NEG, Q-word or focus element which is *new* here, and the remainder of the sentence relatively topical.

We can capture the syntactic and semantic similarity of COMP, NEG, Q-word, and focus-attachment in the following way. In the languages with auxiliaries, G and M, the clitics may be attached to AUX. The AUX node is located on the left of the main part of the sentence, identified as S. To the left of AUX there are two further presentential nodes COMP and NEG, in that order, under another node \bar{S} . In G clitics may also be attached to the rightmost of these pre-sentential elements.

Priority of clitic attachment to different bases appears to have an

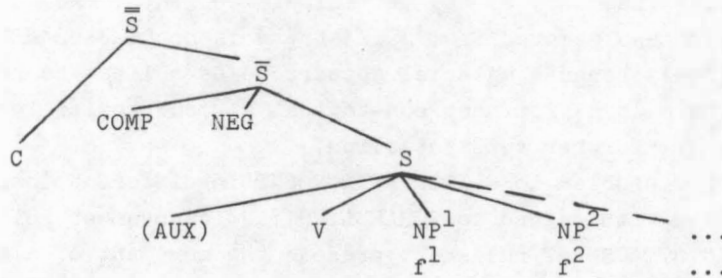
rest of the rule is an abbreviation of the rule (173) in which feature bundles with greek-letter variables are written as f^1 etc. and variables are omitted.

(176)

	[I	X	NP ¹	NP ²	NP ³]
				f^1	f^2	f^3	
	D						D
SD:	1	2	3	4	5		
SC:		pro	pro	pro			
		1 + f^1	+	f^2	+	f^3	2 3 4 5

One could regard the sentence in G, B, and M as having roughly the following structure, with the AUX node being present in G and M but not in B.

(177)



(not necessarily in this order)

C would be a node under which elements such as NP's from within S could be attached if they carried a particular discursive function: in G and M this might be characterised as [^{+contrast}]; in B it might include this, but would also include another designation, possibly [_{-patient}]. In G and M the contrastive demonstratives together with *ma* might be generated as underlying daughters of C, as indicating the most general form of lateral contrastive sequence, and later replaced by other sub-topics from within S by a transformation. This would not be possible in B as 'contrastive' demonstratives behave differently from the elements which cause V-attachment.

In M (and probably B) NP (or \bar{N}) could also be regarded as a domain of CLITIC ATTACHMENT, with AUX being an optional initial constituent of NP for M. An alternative to this not considered here would be to regard clitic-marking in genitive constructions as arising from an underlying embedded S within the NP concerned.

CLITIC ATTACHMENT could then be seen as applying more than once for each (maximal) sentence in a manner similar to that of a cyclical rule,

but using different domains to cycle on in each language:

(178)

D: (numbers indicate repeated applications)

G: (1) \bar{S} (2) \bar{S}

B: (1) \bar{N} (2) \bar{S}

M: (1) \bar{N} (2) S (3) \bar{S}

This type of application of the rule would correctly predict the facts about the distribution of clitics in the three languages. The suggestion of course raises many questions. For instance, why does B skip S, and M skip \bar{S} , in its application? Perhaps it is because there is no distinction between S and \bar{S} in B, and \bar{S} and \bar{S} in M at the time of the application of CLITIC ATTACHMENT. Also, why does cycling on \bar{S} cause V (or \bar{V}) attachment in B where there is a 'contrastive' element under \bar{S} ? This would have to be answered by showing that \bar{V} would either be (as in our examples) the only or the initial element in S, once a 'contrastive' element has been removed from S and there is no COMP or NEG present. This is likely because material appears to be shifted to the right of V where there is a prominent non-topical element to its left, but this would require further substantiation.

A further problem in CLITIC ATTACHMENT in different languages is its ordering with regard to SCRAMBLING (topic-movement rules). In G the CLITIC ATTACHMENT rule must precede the movement of elements to the left of COMP, NEG and AUX, otherwise the clitics will be attached to the surface initial elements, not to COMP, NEG or AUX. In B, CLITIC ATTACHMENT must attach clitics to the surface initial element of S, but not the surface initial element of \bar{S} , if this is followed by COMP or NEG. This is ensured if we allow some kind of SCRAMBLING to apply on the S cycle, and a rule which optionally moves *one* (non-topical) element to the left of COMP and NEG to apply on the \bar{S} cycle. CLITIC ATTACHMENT would then apply on the \bar{S} cycle *before* the latter rule. In G and M, however, either no SCRAMBLING takes place on S or CLITIC ATTACHMENT applies before SCRAMBLING on S. The former solution is possible for G, and the latter for M, but not vice versa, given the present framework.

The variations in clitic attachment considered above are related to variations in the domain of initial CLITIC ATTACHMENT between NP, minimal S and maximal S, with various more or less inclusive forms of S defined in a slightly different way for each language. There is also a form of CLITIC ATTACHMENT in which the clitic base is defined not by its position in sentence-structure, but by its grammatical category: V-ATTACHMENT. This form of attachment is found either exclusively, or

alternating with INITIAL ATTACHMENT, in a number of Nyungic languages to the West and South of the area examined here. In the Ngumbin group, the occurrence of V-ATTACHMENT is determined by factors of mood and tense.

All the tenses which determine marked forms of attachment (V-attachment, or Initial Attachment in WG and M) imperative, hortative, past irrealis and future could be described as [+irrealis] in the sense that they presuppose that the event described has not taken place. G, B and M all agree in having clitics attached to V in the imperative and hortative mood, although in M they may alternatively undergo initial attachment. Past irrealis is the next most likely tense to produce marked attachment, as in WG (V- or Initial-) and occasionally in M (initial), and finally future produces V-attachment in WG. Realis past and present never produce V-attachment in the languages examined here. There appears then to be the following tense hierarchy:

(179)

Imperative	[(+irrealis)]	
Hortative	[+order]	↑
Past Irrealis	[+irrealis]	V-attachment (marked Initial Attachment)
	[+past]	
Future	[+irrealis]	
	[+future]	Unmarked (G, M Aux- attachment)
Present		
Past	[-irrealis]	↓

One possible explanation of this hierarchy is that the tenses at the irrealis/marked attachment end are positively correlated with topical subjects, that is, they are more likely to have pronoun subjects than not, more likely to have definite subjects than indefinite subjects, etc. The reason for this is probably connected with the *accessibility* of the subject-verb relation to the speaker. By this I mean that while a speaker might report a past or present event involving as subject something or someone unknown to the addressee, this becomes more unlikely if the event is being predicted, and more unlikely still in any hypothetical context, where some knowledge of the predispositions or mental state of the subject is usually presupposed. In the case of imperatives, of course, the subject is not only topical but completely predictable as being the addressee.

I do not see how this observation can provide us with any direct means of simplifying the grammar in synchronic terms, however. In other words, the base (X in rule 24) must still be specified as V independent of its order, and modal/tense elements must be specified for the appropriate features (+irrealis etc.). This rule, and its alternative

forms of INITIAL-ATTACHMENT must apply before the major form of INITIAL-ATTACHMENT.

4.8. THE HISTORY OF CLITIC ATTACHMENT

The particularly topical nature of subjects in the tenses which undergo V-ATTACHMENT may however provide a clue about the historical development of V-ATTACHMENT. Assuming that INITIAL-ATTACHMENT was the dominant form of clitic attachment at an earlier stage of these languages (further evidence for this is presented below), if V tended to be the surface initial constituent under certain circumstances, one might hypothesise that these same circumstances might provide the environment for a rule of V-ATTACHMENT which differentiated itself from INITIAL-ATTACHMENT by freezing the initial constituent clitic complex sequence, then beginning to apply before rather than after some topic and new movement rules. The type of alternation between V- and INITIAL-ATTACHMENT as in the M imperative thus represents a kind of survival of the stage in which this change was taking place.

Further evidence for the genesis of V-attachment in initial attachment is provided by the different order of suffixes in B, where initial-attachment is dominant, and in G where it is not (discussed in Section 4.b.). In B, although clitics are attached to V in the imperative and hortative, the attachment rule remains the same as that for attachment to any initial constituent. In G however we can perceive a later stage of development in which V-attachment has further separated itself from attachment of other types of joining the clitics more closely to the verb, to the left of the focus suffix pa|a/wa|a.

V would tend to be in initial position particularly in the tenses referred to for the following reasons:

(i) since the subjects (and probably other NPs in the sentence) would be topical, they would usually be pronominalised, and the full pronouns would often be dropped following clitic attachment. V + clitic complex would therefore often be the only and therefore the initial sentence constituent;

(ii) even if there were other elements in S, they would tend to be topical, while V would be new. Since new elements often acquire initial position in the E. Ngumbin languages, V would still be in initial position in the majority of cases.

Finally in this examination of clitic bases in the E. Ngumbin languages, I wish to look briefly at the possible origins of the auxiliary. Unlike 'auxiliaries' in other languages, which have a close affinity with and usually originate from *verbs*, the AUX in the Ngumbin and Ngarga

languages (called 'catalyst' by Capell) are quite unlike verbs. Here we shall consider only the neutral AUX and those which are similar to them:

(180) Auxiliaries:

G ɲu Djaru/Nyinin ɲa Walmadjari pa; ɲa (Q)
M pa Walbiri ka (PRESENT) l+pa (PAST INDEF)

First consider pa, which occurs in M and Walmadjari as the unmarked AUX, and in Walbiri in one tense. Now in many of the Nyungic languages of the Western Desert and desert fringes there is an epenthetic element pa which is either synchronically productive or historically reconstructable as a suffix which adjusts final syllables, and, as in the case of Walbiri, was added to consonant final morphemes in the past to avoid having any consonant-final words in the language (a constraint which still applies in Walbiri but not, of course, in the Ngumbin languages).

This is undoubtedly the origin of pa in l + pa, in which the element l has many cognates throughout the Nyungic languages (Capell, 1956). In G, as we have seen, that pa is used as a link between consonant-final stems and certain suffixes, including pronominal clitics, and in M it is used to separate sequences of consonant-final and consonant-initial tense morphemes suffixes to verbs. In B, where there is no AUX, pa is much more widely used to separate consonant-final clitic bases and clitics. In the E. dialect of Ngarinman of which I have some data, pa is used in the same way as in B but is more prominent as Ngarinman has many more final nasal consonants which have been dropped in B, e.g.:

(181)

- B (a) pina + pa + yi
give PAST ISO
'he gave it to me'
- Ng (b) pina + ɲaŋ + pa + yi
give PAST LINK ISO

(182)

- B (a) jala + ɲa ya + n + ku
today ISS *go* CM FUT
'I will go today'
- Ng (b) jalaŋ + pa + ɲa ya + n + ku
today LINK ISS *go* CM FUT

It is interesting that it is precisely in the language in which pa does *not* occur as a link between consonant-final bases and pronominal clitics, Mudbura, that pa occurs as a free auxiliary. We can then hypothesise the development from the general rule (183) into the M

rule (181) by the loss of the left-hand environment [+C] followed by the establishment of pa as an AUX in underlying structure.

(183) PA - INSERTION

G, B $\emptyset \rightarrow pa / [+C] ____ \left\{ \begin{array}{l} + \\ \# \end{array} \right\} \left\{ \begin{array}{l} [+pro] \\ ni \end{array} \right\}$

(184)

M $\emptyset \rightarrow pa / ____ [+pro]$

At the time that Capell collected Ngarinman data (probably a western dialect), a half-way house situation appears to have existed in that dialect in which pa could function either as a bound link, or a free form.

With regard to the other forms of the AUX base ka/ŋa/ŋu, the situation is less clear. ka and ŋa appear to have been variants in dialects lying between Djaru and Walbiri (Capell 1962), so one could propose these two as reflexes of a single proto-form, presumably *ŋa. The specialisation of ka in standard Walbiri to the present tense and of ŋa to the interrogative in Walmadjari remain as problems, however. G ŋu could be regarded as originating in ŋa, as the functions of the elements are so similar in G and Djaru (Tsunoda, personal communication) and appear as variants in the border area between the two languages. ŋu might have developed through assimilation to the high back vowel characteristic of a number of clitics in G (+!u, +wula, +ŋku, ɲ(j)ura, etc). On the other hand, there is a development of ŋu from an epenthetic link ku observable in M. ku is usually used to separate consonant-final elements from lateral-initial suffixes, which may be case-suffixes as in (185) or pronominal clitics as in (186).

(185)

G kun!ŋ + ku + !u
 dreaming LINK ERG

(186)

G ŋu + n + ku + !a ɲa + ɲa
 AUX 2SS LINK 3SIO *see* PAST
 'you looked for it'

The element ŋku which separates oblique pronouns and reflexives from !u (3PS) or !a (10), also arises from ku through reanalysis of final ŋ in forms like (184)(a) as belonging to the following morpheme as in (187)(b).

(187)

Ng (a) ɲalaŋ + ku + lu
LEPO LINK PS
G (b) ɲala + ŋku + lu
LEPO LINK PS

A further development is the transfer of stress on to the link syllable in M. Presumably because homorganic nasal clusters are not found as initials in stressed syllables (e.g. never in word initial position), ŋku became ɲu.

(188)

M ɲala + ɲu + lu

If such a development had taken place at any earlier stage in G it could have resulted in the releasing of a free form ɲu AUX. This is unlikely however as the original form +ŋku + lu would have to have been maintained throughout, unless a complex pattern of borrowing and morphological influence between proto-Gurindji and proto-Mudbura is to be posited. Such hypotheses are beyond what the evidence at the present stage or possibly at any future stage of research could support.

5. CONCLUSIONS

5.1. SPLIT SYSTEMS AND HIERARCHIES

In this paper I have attempted to contribute towards the understanding of variation within one section of the grammar of some languages of one sub-group of Australian languages. I hope that some of the ideas and data in this paper will be of use when further studies of the languages of this area become available (as they shortly will, e.g. Hudson and Richards on Walmadjari, Tsunoda on Djaru), and comparative and historical syntax of the Ngumbin sub-group and of the Nyungic family can proceed on a wider and more thorough-going basis.

Another aim of this paper has been to attempt to extract some theoretical notions which may be of use in the discipline of comparative syntax. I feel that studies of variation within closely related languages may be of particular value in advancing hypotheses in this field.

The starting point of my theoretical enquiry has been the notions of *split system* and *grammatical hierarchy*. Silverstein has put forward an interesting hypothesis concerning the relations of so-called *split ergative systems* and a universal *nominal hierarchy* (Silverstein 1976). I have also touched on this question in this paper and will review the evidence directly. In the remainder of the paper I attempt to analyse the variations of other rules using similar notions of grammatical hierarchy.

marked accusative form, but not necessarily vice-versa; if pronouns generally take a marked agentive ('ergative') form in a language, nouns would also take such a form, but not necessarily vice-versa. Thus the hierarchies for the two types of case-marking appear linked, but the implicational order appears to be opposite in the two cases. (Strict implicational order may in fact prove to provide too string a definition of hierarchy; see further below.)

We may establish that for the purposes of hierarchies, > means 'is implied by', $x > y > z$ therefore means 'if z, then y; if y, then x' as an item of rule R. x will be referred to as 'higher than' y and z, and at the 'top' of the hierarchy, while z is referred to as 'lower than' x and y, and at the 'bottom' of the hierarchy. Unless otherwise specified, the high-low dimension of hierarchies will be mapped on to a left-right dimension in diagrams. Hierarchies are also interpretable in a historical sense, that the higher the element in a hierarchy the earlier it enters a language grammar and the later it drops out. This remains a secondary hypothesis, however, subject to empirical testing. Hierarchies of this kind appear to exist in phonology (see Foley 1972, Zwicky 1972).

So far we have been talking about what Silverstein refers to as the 'local' operation of hierarchies, in which the application or non-application of a rule is determined by the position of *one* item in its SD in the hierarchy. There are also rules in which hierarchies operate in a 'global' fashion, by which the application or non-application of a rule is determined by the *relative* position of *two* items of its SD in the hierarchy. Silverstein has given examples of 'global' hierarchies in case-marking; case-marking in the languages considered here appears to be purely 'local' in its operation. Other rules in certain of the E. Ngumbin languages (CLITIC SWITCH, COPYING, DUAL NEUTRALISATION, SUBJECT NUMBER SHIFT) do however operate partially in a 'global' way. Where they do operate in a 'local' way, there appears to be a connection between the 'local' rules and 'global' rules in neighbouring languages and dialects.

The hierarchy diagrams below are organised in the following way: the first set of lines is the hierarchy for the rule, which concerns an item or items of the SD. Where the rule is local it is the hierarchical position of the item to be changed which alone determines whether the change takes place. In such cases there is only one line labelled SD, which represents the item which is both the determinant and determinand of the rule. Where the rule is global, the SD hierarchy has two lines, the first concerning the determinant (Dt) or additional item of the SD which effects the application of the rule, and the second concerning the determinand (Dd) or item to be changed by the rule. The second set of

lines is labelled SC: here they may be one line if there is only one sub-rule covered by the hierarchy above (SD), or more than one is there is more than one covered by the rule.

The bracketings represent the areas of the hierarchy SD which trigger the application of the rule; outside those areas the rule does not apply. If there is both a Dt and Dd hierarchy in SD, both are covered by the brackets in SC, and areas of overlap either of rules or hierarchies, are to be considered conjunctions (e.g. the condition where $X=y$ and $Q=z$ for hierarchies; 'both R and R¹ apply' for rules, in (189)).

The first rule considered in this paper was (nuclear) CASE-MARKING. Since there appears to be an inverse relationship between 'ergative' and 'accusative' marking, the two types are placed in relation to one hierarchy. Where all nominals are either subject to ergative or accusative marking, there is the situation, as in Walmadjari (Hudson 1976) and other W. Ngumbin and Walbiri diagrammed in (191), in which the two rules 'fit' except for a small 'gap'.

(191)

Walmadjari, Walbiri	SD:	other clitics	3S clitics	pronouns	nouns
	SC:	[+case] on O		[+ case] on A	

In other languages, e.g. of the Wati group, there is a situation of 'overlap' as in (192).

(192)

SD:	clitics	pronouns	nouns
SC:	[+case] on O		[+case] on A

In the E. Ngumbin languages, G and B, the 'gap', already observed in Walmadjari, widens to include all free pronouns.

(193)

G and B	SD:	other clitics	3S clitics	pronouns	nouns
	SC:	[+case] on O		+ case on A	

In M the gap includes all pronouns except 3S.

(194)

M	SD:	other clitics	3s clitics	other pronouns	3S pronouns .	nouns
	SC:	+ case on O			+ case on A	

The hierarchy here seems fairly well defined for these related sub-groups of languages: only the scope of the rules appears to be altering, as it were, by pulling the rule-brackets further along or further back on the hierarchy. As we move beyond these immediately related languages, we would expect to find more pronounced types of variation on the hierarchy. We have already remarked that in Causasian languages, pronominal clitics do not necessarily occupy the left-hand position in the hierarchy. Further in some Cherkess and W. Caucasian language, (Deeters 1963) the following pattern has been observed, in which 'accusative' marking is not tied to the right-hand end of the hierarchy, but occupies the same left-hand area as 'ergative' marking.

(195)

SD:	pronouns	definite nouns	indefinite nouns
	└──────────────────┘		
	└──────────────────────────────────┘		
SC:	+ case on O and A		

Despite such variation, CASE-MARKING hierarchies still seem to be subject to some universal constraints, the general character of which has been pointed out by Silverstein. Further work on variation in specific areas could reveal more about the general character of such hierarchies.

Rules affecting clitics other than CASE MARKING will now be discussed. DUAL NEUTRALISATION will be used as the primary example of global hierarchical variation. The simplest form of DUAL NEUTRALISATION in the E. Ngumbin and Ngarga languages is non-hierarchical i.e.:

(196)

E. Walbiri, M, EG	SD:	all P, D. 1, 2, & 3
		└──────────────────┘
	SC:	-D on +D clitics adjacent to +NS clitics

In the Wati languages I know of (Pitjantjatjara: Glass and Hackett 1970) there is no DUAL NEUTRALISATION rule, nor is there in Walmadjari. In Ngaliwuru, a non-Nyungic language spoken to the north of Ngarinman (Bolt et al. 1971) there is non-hierarchical neutralisation of dual subject clitics to plural. This opens up the possibility that hierarchical variation in rules which cross major group boundaries could be profitably studied in future.

The first variation of DUAL NEUTRALISATION dealt with here was that in W. Walbiri (Hale 1973), which can be diagrammed as follows (excluding discursive factors):

(197)

W. Walbiri
D.N.

SD: Dt

P	D	
	1	2

Dd

	2	3
--	---	---

SC: -D on clitics
 adjacent to +NS clitics

This hierarchy indicates that DUAL NEUTRALISATION operates in a 'global' way. The determinand is either the S or the O clitic; the determinant is the other (S or O) clitic apart from the determinand. The hierarchy above means that the rule only operates where the determinant is dual, and where the determinant is 1st person and the determinand 2nd or 3rd, or the determinant 2nd and the determinand 3rd person.

It is interesting to compare this to another 'global' variation on the same rule, in WG.

(198)

WG

SD: Dt

P	D	
	1 2	

Dd

	2 3	
--	-----	--

SC: -D etc. as above

As compared with (197) there are changes here: (i) the rule is extended to include all plural determinants, (ii) the relationship between 1st and 2nd person determinants and 2nd and 3rd person determinands is no longer assymmetrically divided: the rule applies where the determinant is dual 1st *or* 2nd, and the determinand 2nd *or* 3rd.

A further variation within WG is the following (dialect b):

(199)

WG (b) SD: Dt
D.N.

1	2	3
---	---	---

Dd

3	2	1
---	---	---

SC: [-D] etc. as above

Here (i) number 1 is eliminated entirely as a relevant category in the determinant and (ii) the residual person categories (Dt: 3, Dd: 1) are aligned with each other as a combination falling outside the scope of the rule.

There is a further set of variations of DUAL NEUTRALISATION in Ngarinman. In dialect (a), the situation is as in (200).

(200)

Ng	(a) SD:	Dt	0			S	
D.N.			1	2	3		
		Dd	3		2	1	

SC: -D etc.

Here (i) only S clitics are affected by the rule, therefore only 0 clitics are determinants, (ii) 2nd person determinands have shifted outside the scope of the rule.

The final variation is that of Ngarinman dialect (b) (201).

(201)

Ng	(b) SD:	Dt:	P	D
D.N.			0	0
			1	23
		Dd:	3	21

SC: -D etc.

Here the rule deals only with 1st plural 0 determinants (the left most most point of the Dt. hierarchy), combined with 3rd person determinands as in (200).

The hierarchical variation displayed by DUAL NEUTRALISATION is of four types: (i) extension and contraction of the scope of the rule relative to the Dd. and Dt. hierarchies, (ii) extension and contraction of the scope of categories within the Dd and Dt hierarchies relative to each other, (iii) removal of boundaries between adjacent categories, (iv) introduction and removal of sub-hierarchies (such as number and subject/oblique) within the Dt. hierarchy.

Among types of variation not encountered were (i) splitting up of the scope of the rule into sub-scopes interspersed with gaps relative to the Dd and Dt hierarchies and (ii) permutation of the order of categories within the Dd and Dt hierarchies relative to each other. In order to establish hierarchies as fully implicational, it would be necessary to show that rules apply to stretches of a hierarchy *including the top-most end* of the hierarchy. This does not appear to be the case with (197), which omits plural and starts with dual; it may be necessary to allow changes in the order of certain major parts of sub-hierarchies (such as dual/plural). This in turn may help to clarify why the order of 2 and 3 also appears to change as between (197) on the one hand and (200) and

(201) on the other.

Assuming that the latter problems can be resolved, it might be useful to propose an analogy for variation in hierarchies. Picture first a set of pieces of elastic, one or more representing a rule or sub-rules, one or more representing the Dd. hierarchy, and one or more representing the Dt. hierarchy. The latter two sets of pieces are calibrated by grammatical categories, each category occupying a stretch of the elastic in a fixed implicational order. The observed type of variation can then be thought of as a stretching of parts of one or more than one of the pieces of elastic so that a stretch of it extends to be partially or completely adjacent to stretches of another piece to which it was formerly not adjacent. In addition boundaries in the calibration may vary between being of significance and being of no significance in the hierarchy. The limiting case is when no boundaries are of significance, for one of the pieces, in which case that piece represents a sub-hierarchy which no longer plays any role in the application of a rule.

Such an analogy implies a fairly highly constrained model of variation in rules. Precise formulation of the hypotheses involved here and their empirical testing remains a task for the future. It may be necessary to distinguish, for instance, between universal constraints on the possible form of single *steps* in the history of grammars, and universal (ahistorical) constraints on the form of grammars. No doubt for both these questions more attention will also have to be paid to the functional embedding of rules in grammars. In what follows, the other rules examined in this paper are discussed in the light of the hypothesis already advanced.

In most of the languages considered here, SUBJECT NUMBER SHIFT is not a hierarchical rule. In Ngarinman, and sometimes in G, a person hierarchy operates globally. In (202), Dt is the O clitic and Dd is the S clitic:

(202)

Ng, S, N S	SD: Dt	<table style="border-collapse: collapse; width: 100%;"> <tr> <td style="border: 1px solid black; padding: 5px;">sing</td> <td colspan="2" style="border: 1px solid black; padding: 5px;">non-sing</td> </tr> <tr> <td style="border: 1px solid black; padding: 5px;"></td> <td style="border: 1px solid black; padding: 5px;">1 2</td> <td style="border: 1px solid black; padding: 5px;">3</td> </tr> </table>	sing	non-sing			1 2	3
sing	non-sing							
	1 2	3						
	Dd	<table style="border-collapse: collapse; width: 100%;"> <tr> <td style="border: 1px solid black; padding: 5px;"></td> <td style="border: 1px solid black; padding: 5px;">3</td> <td style="border: 1px solid black; padding: 5px;">2 1</td> </tr> </table>		3	2 1			
	3	2 1						

SC: [+NS]S element moved
to right of O

It may be also that there is also hierarchical variation in the rule between languages like Walmadjari, in which both dual and plural elements are shifted to the right, and G, B and M, in which only plural elements are moved.

CLITIC SWITCH in G is a hierarchical rule. In (203) Dt and Dd are O and S clitics, respectively.

(203)

G, C.S.	SD: Dt	sing	non-sing			
		1	2			
	Dd	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="border: 1px solid black; padding: 5px; text-align: center;">2</td> <td style="border: 1px solid black; padding: 5px; text-align: center;">3</td> <td style="border: 1px solid black; padding: 5px;"></td> </tr> </table>		2	3	
2	3					
	SC:	S chopped to right of O				

In M the situation is more complicated as there appear to be three rules related to the same hierarchy: CLITIC SWITCH, CLITIC COPYING and SPURIOUS RECIPROCAL INSERTION. CLITIC COPYING has three variant scopes depending on dialect marked by E, W and C in (204).

(204)

M C.S./C.C/ S.R.I.	SD: Dt	1	2	NS	Sing
		3			
	Dd	2	3	2	
				sing	NS
		<div style="display: flex; justify-content: space-around; width: 100%;"> clitic switch E </div>		<div style="display: flex; justify-content: space-around; width: 100%;"> spurious reciprocal W </div>	
		<div style="display: flex; justify-content: center; align-items: center; width: 100%;"> C clitic copying </div>			

Dt and Dd refer to O and S respectively, except for SPURIOUS RECIPROCAL INSERTION, where they refer to S and O respectively.

There must be some doubt as to whether the three rules do refer to the same hierarchy, as (i) non-singular and singular appear as distinct categories, on the right of the hierarchy, but not on the left, and in the case of the Dt hierarchy, in an opposite order from that of G, (ii) the category 2 appears split by an intervening 3 in the Dd hierarchy. These problems appear to be similar to those raised in connection with DUAL NEUTRALISATION: reordering of number categories and of 2 and 3 when asymmetrically connected with 1 and 2.

If CLITIC SWITCH alone is considered, the change from G to M consists of the loss of number (sing/non-sing) as a significant variable (sub-hierarchy).

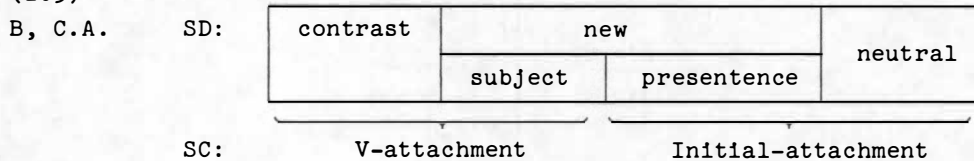
At the present stage it is not possible to fully incorporate the

data concerning CLITIC ATTACHMENT into a schema of the type outlined here, although some type of little-understood hierarchical variation seems to be at work. I take it that there are three rules involved here: (i) Initial-attachment, which I take to include both contrastive and 'focus' attachment (i.e. to Q-words, COMP and NEG); the syntactic differences between the two types are assumed here to result from the nature of the initial constituent, not the CLITIC ATTACHMENT rule itself; (ii) AUX-attachment, which developed from Initial-attachment in some of the languages; and (iii) V-attachment (including also for the purposes of the following discussion attachment to non-initial pre-verbs) which may or may not have developed from Initial-attachment in some cases.

There appear to be two hierarchies which govern these rules: (i) one concerned with mood and tense in some languages, and (ii) one concerned with discursive relations. The two hierarchies will be placed as consecutive SD lines in some of the diagrams which follow, and the rule-bracketing labelled SC refers to both. It must be borne in mind however, that unlike the Dt and Dd hierarchies in earlier diagrams, the two SD lines here are to be interpreted as a *disjunction*, not a *conjunction*.

In B there is no hierarchy of the first type.

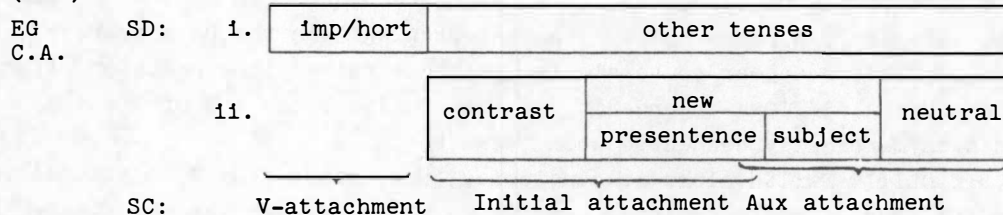
(205)



'New presentence' refers to COMP, NEG, Q-words and focus. These are assumed to be initial when the rule applies.

In EG the category 'new subject', which is doubtful, even in B, is incorporated into the neutral category, which is marked by AUX-attachment. Aux and initial attachment overlap slightly. A tense-mood hierarchy is introduced.

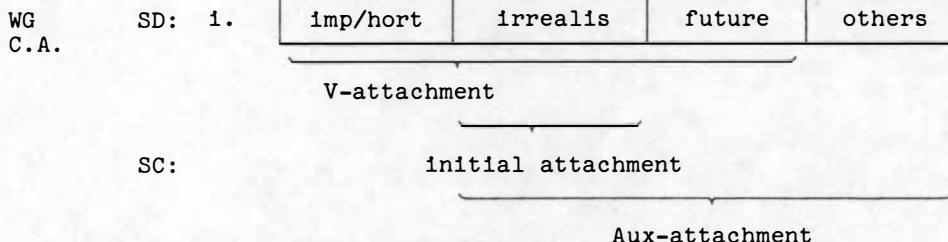
(206)



In WG the scope of V-attachment is widened relative to the tense-mood hierarchy and overlaps both with Aux-attachment and initial-attachment.

For this reason the rule hierarchy relationship for tense and mood must be separated from that of discursive relations, which does not overlap in the same way.

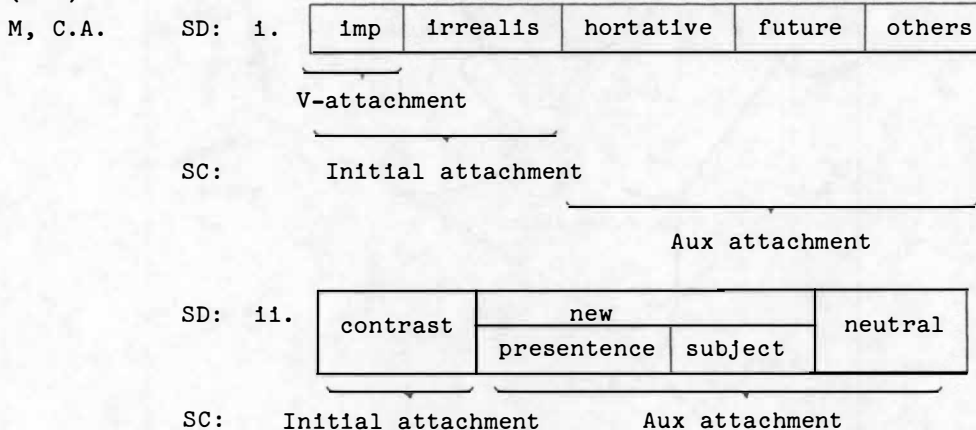
(207)



SD: 11. as for (206)11.
SC:

In M both the tense-mood hierarchy and the discursive hierarchy differ from WG. In the tense-mood hierarchy, the elastic-implicational hypothesis is apparently disconfirmed by hortative moving to the left of irrealis; V-attachment contracts leftwards and initial attachment expands leftwards. In the discursive hierarchy, initial attachment contracts leftwards, and Aux attachment expands leftwards.

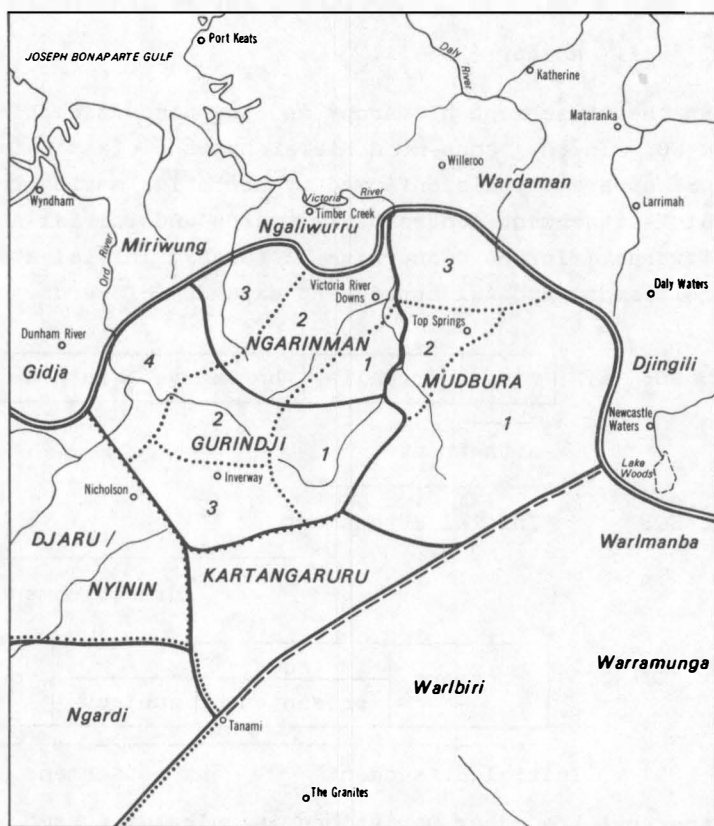
(208)



It appears that the other variations in rules discussed in the paper conform generally to the model proposed for CASE-MARKING and DUAL NEUTRALISATION. Some additional counter-examples to the strongest form of the 'elastic-implicational' theory have been uncovered, involving a few minor changes in the order of categories in hierarchies, and examples of rules occurring in the middle of hierarchies rather than 'tied' to the top of a hierarchy. The latter point raises the problem of the extent to which rules which are different in form should be considered as sub-rules which are part of the same continuum, and

therefore exempt from the requirement that each rule be tied to the top of the hierarchy. Examples of this problem are to be found in the relationships between CLITIC SWITCH, CLITIC COPYING, and SPURIOUS RECIPROCAL INSERTION, and between V-ATTACHMENT, INITIAL-ATTACHMENT and AUX-ATTACHMENT.

MAP 1
THE EASTERN NGUMBIN LANGUAGES



==== Nyungic Group (Northern Boundary)

==== Ngumbin Sub-group

— Language

..... Dialect

----- (uncertain) Sub-group /language

----- Language/dialect

Dialects

Gurindji: (1) Eastern (2) Western

(3) Wanyjirra (4) Malngin

Ngarinman: (1) Bilinara (2) Eastern

(3) Wurlayi

Mudbura: (1) Eastern (2) Western

(3) Karranga

HIERARCHICAL VARIATION IN PRONOMINAL CLITIC ATTACHMENT IN THE
EASTERN NGUMBIN LANGUAGES

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CAUSE, ORIGIN AND POSSESSION IN THE FLINDERS ISLAND LANGUAGE¹

Peter Sutton

0. INTRODUCTION

This paper deals with formal and semantic relationships between certain grammatical categories of the Flinders Island Language of south-eastern Cape York Peninsula, Queensland. In particular, it is an attempt (1) to use comparative linguistic evidence to explain an apparent connection between FI *-(i)ya* (ABLative case), *-niya* (SUBORDinate clause) and *-ni* (agentive nominaliser), and (2) to examine the way this language identifies ABLative, CAUSative, GENitive DATive, ERGative, INSTRumental, LOCative and other relations in different areas of its grammar. Identifications of this type are not uncommon in Australian languages, and some of them cannot be made sense of if they are treated purely from the formal point of view - that is, they are not wholly an arbitrary local choice from syntactic universals, but are partly determined by traditional Aboriginal assumptions about how the world works.

Beyond saying that, I have very few explanatory suggestions at present, and this paper should be taken as an interim report on a problem that might be rather more complex in reality than my limited field data indicate.²

1. A HISTORICAL PROBLEM

The distinctions between ERG/INST, LOC, GEN/DAT and ABL cases of common nouns, in at least one stage of the dialect-complex ancestral to FI and its congeners, were probably marked by separate forms of the type³:

- (1) ERG/INST *-lu, *-(ŋ)ɫu, *-ŋku, *-(n)tu, *-(m)pu (etc.)
 LOC *-la, *-(ŋ)ɫa, *-ŋka, *-(n)ta, *-(m)pa (etc.)
 GEN/DAT *-wu, *-ku (etc.?)
 ABL *-ŋu, *-mu, *-ŋun(u), *-mun((t)u) (etc.?)

At some subsequent stage FI collapsed most vowel distinctions in case suffixes and deleted the stops from those with nasal-stop clusters, giving the present forms⁴:

- (2) ERG/INST/LOC -la, -ɫa, -ŋa ~ -(ˀ)na ~ -(ˀ)ra, -ma (etc.)
 GEN/DAT -wa
 [ABL -(i)ya, -ŋamu (personal names only)]

(The first five case functions are marked by -ŋana in the case of personal names, by -(y)mana in the case of several [+ human] nouns, and by -wa in the case of a few common nouns.) For some reason, the old ABL was replaced by the present form -(i)ya. The replacement may have been triggered off by the emergence of ABL forms essentially homophonous with those of other cases (hence *-ŋa, *-ma etc.). Another factor may have been the development of the present rule which deletes word-final vowels before vowel-initial words in connected speech. The historical loss of many stem-initial consonants in FI means that this rule applies in practically every utterance. Some ambiguity is therefore introduced unless the consonants of suffixes are somehow kept distinct. Where did the new ABL in -(i)ya come from? My only hypothesis at present is that it was derived from the verbal inflection -niya (subordinate clause marker), and this paper discusses evidence for semantic and formal connections between the two affixes in FI and a few other Australian languages.

Before passing on to that discussion, it is worth noting that one of the Arandic languages (see Koch, this volume) may have reacted in a similar way to the loss of a case distinction. Original Proto Arandic ablative *-ŋ (<*ŋu) was phonologically identical with one of the two ergative suffixes, namely *-ŋ (<*ŋku). While Aranda generalised the other suffix *-l (<*lu) to all stems, losing ergative *-ŋ and retaining ablative *-ŋ, Kaititj retained both ergative alternants in the form -ŋ ~ -ɫ, and lost ablative -ŋ, replacing it with -ɫiy.

1.1. FI AND OTHER LANGUAGES

Dyirbal (Dixon 1972:108-110) has two kinds of genitive inflection, the simple genitive -ŋu which indicates a relation of present possession, and the general genitive -mi which typically indicates past possession. Functionally, -mi has many of the characteristics of 'origin' suffixes

roughly synonymous with *aba wuntal-iyā* 'people from hills' and *aba yiwal-iyā* 'people from the beach' respectively. The latter pair are in ABL case but the former are apparently not. However, in ERG case the two former terms behave as if they were already in underlying ABL case (*aba ŋinta-y-mana*, *aba ŋikir-ø-mana* respectively). Thus we have a practice in both these instances where social group terms behave slightly differently from ordinary lexicon, and involving both *belonging to* and *coming from*. Perhaps the anomalous case of *rubayī* 'white man' is explainable as one of underlying case: *ubayī* means 'man-made hole in ground, as eg. well, grave'⁶, and the initial trilled /r/ is only found elsewhere in the grandparent terms:

- (4) *rapi* (<*papi) FM
 rabi (<*kami) FF
 raŋi (<*ŋaŋi) MF

So it is possible that *rubayī* was a coinage meaning something like 'ancestor from/belonging to the grave' and its underlying ABL (or GEN?) case is made apparent when it is inflected for ERG or GEN cases. It can, though, be inflected for ABL case in the regular way, as in the following examples where Mr. Flinders, seeing a pale hand in a photograph of insects, said:

- (5) *aŋal rubay-a*
 hand white man-ABL
 '*It's a white man's hand.*'⁷

Possession, origin and descent are neatly expressed together by Mr. Flinders' following remark, made at a place which was part of his mother's mother's clan estate:

- (6) *makur n^yt^yilabi-ya aŋa-ø-yu*
 oysters MM-ABL eat-NONPAST-1 Sg Sb
 '*I'm eating my grandmother's oysters.*'

One does not 'possess' one's parents and forebears, one 'comes from' them:

- (7) *amwu-ya aba-ya i'pa-ya rubay-a*
 mother-ABL Aborigine-ABL father-ABL White man-ABL
 '*His mother was Aboriginal and his father was White.*'

A statement of descent can amount to a statement of 'geographical' origin, even to the extent of specifying secondary country rights through one's matriline; as in the question and answer:

- (8) (a) *a'mpa-ya aŋtal-iyā ŋulu*
 place-ABL where-ABL 3 Sg Sb
 '*Where does he come from?*'

- (b) amwu-ya urbini-ŋamu₈
 mother-ABL (name)-ABL
 'His mother was Urbini.'

(c) Dyrbal -mi may be used to refer to a word coming from or belonging to a language. According to FI inflection, languages themselves are not simply possessed by kinsmen or places but come from them as well, and this dual relation is expressed by the suffixes (-y)-mana, which together have the functions elsewhere of ABL + ERG or nominal CAUSative ('because of X'); -mana also marks GEN superimposed on HAVing. I have given this complex function of possession/origin the name ORIGIN in the following examples:

- (9) u`ku i`pi-y-mana abi-y-mana
 language F-ORIGIN 'FF'-ORIGIN
 '[My] language is from/belongs to my father and his father.'⁹
- (10) u`ku amwu-y-mana!
 language mother-ORIGIN
 '[Use] your mother's language!'

Perhaps this inflection is used because a language is an inalienable possession, like a name or a body part. Thus an example such as

- (11) u`ku rubayi
 language White man
 'White men's language (i.e. English).'

leads us to interpret the -mana in (10) and (12) as ORIGIN not GEN:

- (12) utakala ŋunŋidi-i-yu u`ku rubay-mana
 NEG speak-NONPAST-1 Sg Sb language White man-ORIGIN
 'I don't talk White men's language.'

One also speaks of knowing or learning a language from (ABL) someone or somewhere:

- (13) ibwa`na u`ku amwu-ya wyampa-n
 man's son-ERG language mother-ABL take-PAST
 'The man's son learned his mother's language.'¹⁰
- (14) u`ku Ipwulŋan-iyā minti-yi
 language Barrow Point-ABL knowledge-HAV
 'He knows the language of Barrow Point.'

Marriage, on the other hand, involves ORIGIN, not simple ABL, and the verb involved appears to be obligatorily intransitive (i.e. one gets married (with someone who is) from a particular group):

- (15) amu ŋaŋun muri-yi-n aba Walmpar-mana
 mother 1 Sg Gen marry-RECIP-PAST person (place)-ORIGIN
 'My mother married someone of the Walmparwara confederation.'

(21) -ḡu ~ -ḡu ~ -nu (cf. Thargari).

Compare now the resemblances between forms having the functions listed above and forms with predominantly nominal case-marking functions, principally ABL.¹³

(22)	Yindjibarndi (WA)	-ḡu ~ - [*] ḡu ~ -yaḡu ~ -ḡu	'verb in subordinate clause'
		-ḡu ~ - [*] ḡu ~ -yaḡu ~ -ḡu	'ablative case'
	Yulbaridja (WA)	-ḡuru	'verb in subordinate clause'
		-ḡuru	'ablative case'
	Thargari (WA)	-n ^y uḡu	'from (restricted ablative)'
	Pitjantjatjara (WA etc.)	-ḡuru	'source (on nominals)'
		-ḡu ~ -ḡu ~ -nu	'past tense'
	Pandjima (WA)	-ḡuru ~ -wuru	'habitulative on nouns/ adjectives'
	Yandruwantha (SA)	-ḡura	'ablative'
		-ini + -ḡura	'verb in subordinate clause'
	Gidabal (NSW)	-ḡun	'ergative/instrumental'
		-nu	'ablative'
	Dyirbal (Q'ld)	-ḡunu	'ablative'
	Ngawun (Q'ld)	-anu	'past tense'
	Guugu-Yimidhirr (Q'ld)	-ḡu	'dative'
		-ḡan ~ -ḡuwal	'ablative'
	Oykangand (Q'ld)	-ḡand ~ -am	'ablative'
		-ḡan	'irrealis future (verbs)'
		-am	'past participle'
(23)	Dyirbal (Q'ld)	-mu	'temporal ablative'
		-mu	'verbal negative imperative'
		-muḡa	'participial (=agentive nominaliser)'
	Gugu-Yalandji (Q'ld)	-mun	'ablative'
	Ngawun (Q'ld)	-muntu	'ablative' ¹⁴
	Pitjantjatjara (WA etc.)	-munu	'verbal affix, negative'
	Guugu-Yimidhirr (Q'ld)	-muli	'privative'
	Flinders Island (Q'ld)	-muli	'privative'
		-mun	'restricted ablative (directions)'

The above lists of affixes and functions, patchy as they might be in their coverage of languages related in varying degrees to FI, do establish a field of grammatical areas where we might look for cognates to aid the analysis of FI SUBORD *-niya*. In particular they establish the high probability that it was the source of the innovative FI ABL *-(i)ya* (see particularly Yindjibarndi, Yulbaridja and Yandruwantha). I think they also suggest that the *-ni* of *-niya* is at least likely to be the same as the agentive nominaliser *-ni*. Probable cognates also support this hypothesis:

(24) Yandruwantha (SA)	<i>-ini</i>	'agentive nominaliser'
	<i>-ini</i>	'verb participle'
	<i>-ini + -nura</i>	'verb in subordinate clause'
Thargari (WA)	<i>-ni ~ -ini ~ -iniya ~ -ya</i>	'verbal concomitive', ¹⁵
Walbiri (NT)	<i>-nin^yt^ya ~ -nin^yt^ya ~ -n^yt^ya</i>	'infinitive'

The Yandruwantha case, where nominaliser + ablative → subordinate clause marking, seems to be structurally similar to the FI case.

It has proved rather more difficult to find even vaguely possible cognates for *-ya* of *-niya*, but the following have been considered:¹⁶

(25) Thargari (WA)	<i>-dd^yi ~ -d^yi ~ -d^ya ~ -yad^ya</i>	'agentive nominaliser'
	<i>-ni ~ -ini ~ -iniya ~ -ya</i>	'verbal concomitive'
	<i>-d^ya</i>	'past tense'
	<i>-n^yadu ~ -d^yadu</i>	'participial'
Garadjari (WA)	<i>-piya</i>	'agentive nominaliser'
Pitjantjatjara (WA etc.)	<i>-nt^ya</i>	'nominaliser'
Gudada (SA)	<i>-nt^ya</i>	'participle'
Nanda (WA)	<i>-ṭa</i>	'participle'
Kalkatungu (Q'ld)	<i>-ya</i>	'verbal purposive'
	<i>-t^ya -ya</i>	'purposive participle'
Mbara (Q'ld)	<i>-ya</i>	'verbal purposive'

A number of languages have something like *-ya* for various verbal moods and aspects, e.g. Pitta Pitta (Q'ld) has *-li* 'agentive nominaliser' and *-li + -ya* 'verb in potential aspect', Dyirbal has *-yaray* marking a verbal aspect 'to do it more' (etc.), and *-ya* is also a fairly common imperative and/or future tense suffix. But this is not enough to go on, and we will have to wait for detailed reconstruction of the language ancestral to FI and its congeners before the structure of *-niya* can be explicated.

2. COLLAPSING OF 'LOWER CATEGORIES' AT 'HIGHER LEVELS'

FI personal names may take a single affix *-nana* which serves the functions of GEN/DAT and also ERG/INST/LOC cases. This is the preferred practice, but an alternative is to mark the two sets of cases differentially with the regular common-noun affixes.

Personal pronouns have one paradigm for transitive and intransitive subject, one for direct object/possessive (first person singular exceptionally has separate forms for these), and one for all the roles of indirect object/benefactive, allative/locative/accompaniment and ablative, being the second paradigm-form with final *-n* deleted and *-(r)mu* added. The latter is clearly similar to ablatives in other languages. The pronoun *'who'* has a single form for ERG and GEN/DAT, and another for both LOC and ABL (in *-(r)mu*). The stem for *'what'*, on the other hand, distinguishes ABL, LOC/INST and ERG/GEN/DAT respectively. Two noun stems take a single affix *-wa* for ERG/INST/LOC and GEN/DAT, while several others do so optionally (see section 4).

Agent and possessor roles are not distinguished morphologically in the case of *rubayi* *'White man'* nor in the case of stems already inflected for various cases (I have discussed above the probability that *rubayi* is underlyingly in ABL or GEN case). For example:

- (26) *aba alka-yilpu-mana alka-n anini*
man spear-HAV-ERG hit-PAST 1 Sg Acc
'The man with the spear hit me (with his hand, say).'

- (27) *arar naligin uul-ilpu-mana*
house 1 Du Gen husband-HAV-GEN
'This house belongs to me and my husband.'

The following list gives the morphophonological details of superimposing this suffix *-mana* on stems in other cases (most of them were elicited only in ERG case, but there are examples of GEN + LOC, HAV + GEN etc.):¹⁷

- (28) (a) FINAL VOWEL OF FIRST SUFFIX DELETED:

LOC	+ <i>-mana</i>
<hr/>	<hr/>
<i>-la</i>	<i>-l-mana</i>
V- <i>wa</i>	<i>-w-mana</i>
<i>-(^h)ra</i>	<i>-(^h)r-mana</i>
<i>-(^h)na</i>	<i>-(^h)n-mana</i>
<hr/>	<hr/>
GEN/DAT	
V- <i>wa</i>	<i>-w-mana</i>
<hr/>	<hr/>
ABL	
V- <i>ya</i>	<i>-y-mana</i>

(28) (b) FIRST SUFFIX DELETED ENTIRELY

<u>GEN/DAT</u>	+ -mana
C-wa	- \emptyset -mana

<u>ABL</u>	
C-iyā	- \emptyset -mana

(c) FIRST SUFFIX RETAINED

<u>LOC</u>	
-ḡa	-ḡa-mana

<u>INESSIVE</u>	
-ḡi	-ḡi-mana

<u>HAVING</u>	
-(y)ilpu	-(y)ilpu-mana

(d) FIRST SUFFIX AUGMENTED

<u>LOC</u>	
-ḡa	-ḡa-na
-ma	-ma-na
-(r)mu	-(r)mu-na (pronouns)

As is to be expected from FI, there are some apparent exceptions to these rules:

(29)		LOC	LOC + ERG (?)
'stone'	idiḡal	idiḡana ¹⁸	idiḡal-mana
'house'	arar	ara'na	arar-mana
'hand'	aḡal	aḡa'ra	aḡal-mana
'mallet'	wiḡḡali	wiḡḡalima	wiḡḡal-mana

The probable explanation is that they are in fact ABL + ERG rather than LOC + ERG (i.e. '*he bit me from the stone*' rather than '*he, on the stone, bit me*'), and as they are, with the exception of wiḡḡali C-final stems, there is no -y- to indicate this according to the rule of (28)(b).

In the case of wu'dumu 'one', where we expect ABL + ERG to be *wu'dumuymana, we get wu'dumuna. Considering the GEN/DAT of this stem is wu'dumun-wa, we may conclude that its underlying form is /wu'du-mun/ and the latter suffix is a (possibly ossified) ablative which is augmented in ERG case by -a. Another exception, for which I have no explanation, is that t^yu'lu 'older brother' takes t^yu'lu-mana instead of the expected *t^yu'lu-y-mana as in ḡawuy t^yu'lumana it^yan '*The bird on my older brother bit (me)*'.'

Other nominal affixes and the nominalised (agentive) verbs in -ni do not have ERG superimposed by -mana but simply take the regular inflections found on simple stems:

(30)			+ ERG
	PRIVATIVE	-mul	-mul-ma
	SOCIAL PLURAL	-wara	-war-ma
	ASSOCIATIVE	-milin	-milin-ma
	AGENTIVES	-ni	-n-ma

The case of *rubayi* is now of interest, as it may be underlyingly in ABL case, and can be inflected for GEN case with *-mana*; and stems in GEN case can usually be inflected for ERG as well. Thus we get:

(31)		+ GEN		+ ERG
	<i>rubayi</i>	<i>rubay-mana</i>		<i>rubay-man-ma</i>

which reminds us that *-ma* is the ERG affix for the majority of polysyllabic stems. It is possible that *-mana* contains this affix, and that its second half *-na* (see 28(d)) is isolable. It may not be a coincidence that the verbal purposive in FI is *-(')na*.

In any case, the last point to be made here is that the nominal CAUS affix is identical with the ORIGIN affix of Section 1 and the ABL + ERG of this section. Examples of CAUS are:

(32)	<i>aba</i>	<i>alŋkir-mana</i>	<i>alka-yi-n</i>
	<i>man</i>	<i>woman-CAUS</i>	<i>hit-RECIP-PAST</i>

'The men fought because of a woman.'

(33)	<i>i'pi</i>	<i>ŋaturmu-na</i>	<i>waga</i>	<i>alka-n</i>	<i>in^ya-ymana,</i>
	<i>father</i>	<i>1 Sg Abl-ERG</i>	<i>dog</i>	<i>hit-PAST</i>	<i>meat-CAUS</i>
	<i>ayi-ymana</i>	<i>alka-n</i>			
	<i>veg</i>	<i>food-CAUS</i>	<i>hit-PAST</i>		

*'My father hit the dog because of the meat, because of the food.'*¹⁹

3. ALTERNATIVE KINDS OF AGENT

In the previous section we saw that certain relations involving possession, cause, location and origin tend to be reducible in FI to a single core of semantic content which may at times have a unitary morphological expression. This core of shared content makes it possible to use differentiated grammatical relations in a rather subtle way when referring to parallel events. This section deals with the exploitation of alternative ways of specifying causal agents, and attempts a rather loose tying-up of the previous two sections.

The ditransitive verb *a't^yi-* 'to burn' may take a causal agent in either ERG or GEN/DAT inflection:

(34) (a)	<i>iŋkal-wuga-wa</i>	<i>a't^yi-n-ini</i>
	<i>vulva-sun-GEN/DAT</i>	<i>burn-PAST-1 Sg Acc</i>
	<i>'The sun burned me.'</i>	

- (34) (b) iŋkal-wuga-ŋa a't^yi-n wurmpa wa'nta
vulva-sun-ERG burn-PAST eyes sleep (n)
 uŋka-n-yu-ŋun
come-PAST-1 Sg Sb-3 Sg Acc
'The sun burned [me] and made my eyes sleepy.'

Note that in (34)(b) the intransitive verb uŋka- requires a causal agent in GEN/DAT rather than ERG, as it ends with the accusative enclitic pronoun -ŋun.

Compare:

- (35) (a) alil-wa muyu muray uŋka-y-dan
fluid-GEN/DAT lower abdomen mischievous come-NONPAST-3 Pl Acc
'The women masturbate.'
- (b) ayi-wa wawu ŋulbi-n-yu
food-GEN/DAT belly go slack-PAST-1 Sg Sb
'I was satisfied by the food.'
- (36) iŋkal-wuga-ya wawu ulga-n-yu
vulva-sun-ABL belly sweat-PAST-1 Sg Sb
'I sweated from the sun.'

The choice of GEN/DAT or ABL inflections for causal agents of intransitive verbs is frequently one that only very slightly affects meaning:

- (37) wawu-r ŋanpa-yi-l-lu alka-wa
insides-? frighten-RFL-NONPAST-3 Sg Sb spear-GEN/DAT
'He is frightened of the spear.'
- (38) wawu-r ŋanpa-yi-l-yu aba-ya
insides-? frighten-RFL-NONPAST-1 Sg Sb man-ABL
'I am frightened of a man.'

Both are examples involving indirect causal agents but in (37) the agent is inanimate, while in (38) it is animate. There is one example of a transitive verb with an indirect causal agent in ABL case, so transitivity is not the only determining factor; in this case the 'culture' chooses the alternative for us:

- (39) aba a'ŋkay-a alŋkir ŋakan-i-npa-l
person male-ABL woman belly-HAV-TR VZR-NONPAST
'The man makes the woman pregnant.'

The verb uwa- 'to cook, to burn (transitive)', as far as the data indicate, only takes ERG subjects, whereas ayaŋa- 'to straighten (wood) by heating' takes GEN/DAT subjects or instruments, unless they are pronominalised. Thus the direct agent might be understood to be heat, and the person (as subject) or the ashes (as instrument) are indirect agents.

Verbs agentively nominalised (in -ni) may refer to agents without any reference to a specific object they impinge on, and the probably related subordinate-clause forms in -niya may be used to refer to indirect agents causing some event or simply to their characteristics:

(40) (indirect causal agent)

wawu-r ŋanpa-yi-n alka-niya
insides-? frighten-RFL-PAST hit-SUBORD
'He was frightened of being hit (by someone).'

(41) (characteristic of subject)

(a) wanti-niya aɪtal wanti-ni
open (v. tr.)-SUBORD cf. vessel open (v. tr.)-AGT
'It's holed, open.' 'tin-opener'

(b) iŋkal un^Yt^Ya-niya
vulva copulate with (v. tr.)-SUBORD
'He's a regular lecher.'

The forms in -niya may constitute a regular alternative to more usual ways of specifying cause:

(42) (a) a'di-na ma'n^Yt^Yi-npa-n anini
water-ERG wet (adj.)-TR VZR-PAST 1 Sg Acc
'The rain wet me.'

(b) ma'n^Yt^Yi-yu a'di-ya
wet (adj.)-1 Sg Sb water-ABL
'I'm wet from the rain.'

(c) a'di uba-niya
water wet (v. tr.)-SUBORD
'The rain wet him.'²⁰

The object of a transitive verb in a subordinate clause, where the clause constitutes a causal agent, may or may not receive inflection, but where found it is ABL -(i)ya and 'harmonises' with SUBORD -niya. For example:

(43) object of subordinate-clause verb is in ABL:

(a) a'ŋtal ara-ma-yu in^Ya aɪa-ya it^Ya-niya
sick lie-IRR-1 Sg Sb meat rotten-ABL eat-SUBORD
'I get sick from eating rotten meat.'

(b) ɬu'lgu aɪa in^Ya aɪa-ya it^Ya-niya
guts stinking meat rotten-ABL eat-SUBORD
'My guts stink from eating rotten meat.'

(44) object of subordinate-clause is unmarked:

(a) in^Ya walpan it^Ya-niya uda-mpa-ø-yu
meat worm eat-SUBORD excrement-INTR VZR-NONPAST-1 Sg Sb
'I defecate because of having eaten worms.'

- (44) (b) ilit^yi-n-yu a'di wulu ult^ya-niya
 be cold-PAST-1 Sg Sb water bitter drink-SUBORD
 '*I got cold from drinking beer.*'

There is a close relationship *in practice* between subordinate clauses and statements of causality in FI.

This paper has been about the ways in which speakers of the Flinders Island language express a set of underlyingly similar semantic relationships by means of several different linguistic structures. Although the evidence is somewhat patchy, it seems very likely that FI speakers have replaced an earlier ablative inflection with one derived from the affix which marked verbs in subordinate clauses. The connection between the two functions appears to be that both may commonly indicate indirect causal agents. Other types of indirect agents are: nominalised verbs with the agentive suffix -ni; nominals inflected for CAUS or ORIGIN with the complex -(y)-mana; and other nominals where ERG on ABL, HAV, LOC, or GEN, LOC on GEN, and GEN on HAV, are marked by -mana. The surface identity of these grammatical categories may seem surprising, until we notice that the rest of FI nominal inflection is similarly characterised by coincidences of form. The accompanying table summarises these coincidences.

TABLE 1
 COINCIDENCES OF FORM IN CASE-MARKING: FLINDERS ISLAND LANGUAGE

	most common nominals	personal names etc. section 4.	personal* pronouns	'who'	'what'	'where'
O	1	1	1	1	1	-
S	1	1	2	1	1	1
A	2	2	2	2	2	-
I	2	2	-	-	3	-
L	2	2	3	3	3	2
G	3	2	1	2	2	3
D	3	2	3	2	2	3
B	4	3	3	3	4	4

* First person singular exceptionally distinguishes O and G cases.

KEY TO TABLE:

O = direct object	L = location
S = intransitive subject	G = possessor
A = transitive subject	D = indirect object
I = instrument	B = ablative

The same number within a single column denotes a single suffix or form. The same number does NOT necessarily denote the same suffix or form across rows. See section 4 below for details of suffixes and forms.

4. MORPHOLOGICAL SUMMARY

Some of the FI affixes mentioned in this paper are invariant (e.g. -ni) and some have slight morphophonemic alternations (e.g. -(y)ilpu). The alternants of -mana were specified in Section 2. This section summarises the alternations of the three other main sets of relevant affixes, GEN/DAT, ABL and ERG/INST/LOC²¹.

GEN/DAT

A. Exceptional stems:

rubayi → rubay-mana
 wu'dumu → wu'dumun-wa
 (personal names) → (name) + -ŋana

B. Stems ending in a peripheral stop (p, b, k, g) + -u:

u → ∅, add -wawa.
 Stems ending in -yi or -{ⁱ_r}a:
 {ⁱ_a} → ∅, add -wa.
 All other stems: add -wa.

ABL

- A. personal names: add -ŋamu.
 B. Stems ending in -y: add -a.
 Stems ending in -yi: i → ∅, add -a.
 Stems ending in a peripheral consonant (k, b, m attested) + -u:
 u → ∅, add -wuya²³.
 Stems ending in a vowel (other than as above): add -ya.
 Stems ending in a consonant (other than -y): add -iya.

Interrogative pronouns and deictics/demonstratives take -l + iya, except for *agul* 'who' (+ *agurmu*, which is similar to personal pronouns). Cardinal directions have a more complicated system with possibly several kinds of ABL, one in -mun ~ -(i)ya, one in -mun-*iya*, and one in -y-mun-*iya*.

ERG/INST/LOC (for E/I/L superimposed on other affixes, see section 2.)

A. Exceptional stems:

(i) underlying ablatives (?):

rubayi → rubaymana

aba ʔikir → aba ʔikir-mana

aba ʔinta → aba ʔinta-y-mana

(ii) personal names: where the option to use -ɲana is chosen:

stems ending in -ɲan: add -a.

stems ending in a CV sequence where the C may form a permissible di-cluster with /ŋ/: (preferentially) V → ∅, add -ɲana.

other stems: add -ɲana.

(iii) stems preferring GEN/DAT inflection for ERG/INST/LOC functions:

ugu → ugwawa 'saltwater'

yiku → yikwawa 'tree, wood'

ʔalŋku → ʔalŋkwawa 'scrub (n.)'

(iv) stems obligatorily taking -wa (= GEN/DAT):

warka → warkawa 'big'

aya → ayawa 'creek'

(v) stems obligatorily taking -la:

aba '(Aboriginal) person'

in^ya 'animal, meat'

ayi '(vegetable) food'

a^ˈmpa 'place, ground'

marta 'upper arm'

(vi) stems obligatorily taking -ʔa:

alka 'spear (generic)'

mart^ya 'leaf, paper'

t^ya^ˈka 'younger sibling'

n^yiŋarta 'fish basket'

walt^yi 'grass bag'

waya 'wind'

(vii) other exceptional stems, which are given below where the specific rules to which they are exceptions are stated.

B. Regular stems

(i) Disyllabic stems:

vowel-final: Where V₂ is /u/ and preceded by a peripheral consonant (not /w/), or is preceded by a cluster without apicals in which the last C is peripheral (not /w/):²⁴

V₂ → ∅, add -wuŋa²⁵ e.g. ulpu 'old man' → ulpwuŋa.

Where V₂ is /i/ and V₁ is short: V₂ → ∅, add -yaŋa²⁵
e.g. ulnpi 'possum sp.' → ulnpyaŋa

all other stems: add -ŋa e.g. ʔa^ˈʔi 'tail' → ʔa^ˈʔiŋa

(exception: irŋku 'three' → irŋku^ˈna).

consonant-final: Where V_2 is /u/ and preceded by a peripheral consonant (not /w/), or is preceded by a cluster without apicals in which the last C is peripheral (not /w/):

V_n } → ∅, add -wa'na e.g. $\text{t}^{\text{u}}\text{kun}$ 'grey kangaroo' → $\text{t}^{\text{u}}\text{kwa}'\text{na}$
 V_r } $\text{t}^{\text{y}}\text{ibur}$ 'man's child' → $\text{t}^{\text{y}}\text{ibwa}'\text{na}$

V_y → ∅, add -wu'na sometimes -u'na e.g. ubuy 'tail' → $\text{ubwu}'\text{na}$

V_l → ∅, add -wa'ra e.g. wagul 'thigh' → $\text{wagwa}'\text{ra}$

(exception: $\text{t}^{\text{a}}\text{ŋkur}$ 'lightweight' → $\text{t}^{\text{a}}\text{ŋkwu}'\text{na}$).

Where V_2 is /i/ followed by -n or -r, there is variation in practice between:

V_n } → V' na e.g. $\text{ŋart}^{\text{y}}\text{in}$ 'cloud' → $\text{ŋart}^{\text{y}}\text{i}'\text{na}$
 V_r } aŋkir 'woman' → $\text{aŋki}'\text{na}$

and:

V_n } → ∅, add -ya'na²⁶ e.g. waliŋ 'hole' → $\text{walya}'\text{na}$
 V_r } $\text{wuln}^{\text{y}}\text{t}^{\text{y}}\text{ir}$ 'lizards' → $\text{wuln}^{\text{y}}\text{t}^{\text{y}}\text{ya}'\text{na}$

All other stems:

V_n } e.g. $\text{a}^{\text{a}}\text{in}$ 'yamstick' → $\text{a}^{\text{a}}\text{i}'\text{na}$
 V_r } → V' na $\text{a}^{\text{a}}\text{rar}$ 'house' → $\text{a}^{\text{a}}\text{ra}'\text{na}$
 V_y } $\text{t}^{\text{a}}\text{kay}$ 'goannas' → $\text{t}^{\text{a}}\text{ka}'\text{na}$

V_l → V' ra e.g. artal 'vessel' → $\text{arta}'\text{ra}$

V_R → V' ra ulur 'finger, toe' → $\text{ulu}'\text{ra}$

(exceptions: V_r : $\text{wun}^{\text{u}}\text{ŋir}$ 'calm' → $\text{wun}^{\text{u}}\text{ŋya}'\text{ra}$

V_l ²⁷: urpal 'brolga' → $\text{urpa}'\text{na}$

wardil 'pod' → $\text{wardi}'\text{na}$

$\text{wirt}^{\text{y}}\text{il}$ 'grass sp.' → $\text{wirt}^{\text{y}}\text{ya}'\text{na}$

$\text{min}^{\text{y}}\text{t}^{\text{y}}\text{il}$ 'mainsail' → $\text{min}^{\text{y}}\text{t}^{\text{y}}\text{ya}'\text{na}$)

(ii) Polysyllabic stems:

(a) Subclasses: polysyllabic stems containing compounds or reduplications with disyllabic second elements, inflect as if they were disyllables in many, but not all, cases:

$\text{n}^{\text{y}}\text{t}^{\text{y}}\text{ilabi}$ 'MM' → $\text{n}^{\text{y}}\text{t}^{\text{y}}\text{ilabyaŋa}$ (< $\text{an}^{\text{y}}\text{t}^{\text{y}}\text{ul}$ + abi)

$\text{uril}^{\text{t}}\text{uril}$ 'sea birds' → $\text{uril}^{\text{t}}\text{uril}'\text{ra}$ (< (t) uril + RDP)

But compare:

artalwarka 'hawk sp.' → artalwarkama (< artal 'vessel' + warka 'big')

$\text{a}^{\text{r}}\text{gayil}^{\text{a}}\text{al}$ 'whale' → $\text{a}^{\text{r}}\text{gayil}^{\text{a}}\text{alma}$ (< $\text{a}^{\text{r}}\text{ga}$ 'back' + yil^{a} 'blowhole')

Some consonant-final polysyllabic stems receive suffixation as if they were disyllables, but without final vowel-lengthening:²⁸

$\text{ara}^{\text{a}}\text{al}$ 'turtle' → $\text{ara}^{\text{a}}\text{ara}$

waraŋkar 'elongated' → waraŋkana

$\text{idil}^{\text{a}}\text{al}$ 'stone' → $\text{idil}^{\text{a}}\text{ana}$ (doubly exceptional)

and the transparent compound (< umpu 'urine' + ŋaŋkal 'cold'):

umpuŋaŋkal 'eel sp.' → umpuŋaŋkara

Certain polysyllabic stems, possibly containing ossified suffixes with ABL associations, form a subclass:

stem-final: -mu -bu }
 -na (one case) } : add -na
 -man (one case): add -a

Hence: udamu 'fly sp.' → udamuna
 wirabu 'paddle' → wirabuna
 u'mpaŋa 'wild (dog)' → u'mpaŋana
 maɬu'rman 'crab sp.' → maɬu'rmana

Note, however, that akaymun 'from the east' contains an ablative, yet takes perfectly regular ERG/INST/LOC (akaymunma).

(b) Major productive class: Where polysyllabic stems end in CV:

-yi -wi }
 -ni (some cases)²⁹ }
 -ia } -V → ∅, add -ma.
 -ra (most cases) }
 -ru }

Hence: ŋa'ntayi 'friend' → ŋa'ntayma
 uɬuywi 'Cycas media' → uɬuywma
 uwaymini 'wallaby sp.' → uwayminma
 akala 'canoe, vehicle' → akalma
 mara'ra 'spider' → mara'rma
 mu'ŋɬu'ru 'dugong' → mu'ŋɬu'rma

Note, however, in the case of stems ending -wi (an old affix, no longer productive), two cases of alternative deletion of -wi occur:

walaywi 'whiteapple' → walaywma ~ walayma
 wi'ŋɬaywi 'wild grape' → wi'ŋɬaywma ~ wi'ŋɬayma

The remaining vowel-final polysyllabic stems, and all non-exceptional polysyllabic stems which end in consonants, namely:

-i -a -u }
 -n }
 -l } , simply add -ma.
 -r -R }
 -y }

Hence: ŋutargili 'long single-prong spear' → ŋutargilima
 yiln^Yt^Yaɬa 'larger winged insects' → yiln^Yt^Yaɬama
 alkamuɬu 'snapper sp.' → alkamuɬuma
 ŋakulkin 'queen green ant' → ŋakulkinma
 wadidil 'matchbox bean' → wadidilma
 yirkunɔar 'emu' → yirkunɔarma
 ɬukanpaɾ 'red kangaroo' → ɬukanpaɾma
 alpimilay 'possum sp.' → alpimilayma

In order to arrive at the provisional statement of ERG/INST/LOC case morphology of FI given in this paper, it was necessary to discover or elicit over 600 nominal stems in appropriate frames. FI is certainly remarkable for its complex and irregular paradigms, and I am not entirely confident that new data will not alter the picture a little here and there.

N O T E S

1. This language traditionally has no name, nor is there a collective name for its speakers. Rather than invent a bogus 'indigenous' name, which would obscure the important socio-linguistic fact of the absence of language-naming among the small language-communities in this area, I have preferred a very roughly descriptive title. It is abbreviated to FI in this paper.
2. This language has now (1979) only one competent speaker. I have been able to devote short periods of field work to it since 1973, and a study of the language and a basic reconstruction of the culture of those who spoke it is in preparation. I wish to thank the late Mr. Johnny Flinders of Palm Island and Mrs. Mary-Anne Mundy of Cooktown for their patient work in teaching me their morphophonemically complex language. This work, which has been financed by AIAS, is continuing.
3. I am being cagey about reconstructions in this area until we know more about FI's immediate neighbours. The asterisked forms are educated guesses at this stage. Stem-final vowel length was probably affected by affixation. Only some allomorphs of the affixes were phonologically-conditioned.
4. See section 4 for the details of these affixes.
5. Actually the descent-group as a *corporation* is referred to by simply adding *-wara* (SOCIAL PLURAL) to the relevant place-name, but *individuals* are usually identified by the *aba*— *-(i)ya*, ~ *aba*— *-wa* forms as described. As a method of disambiguating third person reference in conversation, use of these clan-names is extremely common, and resembles the sub-section name use of central Australia. Use of personal names

was traditionally very restricted, as is usually the case in Australia.

6. People of this area traditionally buried the dead in bark coffins after a period of mourning.

7. Body parts and other possessed things which are in a whole-part relationship are normally uninflected, so in this case the expression probably implies that the hand was an extension into the picture from an outside source. See also (7).

8. Urbini is a personal name. -*ŋamu* is the ABL or ORIGIN suffix for personal names only (cf. -*ŋana* ERG/INST/LOC/GEN/DAT for personal names only), and may consist of -*ŋa* + -*mu*, the latter being an old ABL.

Compare also the suffixes of Uradhi non-singular possessor pronouns (Hale 1976b:48-9): (singular pronouns) - *mu* (after oblique form)

-*mu-ntu* (singular possessor
in ERG case)

(non-singular pronouns) -*ŋa-mu*

9. The word for FF is usually *rabi* - see (4) - but here, as well as in the idiom *i'pi-ya abi-ya* = '*Aboriginal law*', the older form *abi*
F - ABL "FF"-ABL

is preserved. These expressions reflect belief in patrilineal inheritance of both language and law. The related language Guugu-Yimidhirr has *kami* FF, MM, which probably preserves the meaning and form ancestral to FI -*abi*. The 'unmarked' content of **kami*, in developmental terms, appears to have been FF, as both FI and its neighbour the Barrow Point Language have *less* marked (or *unmarked*) forms for FF than for MM, although both descend in each case from the one form **kami*. Hence the pattern:

	FF	MM
Guugu-Yimidhirr	<i>kami</i>	<i>kami</i>
FI	<i>r-abi</i>	<i>n^yt^yil-abi</i>
Barrow Point	<i>ami</i>	<i>ɰ-ami</i>

The *n^yt^yil-* of FI MM is presumably <**an^yt^yul* 'old woman'.

10. In this area, one's parents commonly spoke related but mutually unintelligible languages, and children normally grew up to be at least bilingual or to have a competence in two or more languages.

11. I only give the underlying forms in examples. The normal spoken form of this sentence, for example, is /*a'ŋtal aramiyu n^y aɰay it^yaniya/*.
IRR = irrealis.

12. Dyirbal from Dixon (1972), Warungu from my own field notes, Umbuygamu from Bruce Rigsby, personal communication, Thargari from Klokeid (1969), and Gidabal from Geytenbeek (1971).
13. Data on Yindjibarndi, Yulbaridja, Yandruwantha and Pandjima from Breen (1974), Pitjantjatjara from Glass and Hackett (1970), Guugu-Yimidhirr from Haviland (1972), Ngawun from my own field notes, and Oykangand from Sommer (1972).
14. See also note 8.
15. Klokeid (1969):45: "Simultaneous or serial action is indicated by the concomitative inflection in the dependent clause when the subject of that clause differs from the subject of the independent clause."
16. Garadjari data from Capell (1962), Pitjantjatjara, Gugada, Nanda, Pitta Pitta and Yukulta from Breen (1974), Kalkatungu from Blake (1974), and Mbara from my own and Gavan Breen's field notes.
17. I have simplified the morphophonological facts a little for simplicity - see section 4 for details.
18. This is itself an exception - the expected form is *idiḡalma (see section 4).
19. Mr. Flinders' own translation was "He hittem that dog from tucker".
20. This sentence could also be /a'di-ya uba-niya/, since both would have the same phonetic realisation. In any case it looks a little anomalous.
21. I give the facts as crudely as possible. More elegant formulations will involve processes also found with inflections other than those on nominals and will be attempted in the future.
22. See ERG/INST/LOC A(ii) for details.
23. yiku 'tree, wood' in ABL usually sounds like [yúkwaya] where historically original V₁ */u/ is apparently restored, and -waya is seemingly aberrant.

24. Last C/s attested: /p, b, k, g, m/; /ŋ/ is not (yet) attested, and may deviate from the rule.

25. It will be clear from the various rules that the two high vowels are not 'deleted' but in fact strengthened, u → w, i → y. Historically this was a vowel lengthening rule, and is still may be so in underlying form.

26. The latter is especially preferred, even obligatory, where laminal consonants or -l are in medial position. There does not seem much point in trying to decide on a single Pikean 'phonemic' description for those cases with the large variation. Underlying lengthened vowels are phonetically expounded by a rule that appears to be midway through a change from one extreme (simple V₂-lengthening) to the other (strengthening of V₂ to a glide + vowel sequence). I have recorded, for example, [álpì'na] ~ [álpì^yəna] ~ [álpɤ̀'na] ~ [álpɤ̀ə'na] 'mud + LOC', and something similar for the -uy → -wu'na (~ -u'na) cases.

27. If we add to this list the cases of

adul 'who' → agu'na ~ adwa'na

idital → idiṭana (see (11) (a))

we get a significant subclass of -l final stems. Only about 11% of -l final disyllables take the -'na forms, however.

28. We shall need a rule elsewhere which lengthens final vowels of disyllabic stems but not those of polysyllables, in the case of verb inflection. Polysyllabic nominals ending in consonants usually take -ma in ERG/INST/LOC cases. Note that I use 'polysyllabic' to mean 'having three or more syllables'.

29. In most cases of -ni the final V is retained as schwa or [I], and in most cases of -ra the final V is deleted or retained as schwa. However, in both cases there is an observed range

-Cma -C^ema -Cəma -C{^l/_ə}ma

and the conditioning factor is partly speed of utterance.

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SUBORDINATION OF FINITE SENTENCES IN NGIYAMBAA
(WANGAAYBUWAN), A LANGUAGE OF CENTRAL WESTERN NSW

Tamsin Donaldson

Ngiyambaa has four types of subordinate sentences, one finite and three non-finite. It is the finite type that is the main topic of this paper, but I will explain the functions of the others briefly, so that the functions of the finite type can be understood in the context of the whole spectrum of subordinate sentence functions.

In one type of non-finite subordinate sentence, the verb stem is marked with the purposive inflection, which indicates compulsion in an independent sentence: *ɲadhu yanagiri* could be translated as '*I must or ought to go*'. This type of subordinate sentence occurs in the Ngiyambaa equivalents of English constructions like:

- 'I came to hunt.'*
- 'I came so that you could hunt.'*
- 'I want to hunt.'*
- 'I know how to hunt.'*
- 'Somebody told me to hunt.'*

A second type of non-finite subordinate sentence involves attaching the suffix *-wa:dji* to the verb stem. *-wa:dji* is roughly equivalent to English '*lest*', and is used in the Ngiyambaa constructions that correspond to:

- 'Watch out lest the dog bite.'*
- 'Don't swim lest you drown.'*
- 'I am frightened lest there should be a snake in the burrow.'*
- 'I am frightened I might fall.'*

The third, final type of non-finite subordinate sentence involves suffixing *-NHa:raN-* to the verb stem. (A final *N-* in the citation form of a morpheme indicates that a homorganic nasal appears in this position

This tag can be fronted, and followed by a modal enclitic -ga: that indicates the speaker's lack of knowledge:

2b. yama-ga: dhuru minga-dhi guruga-nha-ba

-ba is suffixed to the tense inflection of the verb, and the result is a question as to the factual status of the event encapsulated in the sentence marked with -ba. 2b. would be translated:

'(I) wonder if there's a snake in the burrow.'

Except when questioned, as in 2b., -ba sentences always appear in construction with another, main, sentence, whose verb is not marked by -ba. The aim of this paper is to illustrate the variety of functions performed by sentences that are marked with -ba, and also some of the internal modifications they undergo, depending on their relation to the main sentence with which they are construed. It is worth pointing out at the outset that all subordinated sentences in Ngiyambaa are 'adjoined' to use Hale's term: that is, their "surface position with respect to the main clause is marginal" and they are "separated from the main clause by a pause" (Hale 1976:78). This pause is marked in the examples by an oblique stroke. Enclitic pronouns which follow the first word or constituent of a simple sentence occupy the same position within subordinate sentences that follow the main sentence, and within main sentences that follow a subordinate sentence. (There is an example at 3e.)

'GIVEN THAT...' FINITE SUBORDINATE SENTENCES MARKED WITH -ba

Examples 3a.-e. show a number of finite subordinate sentences marked by -ba together with colloquial English translations. (When informants' translations are given *verbatim*, they are enclosed in double inverted commas.)

3a. wa:djin badha-l-buna-y-aga-ba / niyanu minga
white gin+ABS arrive-CM-BACK-CM-IRR-SUB we+PL+NOM burrow+ABS
baga-l-aga
dig-CM-IRR

Explained: "We waiting on that white gin to come back before we can dig that burrow."

'When the white gin has come back we will dig the burrow.'

3b. nani-ndu ma-l-aga-ba / waga:y nadhu wi:-y-aga
that+ABS-2NOM do-CM-IRR-SUB NEG I+NOM sit-CM-IRR

"Whatever you going to do, I'm not going to stop!"

3c. nadhu-nu: wiriq-giyili-nji / nindu bi: gama-nhi-ba
I+NOM-2OBL cook-ALTER FOCUS-PAST you+NOM arm+NOM broken-PAST-SUB

'I cooked for you when you had broken your arm.'

- 3d. waŋa:y-djil-du wirinj-dja-y-guwa-nha-ba
 NEG-IMPOSS-2NOM cook-REFLEX FOCUS-CM-PITY-PRES-SUB
 / magam-bu-gu biyalbu-nu: wirin-giyili-nja
 other-UNIV-ERG altogether-2OBL cook-ALTER FOCUS-PRES
*"Because you can't cook for yourself, it's always got to be every-
 body else doing it for you."*
- 3e. ŋindu girambi-ya-ba / ya:la:-bu-dhu waŋa:y wi:-y-aga
 you+NOM sick-PRES-SUB thus-LA:-UNIV-1NOM NEG sit-CM-IRR
'Although you are sick, I shan't stay.'

The translations of 3a.-e. show a variety of English constructions, just as the colloquial translations of the subordinate sentences marked with -NHa:raN- did (1a.-g.). Indeed a number of the same English conjunctions crop up in both sets of translations. Let us try the same trick that was used with the -NHa:raN- sentences, and produce a consistent, if lumpish, translation for the whole set of examples that does more to reveal the nature of the Ngiyambaa construction (4a. translates 3a., 4b. 3b., and so on).

- 4a. *'Given that the white gin might/will come back, we might/ will dig the burrow.'*
 4b. *'Given that you are going to do that, I will not stop.'*
 4c. *'I cooked for you, given that you broke your arm.'*
 4d. *'Given that you can't cook for yourself, the rest always cook for you.'*
 4e. *'Given that you are sick, for all that, I shall not stay.'*

Notice that these translations preserve the Ngiyambaa tense forms. The more colloquial translations that were first given, at 3a.-e., require a pluperfect form for the -ba sentence verb when the Ngiyambaa verbs in both sentences are in the past tense, and a perfect form for the -ba sentence verb when the Ngiyambaa verbs are irrealis in both sentences.

Now let us look at the non-finite version of 3a., with -NHa:raN- attached to the verb stem 'come back', instead of the irrealis inflection -aga followed by -ba:

5. wa:djin badha-l-buna-nha:ra / ŋiyanu mingga baga-l-aga

This was translated as lg., firstly using -ing:

'White woman coming back, we will dig the burrow.',
 then colloquially:

'When the white woman is coming back, we will dig the burrow.'

The colloquial English translations of the two types of subordinate construction represented by 3a. and 5. are distinguished only by tense/aspect differences in the verb of the subordinate clause ('has come' for 3a.

versus *'is coming'* for 5.); whereas in Ngiyambaa the subordinate sentence is finite and marked with *-ba* in one type (3a.) and non-finite in the other (5.).

A more punctilious (and more ponderous) English representation of the Ngiyambaa constructions can be achieved by incorporating *'if'* into the translations, thus explicitly including both terms of the *'if/when'* contrast of English, a contrast which is not made in the Ngiyambaa constructions, instead of simply using the term of the opposition which presupposes actualisation, *'when'*. 6a. translates 3a.:

6a. *'When the white woman has come back, if she does come back, we will dig the burrow.'*

6b. translates 5.:

6b. *'If and when the white woman is coming back, we will dig the burrow.'*

RESTRICTIVE SUBORDINATE SENTENCES MARKED WITH *-ba*

English has a class of subordinate clauses whose function is to restrict the reference of NPs, viz. restrictive relative clauses. Ngiyambaa uses subordinate sentences marked with *-ba* to restrict the reference of a whole class of determiners, both NP determiners and predicate determiners. The determiners consist of:

ḡana	<i>'that (far)'</i>	}	NP determiners
ḡina	<i>'this (close)'</i>		
yingal	<i>'the same (way)'</i>		
ya:y	<i>'thus'</i>	}	Predicate determiners
ya:nhdhu	<i>'at that/this time'</i>		

There are morphological reasons for identifying determiners as a word class. They, and they alone, take a suffix *-la:*, whose function defies neat translation, but which is illustrated at 7.:

7a. bundayḡ-gu-nu: / ḡagu ya:y-lu-gal gadur miyi
knee-DAT-2OBL there+DAT thus-3ERG-PL windbreak+ABS make+PAST
'Up to your knee, up to there, thus they made the windbreak.'

7b. ḡagu-na ya:la: guri-miyi:
there+DAT-3ABS thus+LA: lie-CAUS+PAST
'To there, that's the way they laid it.'

The speaker looked at my knee while saying 7a., and touched her own with the side of her hand as she went on to say 7b. *-la:* indicates that the reference of the determiner to which it is attached is already known to the participants in the conversation, whether as the result of an ostensive gesture, or of some previous remark, or both, as in the example at 7.

These determiners as often as not point to the linguistic or physical

context outside the sentence being uttered, as we have just seen. But it is also possible to restrict their reference within the course of the sentence in which they occur, by introducing a subordinate sentence marked with *-ba*.

This will be illustrated with each of the determiners, starting with the last, *ya:nhdhu* :

8a. *ya:nhdhu* *nindu* *badhiyi*
you+NOM arrive+PAST

'At last you've come.'

8b. *na:-nhi-dju-na* *Wilcannia-ga* / *ya:nhdhu-la:*
see-PAST-INOM-3ABS W.-LOC

nadhu nani-la: *giyi-ba*
I+NOM there+LOC-LA: be+PAST-SUB

'I saw her at Wilcannia, that time I was there.'

8c. *ya:nhdhu-dhu* *nini* *ga-numi-nji-ba* / *mali-dji*
-INOM here+LOC be-BEFORE-PAST-SUB mallee-CIRC

nianu-na guɽu-nhi
we+PL-EXC enter-PAST

'That time I was here before we went into the mallee.'

Between them these examples show that a *-ba* sentence may follow or precede the main sentence and that the predicate determiner forms part of the subordinate sentence in the surface syntax, being fronted when the *-ba* sentence precedes the main sentence. Incidentally, they also provide examples of both the presence and absence of the suffix *-la:* on a restricted determiner.

9a. and b. illustrate *-ba* sentences containing *ya:yN-* :

9a. *waɲa:y giru:* *ga-l-aga* / *ya:la:* *giyi-ba*
NEG warm+ABS be-CM-IRR be+PAST-SUB

'It's not going to be (as) warm as it was.'

9b. *bura:dhu* *balba-ɽa* / *ya:y bagudha-gu*
child+ERG scrabble-PRES fox-ERG

'The child is scrabbling like a fox.'

Notice in the second of the examples the elision of the identical predicate from the *-ba* sentence, and hence also of the *-ba* marker. The speaker could have been more explicit and have said:

ya:y bagudha-gu balba-ɽa-ba

or

ya:y bagudha-gu ma-ɽa-ba

'as a fox does'.

yɨŋgal occurs in paradigmatic contrast with *ya:y*. *yɨŋgala:* and *yɨŋgal* could be substituted for *ya:la:* and *ya:y* in examples 9a. and 9b.

These would then be translated:

'It's not going to be warm the same as it was.'

'The child is scrabbling the same way as a fox.'

Conversely, ya:y could be substituted for yingal in 10a.:

10a. girabaṛa:y ḡina bada ga-ṛa / yingal ḡana
 red+ABS this+ABS dress+ABS be-PRES that+ABS
 maga giyi-ba
 other+ABS be+PAST-SUB

'This dress is red, the same as that other one was.'

But instead of the two dresses being exactly the same shade of red, they would then simply both be girabaṛay 'red' at any two points of the colour spectrum from sunset purple to ochre yellow covered by this colour term.

yingal also has additional possibilities denied to ya:y. It may take nominal inflections and function as a NP determiner, as in 10b.

10b. yingala:-gu miri-gu-dhi: gadhiyi / ø ḡinu: gadhiyi-ba
 -ERG dog-ERG-1OBL bite+PAST you-OBL bite+PAST-SUB

'The same dog bit me as bit you.'

yingal, when it functions as a NP determiner, and the demonstrative NP determiners ḡana and ḡina, carry the case-marking appropriate to the role of the determined NP in the sentence in which they occur. The NP may or may not be represented by one or more nominals in addition to the determiner (nominals being nouns or adjectives). Thus at 11a. there is no nominal, while at 11b., c. and d. there is one, 'person', 'stick' and 'frill-neck lizard', respectively:

11a. wara:y-naḡ-gal buraya-l-a-nhi
 bad-3ABS-PL change by talking-CM-RECIP-PAST

PURP A
 ḡagu-la: / ø gurumin mama-ṛa-ba
 that-DAT-LA: shadow+ABS catch-PRES-SUB

'They talked each other into a fury for that, takes pictures-ba.'

11b. ḡigu-la:-ni mayiḡ-gu ga-ṛa / ø dhalan badhiyi-ba
 that+DAT-LA:-3ABS+VIS person-DAT be-PRES just arrived+PAST-SUB

'It belongs to that person, just arrived-ba.'

11c. girambadhinmiyi-lu-na gugur-u ḡalu-la: / ø gura:rbiyi-ba
 hurt-3ERG-3ABS stick-INST that+INST-1a: throw+PAST-SUB

'She hurt it with that stick she threw-ba.'

	S		CAUS
11d. dhari-nji	ɲina-la:	ga:ni:	/ ∅ Mamie-ga:
<i>disappear</i> +PAST	<i>that</i> +ABS-LA:	<i>frill-neck</i> +ABS	M.-NAME+ABS
giyanhdha-nha-ba			
<i>fear</i> -PRES-SUB			

'That frill-neck lizard has disappeared, Mamie is frightened-ba.'

As the examples at 11. show, a -ba sentence may follow a sentence containing a determined NP, restricting the reference of this NP in terms of the role of a NP with identical reference in some other event; this construction does the same work done by restrictive relative clauses in English.

Neither the NP with identical reference, nor the case role which it plays in the -ba sentence receives any overt representation in the -ba sentence. I have shown this in the examples by including a ∅ zero-marker, placed arbitrarily at the beginning of the -ba sentence. But the case function is recoverable. Ngiyambaa verbs occur in construction with a predictable maximum number of NP arguments whose syntactic functions are also predictable and are marked by case inflections. In other words, Ngiyambaa verbs have rigid syntactic case frames. Thus, if all the syntactic arguments available to the verb in the -ba sentence, bar one, are present and marked with the case inflection appropriate to their function, it is clear what the case of the missing constituent must be.

The process is illustrated in the examples at 11. I have marked in the case function of the determiner in the main sentence and of the missing co-referential NP in the -ba sentence, and linked them. (A = agent, S = intransitive subject, O = object, INST = instrument, POSS = possessor, PURP = purpose, CAUS = caus.)

At 11a., the verb in the -ba sentence, *mama-l 'catch'*, is transitive. It takes an agent and an object. There is an object present, *gurumin 'shadow'*, now used for *'picture, photo'*, so the deleted co-referential NP is the agent. The -ba sentence can be translated by the relative clause *'which takes photos'*, and the whole sentence, *'They infuriated one another arguing for that-which-takes-photos'*, i.e. *'for that camera'*.

At 11b., the verb *badha-l* is intransitive and takes an intransitive subject. No NP is present in the -ba sentence, so it is the intransitive subject which is co-referential with *'that person'* in the main sentence, and has been deleted: *'It belonged to that person who just arrived.'*

At 11c., *gura:rba-l 'throw'* takes an agent and an object. No NP is present in the -ba sentence, and the interpretation is that the deleted co-referential NP is its object. Note that in this example the antecedent, *'that stick'*, is semantically incapable of functioning as an

agent, so there is no necessity for an agent NP to be marked in the -ba sentence in order for the case of the deleted co-referential NP to be correctly interpreted. Ngiyambaa speakers tend to omit arguments rather than represent them by anaphoric pronouns whenever the opportunity arises to do so without semantic confusion.

At lld., gīyanhdha-y 'fear' takes an intransitive subject and an argument marked with what I have called the circumstantive case inflection, which indicates causal function, amongst others (i.e. the cause of fear): *'The frill-neck lizard which Mamie is frightened of has disappeared.'*

It appears that there are no restrictions in principle as to the case of a NP deleted from a -ba sentence on the basis of co-referentiality with a NP in the main sentence. Such a NP may be in any case which is governable by a verb, although the vast majority of examples involve the functions agent, intransitive subject and object. 12 is an example where the absent co-referential NP is to be interpreted as having locative function:

12. gandi-yi-la-ndu-na / gilaywiyi-ba-ma-ndu
exceed+PAST-THEN-2NOM-3ABS turn+PAST-SUB-COUNTERFAC-2NOM

'You overshot (it), where you might have turned off.'

(There is another possible interpretation of 12 which I have been unable to test with informants - that what I have transcribed as -ba in this single example is not the subordinate sentence marker at all, but the emphatic enclitic particle -ba:, adding assertiveness to an independent counterfactual sentence: *'You overshot it. You really might have turned off.'*)

Nor does it appear that there are any restrictions on the case of the determined antecedent NP in the main sentence.

Examples of recursive relativisation have been elicited, such as:

13. ŋina-la:-na miri ga-ŋa / ŋina-la: girbadja
this+ABS-LA:-3ABS dog+ABS be-PRES kangaroo+ABS
gubiyi-ba / ŋadhi-y-la: guŋun dha-yi-ba dhira:n-di
chase+PAST-SUB that+CIRC-UP-LA: grass+ABS eat-PAST-SUB slope-CIRC
'This is the dog that chased this kangaroo that ate grass up on that slope.'

The third person enclitic pronouns also function as NP determiners when they occur in apposition to nominals. At lld., ŋina-la: could be replaced by -na '3ABS' enclitic on the first word dhari-nji. -na is best translated in this context by the definite article: *'The frill-neck lizard that Mamie is frightened of has disappeared.'*

In a negative sentence or a question, a NP without a determiner can have its reference restricted by a subordinate sentence marked with -ba :

14. wana:y mayi wi:-y-aga-la / ŋiyamba: ŋiya-ɾa-ba
 NEG person+ABS sit-CM-IRR-THEN Ngiyambaa+ABS speak-PRES-SUB
'There won't be anyone left then who can speak Ngiyambaa.'

15. mayi-ga:-ndu dhi:rba-nha / ŋiyamba: ŋiya-ɾa-ba
 person+ABS-IGNOR-2NOM know-PRES
'Do you know a person who can speak Ngiyambaa?'

The examples at 15 show a main sentence preceded, not followed, by a -ba sentence in which a NP co-referential with a NP in the main sentence plays a role:

- 16a. yalama-nhi-ba mayi / guwayubu-na yuwa-nha
 tired-PAST-SUB person+ABS still-3ABS lie-PRES
'Person was tired-ba, still she is sleeping.'
'The person who was tired is still sleeping.'

- 16b. gugur gagiyi-ba / bundi-lu ŋadhi miyi
 stick+ABS cut+PAST-SUB bundi+ABS-3ERG that+CIRC make+PAST
'Cut stick-ba, he made a bundi (club) from it.'
'He who cut the stick made a bundi from it.'

- 16c. ŋina-la: miri ŋindu bumiyi-ba / dhiŋga:-dhu-na
 this+ABS-LA: dog+ABS you-NOM hit+PAST-SUB meat+ABS-1NOM-3ABS
 ŋu-nhi
 give-PAST
'You hit this dog-ba, I gave it meat.'
'This dog which you hit I gave meat to.'

In each of these examples the shared NP is represented by a pronoun in the main sentence. At 16a., it is represented by a nominal in the -ba sentence, mayi 'person'. At 16b., it is not represented at all, in the same way as if the -ba sentence had followed the main sentence. At 16c., it is represented by both a nominal and a demonstrative, ŋina-la: miri 'this dog'. It will be noticed that 16a. and 16c., in which the -ba sentences have their full complement of NP arguments, can also be interpreted as 'given that...' constructions. 16a. could be translated: 'Given that the person was tired, she is still sleeping.' or 'Since the person was/got tired, she is still sleeping'. 16c. could be translated: 'Given that you hit this dog, I gave it meat.' or 'When you had hit this dog, I gave it meat.'. If 16b. is assumed to be part of a text in which the identity of the stick-cutter is already known, the agent of the -ba sentence can be interpreted to be omitted for this reason (as an alternative to including an anaphoric pronoun), rather than because of the reference it shares with the agent of the following main sentence. In this case, a 'Given that...' translation is also possible for 16b.: 'Given that he cut the stick, he made a bundi from it.' or 'When he had cut the stick, he made a bundi from it.'.

The examples at 17. show intransitive -ba sentences without a subject argument that precede the main sentences and have the same tense marking on the verb as the main sentences. The animate NPs in the main sentences (i.e. the NPs potentially co-referential with the subjects of the -ba sentences) are represented by pronouns:

17a. manabi-nji-ba / dhiŋga:-luguŋ-gal dhari-nji
 hunt-PAST-SUB meat+ABS-3DAT-PL disappear-PAST
'When they had finished hunting, their meat was gone.'

17b. manabi-nji-ba / gala:y-lu-gal munil ŋa:-nhi
 again-3ERG-PL hole-ABS see-PAST
'After hunting, they looked at their hole again.'

Syntactically these examples are open to two interpretations, in the same way as 16b. is. Their -ba sentences can be interpreted as preceding restrictive relatives, with the absence of a subject NP being attributed to the omission of a NP co-referential with a NP in the main sentence: *'Those who had hunted, their meat was gone.'* (17a) and *'Those who had hunted looked at the hole again.'* (17b). They can also be interpreted as *'Given that...'* constructions of the variety most colloquially translated by a pluperfect *'When...'* clause, with the subject NP elided from the -ba sentence because it is understood in the context: *'When they had hunted, their meat was gone.'* (17a) and *'When they had hunted they looked at the hole again.'* (17b). 17a. and b. come from a text about Porcupine's theft of an emu that was baking in a hole. The story opens with the emu's rightful owners leaving it to cook while they go off hunting. In this context informants unhesitatingly supplied the translations cited with the examples, based on the second, non-relative, interpretation.

SENTENTIAL VERB COMPLEMENTS MARKED WITH -ba

Sentences marked with -ba may function as complements for certain verbs, most often in the role of object. Any sentence whose verb carries a final tense inflection can be made the object of a verb which reports speech:

18a. ŋiya- a-lu / dhuru miŋga-dhi guŋga-nha-ba
 say-PRES-3ERG snake+ABS burrow-CIRC be in-PRES-SUB
'She says that there's a snake in the burrow.'

18b. waŋa:y-lu ŋiyiyi / minja-ŋinda-ga:-dhi:-lu bumiyi-ba
 NEG-3ERG say+PAST what-FOR WANT OF-IGNOR-1OBL-3ERG hit+PAST-SUB
'He didn't say what he hit me for.'

18c. η aya:ma-nhi-dji:-lu / yama-ga: dhuru minga-dhi guṛuga-nha-ba
ask-PAST-1OBL-3ERG

'She asked me whether there was a snake in the burrow.'

Such sentences can also be the object of any verb which reports the content of intellectual processes, such as thinking, remembering, knowing and the like:

19a. waṇa:y-dju winaṇa-nhi / η adhu-dhan η ina-la:
NEG-1NOM remember-PAST I+NOM-LING EVID this-ABS-LA:
girbadja wiri-nji-ba
kangaroo+ABS cook-PAST-SUB

'I didn't remember that I was supposed to have cooked this kangaroo.'

19b. η adhu dhi:rba-nha η ana-gal guṛuṇa-nha-ba
I+NOM know-PRES that-PL+ABS swim-PRES-SUB

'I know that they are swimming/who is swimming.'

19c. dhi:rba-nha-ga:-ndu / η ani-na wi:-nja-ba
-IGNOR-2NOM there+LOC-3ABS sit-PRES-SUB

'Do you know where he lives?'

19d. η adhu dhi:rba-nha (minga) / η adhi-na guṛu-nhi-ba
(burrow+ABS) there+CIRC=3ABS enter-PAST-SUB

'I know (the burrow) where it went in.'

Notice that 19b. has two possible interpretations according to the placing of the pause. If a pause is made between dhi:rba-nha and η ana-gal, the -ba sentence includes η ana-gal, and functions as a sentential object complement to 'know'. The interpretation is *'I know that they are swimming.'* If the pause occurs between η ana-gal and guṛuṇa-nha-ba, the -ba sentence lacks an overt subject, and its function is to restrict the reference of η ana-gal. The interpretation is *'I know those who are swimming.'* or more colloquially, *'I know who is swimming.'*

In 19c. and 19d., the local case-inflections locative and circumstantive appear on a demonstrative, the combination being translated by a relative adverb. Such arguments, by contrast with the obligatorily deleted arguments of other -ba clauses whose translations involve relative forms, cannot be omitted. This is because their function would not be recoverable. Their omission would result in the interpretations *'Do you know that he is living?'* for 19c. and *'I know that it went in.'* for the version of 19d without minga. (The version with minga would be ungrammatical.)

Events that are perceived through the senses can be expressed as objects of verbs like 'see', 'hear', 'feel', in the form of sentences marked with -ba:

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DIALECTAL DIFFERENTIATION IN BĀGANDJI

L. Hercus

1. THE BĀGANDJI DIALECTS

Already in very early days the Europeans were struck not only by the fine appearance of Bāgandji people, but by the vast extent of the country occupied by the Bāgandji 'nation'. The views expressed by Cameron (1884:346) are typical. As Curr (1886:167) points out:

That speech varies so little amongst the several tribes that some of my correspondents are under the impression that there is but one language on the Darling.

That the languages of the Darling tribes differ so much from all others ...that I had some difficulty in tracing them to their source...

and he (Curr 1886:172) paints a picture of 'the flight of the Darling Adam, and of his descendants spreading themselves to the mouth of the Culgoa on the one hand, and to the mouth of the Murray on the other'. (Curr was anxious to include the Yaralde-type language of the lower Murray with Bāgandji).

Unfortunately, by the time recent fieldwork became possible the vast group of people speaking different Bāgandji dialects had declined pitifully in numbers. In 1957, S.A. Wurm was still able to work with a Bārundji speaker and to obtain some fractional information on Wiljagali, while the present writer has worked whenever possible over ten years with the last speakers of Bandjigali, Guṇu and Southern Bāgandji, hampered by quite particularly difficult and depressing fieldwork conditions: the most knowledgeable Southern Bāgandji man was only able to help with linguistic work on Good Fridays. Apart from the Guṇu and Bārundji dialects for which we have a short grammar and a sketch-grammar by R.H. Mathews (1902, 1904, and also one page of 'Ngunbalgo' MS), we are reduced to the use of old vocabularies and a

short text in Marawara, the southernmost Bāgandji dialect (Tindale 1939). From a comparison of the data in the vocabularies it would be easy to arrive at a distorted and exaggerated view of the great similarities between the dialects. A lexico-statistical comparison based on old vocabularies from the two dialects that represent the geographical extremes of Bāgandji territory, Guṇu from the Bourke area and Marawara from near Wentworth (Bulmer 1878) shows agreement in over 85 per cent of the items. There are many obvious mistakes in the old vocabularies: for instance Bulmer's vocabulary gives '*win, to see*', a word which would contravene the phonotactic rules of all Bāgandji dialects, including what we know of Marawara. Tindale's text (1939) shows that the normal Marawara word for '*to see*' was *bami-*. If one were to eliminate this kind of error, the correspondences between Guṇu and Marawara would be around 90 per cent. The correspondences between the extremes of the 'dialect chain' are therefore very close, and between intermediate dialects they are even closer.

Bāgandji people were conscious of the great lexical similarity and the few items that differed were always the subject of comment. George Dutton, the last Bandjigali, was a man of wide linguistic interests (Beckett 1958). He, for instance, stated "ḍilburu, that's my word for 'water'. Those other Bāgandji people say ḡugu". There was also the type of comment on articulation and intonation that one hears so frequently from speakers of Australian languages: Bandjigali was said to sound 'light' and Guṇu 'heavy'. Nevertheless everyone was agreed that they were all really one language, Bāgandji.

2. THE MAIN MORPHOLOGICAL DIFFERENCES

There is however a major distinction within Bāgandji, just as there is in the Kamilaroi language group (Austin 1976): the northern dialects Guṇu and one Bārundji dialect (Mathews MS) use free person-markers, and the other dialects, as exemplified by S. Bāgandji, generally use bound person-markers. There are a number of other major differences. Some of these are presented in Table 1 (see also Wurm and Hercus, forthcoming):

TABLE 1
 GUṆU - S. BĀGANDJI MORPHOLOGICAL FEATURES

	Guṇu	S. Bāgandji
Bound person markers are prevalent	-	+
Personal and demonstrative pronouns can be marked for tense	+	-
Personal possession markers are usually affixed	-	+
The allative is marked by 'an accented' morpheme and differs from the dative	+	-
Ergative case marking is restricted to singular pronouns	-	+

3. THE VERBAL WORD

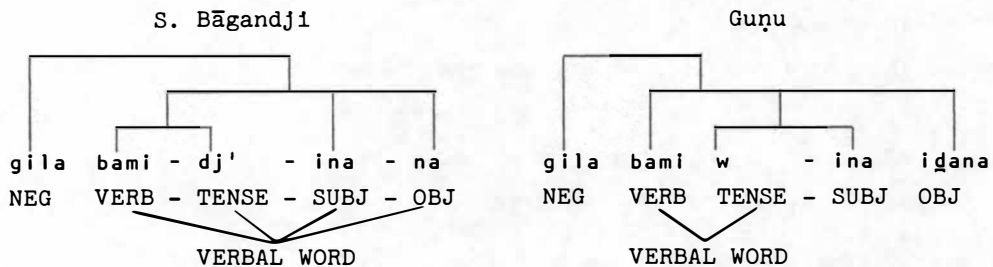
Due to the morphological features listed above, the structure of Guṇu sentence is markedly different from S. Bāgandji. This can be illustrated, for instance, by the S. Bāgandji sentence

gila bami -dj- ina- -na
 not see -PAST- 1 pl SUBJ- (bound) 3 sg OBJ (bound)
 'We never saw her.'

The order of elements is the same in Guṇu, though the sentence is basically different in its constituent analysis:

gila bami wina idana
 not see PAST we he OBJ

The difference in structure may be illustrated as follows:

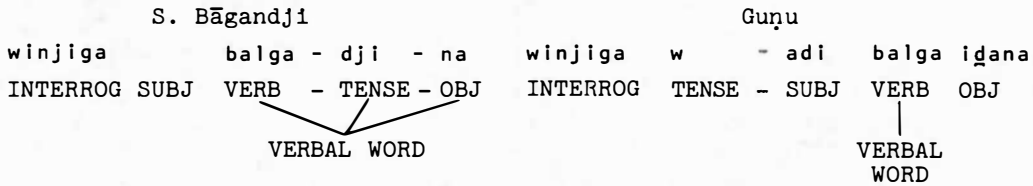


Interrogative sentences differ only slightly in the order of elements between the two dialects:

S. Bāgandji: winjiga balga - dji - na
 who hit - PAST - 3 sg OBJ (bound)
 'Who (pl.) hit him?'

and Guṇu: winjiga wadi balga idana
 who PAST-they hit he OBJ

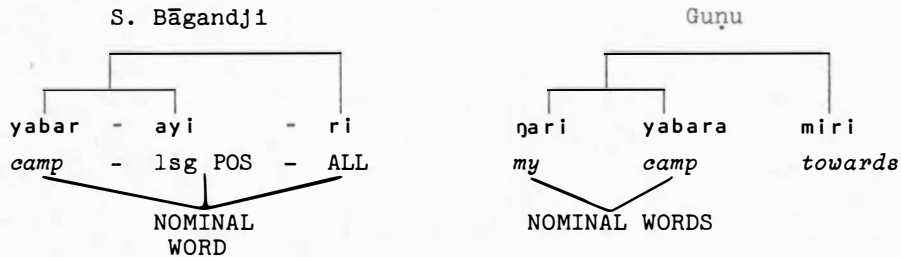
But the constituent analysis differs considerably:



It is evident from these examples that the verbal word in Guṇu is much briefer than in Southern Bāgandji. In Guṇu, the verbal word generally incorporates only the aspect markers if these are present; in S. Bāgandji the verbal word incorporates aspect and tense markers as well as pronoun subject- and object-markers.

4. THE NOMINAL WORD

In noun phrases the difference between the two dialects is less marked, as is shown by the following example:



'towards my camp'

This is the preferred word order, but when focusing on the possessor it is possible to say in S. Bāgandji:

ṅayi yabar-ayi - ri
my camp -lsg POS - ALL

and in Guṇu it is also possible to say:

yabara ṅari miri
camp mine towards

The order of elements can still be regarded as basically the same, as for instance also in:



'for his fat (we kill him)'

In noun phrases, as is evident from these examples, both the order of elements and the constituent analysis in the two dialects are identical,

and yet the nominal word in Guṇu is clearly much shorter than in S. Bāgandji.

5. PHONETIC DISTINCTIONS

These differences in the verbal and nominal word lead to the major surface phonetic distinctions that make Guṇu 'sound different though it is really the same'.

As shown above, both verbs and nouns have normally added to them many more bound morphemes in S. Bāgandji than in Guṇu, and these affixes are subject to morphophonemic rules at the junctures. These rules concern mainly the assimilation of vowels that become contiguous: thus a + u and u + a result in a long open mid vowel [ɔ̄] or diphthong [ɔ̄^u] that is accented and on a rising intonation. This phonetic unit is totally absent from Guṇu, but is very common in S. Bāgandji, as for instance in:

gaṇmadjinduana
 gaṇma - dj' - indu - ana
 take - PAST - 2sg Ag - 3sg OBJ
 [kəṇmadjindɔ̄na]
 'You took it.'

Similarly the diphthong [ai] is extremely rare in Guṇu, but it is common in morpheme junctures in S. Bāgandji, where it may even occur twice within the same word:

ṇabayigayi
 ṇaba - yiga - ayi
 block - 3pl SUB - 1sg OBJ
 [ṇapaikai]
 'They lock me up.'

The corresponding Guṇu sentence is:

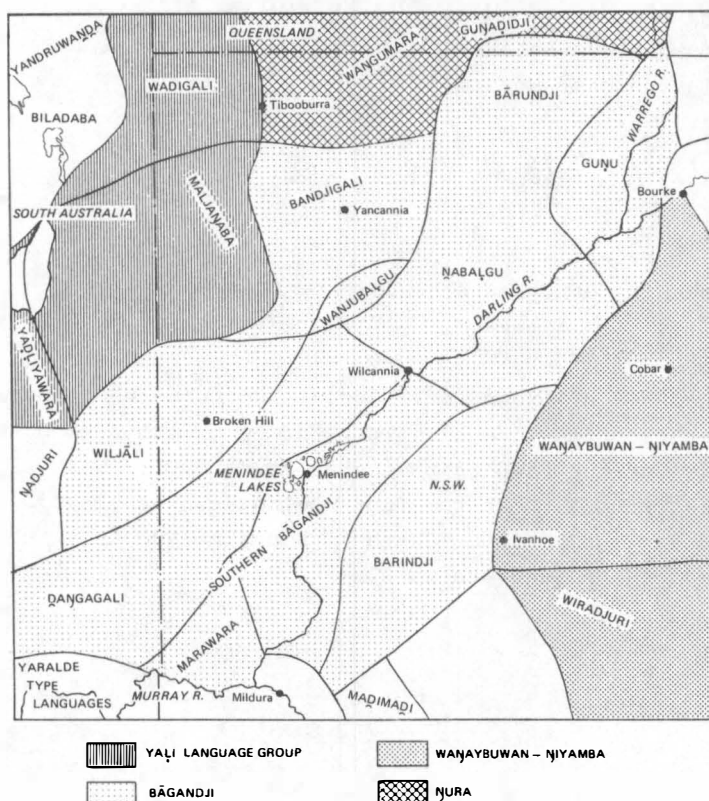
ḡaḡa - ṇadi - ṇana
 block - PRES they - me

The sequence -uayi found only across junctures was pronounced [ɔ̄]. It was never recorded in Guṇu. There are many other minor phonetic differences, but the fact that weighed most heavily with Bāgandji speakers was probably that the Guṇu nominal or verbal word usually has only one accent, while in S. Bāgandji there are usually two, the second accent being on the juncture vowels.

6. CONCLUSION

In the sixties, speakers of Bandjigali, S. Bāgandji and Guṇu were still living on the reserve at Wilcannia, in the same street (the only one) and were able to communicate with each other without any great difficulty, all speaking 'Bāgandji'. The unifying features in the dialects were an identical phonemic system, great similarity in vocabulary and similarity, though not identity, in the order of elements. The dividing features were the major differences in morphology, constituent structure and phonetics. It was obvious that the similarities overrode the differences and constituted the notion of Bāgandji baḷgu 'Bāgandji speech'. These unifying features made the various forms of speech 'dialects' rather than separate languages. Attempts at diachronic studies (which are still in progress) of the dialects tend to confirm this view of unity which was evident socio-linguistically among the Bāgandji. Despite this unity, the problems of genetic relationship versus regional (areal) relations are still so much in need of clarification that no one would venture now to speak with Curr of 'the Darling Adam'.

MAP 1
LANGUAGES OF NORTH-WESTERN N.S.W.



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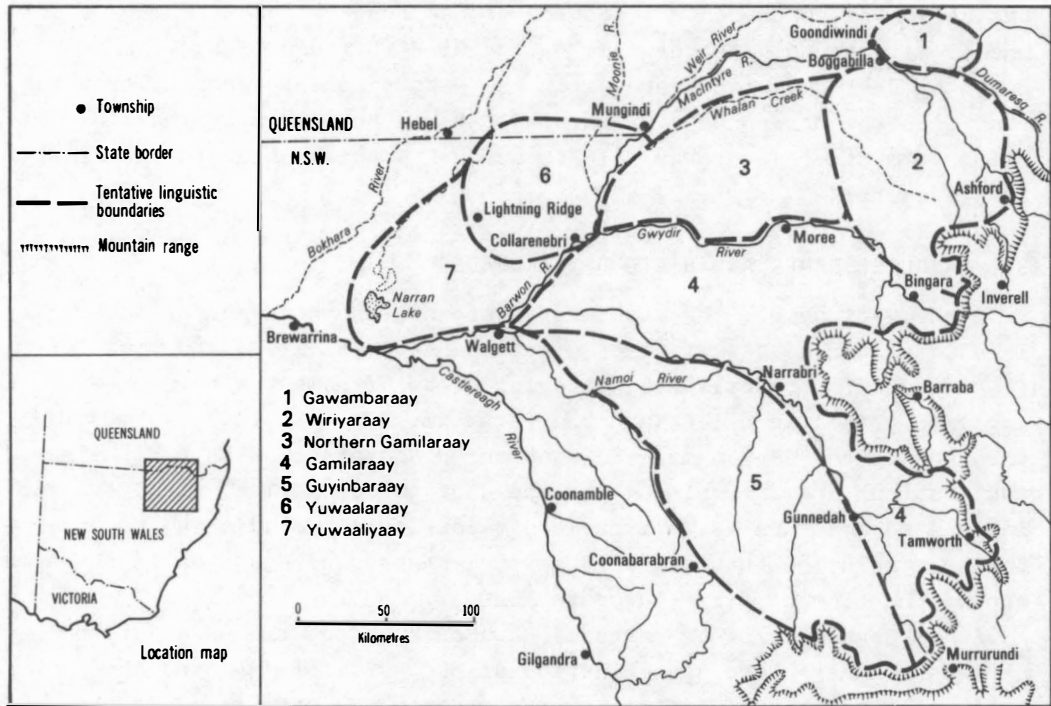
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THE LINGUISTIC SITUATION IN NORTH CENTRAL NEW SOUTH WALES

Peter Austin, Corinne Williams and Stephen Wurm



1. INTRODUCTION

This paper is a preliminary report on the linguistic situation in the North Central area of New South Wales.¹ It summarises our conclusions to date regarding the languages once spoken in the area, taking into account all the available data including the results of recent fieldwork with the last surviving speakers. Linguistic relationships both within the area and with surrounding languages are examined and we suggest that the most likely candidates for genetically related languages are those that were once spoken to the south and west in Central New South Wales.

2. AREA

The area we are concerned with is that which the New South Wales Bureau of Meteorology refers to as the "north West Slopes and Plains", basically the north-central section of New South Wales (see map, p.167). The area is bounded in the east by the Great Dividing Range, in the north by the Queensland border, in the west by the Bokhara River which runs into the Barwon near Brewarrina, and in the south by the Castlereagh River from near Walgett through Coonabarabran to the ranges in the east.

3. LANGUAGE NAMES AND STATE OF LANGUAGES

A check of any of the standard references on the names of Australian languages such as Capell (1963), Oates and Oates (1970) and Tindale (1940 and 1974) reveals a bewildering array of names, alternative spellings and tribal locations and this area is no exception. By working through all the source materials at our disposal, such as R.H. Mathews' publications and the writings of the early missionaries, explorers and interested amateurs as well as more recently collected data, we come to the conclusion that at least seven languages were spoken in the area around the time of first European contact.

As is common in other parts of New South Wales, the names of the various languages are a combination of the word for 'no' and the comitative or 'having affix'. The comitative has two forms in the area, namely: -(b)ara:y and -(b)iya:y where 1) b does not occur after root-final l and r. 2) a/i is lost phonetically according to stress placement.

The names and approximate locations of the languages are:

(1) Gawambara:y (negative gawam) - the only information on this extinct language is R.H. Mathews' (1904) published notes. It was probably spoken around Boggabilla.

(2) Wiriyara:y (negative wiri) - this name is often confused with Wira:yara:y the name by which the Wiradjuri of Central New South Wales seem to have been known to their northern neighbours. The Wiriyara:y proper appear to have lived between the Dumaresq and Gwydir Rivers and the Great Dividing Range (see map). Their language was poorly recorded and is now extinct.

(3) Northern Gamilara:y (negative gamil) - this is the well-known Kamilaroi language or rather, what appears to be a northern dialect form. Its location is tentatively established as the area between the Barwon and Gwydir Rivers as shown on the map. The source materials for this language are again poor and it is now extinct.

(4) Gamilara:y (negative gamil) - this is Kamilaroi proper, the language once spoken in the central portion of this area from Walgett as far south as Willow Tree on the edge of the Great Dividing Range. The language is fairly well documented. In 1955, S.A. Wurm collected 44 pages of fieldnotes from the last fluent speaker and a number of word lists have been tape recorded since then by M. Reay, J. Mathews, D. Tryon, R.M.W. Dixon and P. Austin. A salvage grammar is being prepared by Austin and Wurm.

(5) Guyinbara:y (negative guyin) - this language is widely known as Koinberi. It seems to have been spoken on the Liverpool Plains around Gunnedah. Documentation of it is poor and it is now extinct.

(6) Yuwa:liya:y (negative wa:l) - this language is referred to in the literature as Euahlayi and seems to have been spoken in the area bounded by the Barwon and Narran Rivers north of Lightning Ridge. The language is quite well recorded. Wurm made notes on it in 1955 and Williams is presently engaged in a depth study with the last speaker.

(7) Yuwa:lara:y (negative wa:l) - the people speaking this language seem to have lived between Lightning Ridge and Narron Lake, although the exact location is as yet unclear. The language is well recorded; Williams is studying it with the last two speakers.

4. RELATIONS BETWEEN THE LANGUAGES

As the situation stands at the present time we have fairly good data on the three languages Gamilaraay, Yuwaaliyaay and Yuwaalaraay, and some rather poor data on the other four languages. They will be excluded from the discussion and the relations between the three well recorded languages investigated.

4.1. VOCABULARY

A lexicostatistical count of basic vocabulary items gives the following figures:

TABLE 1
TOTAL VOCABULARY PERCENTAGE

Gamlaraay	
73	Yuwaaliyaay
63	80 Yuwaalaraay

For the category of verbs we have:

TABLE 2
VERBS PERCENTAGE

Gamlaraay	
80	Yuwaaliyaay
75	80 Yuwaalaraay

It is clear from these tables that the figures are well above Dixon's (1970) "equilibrium level" of 40-60 percent and point to the possibility of a close genetic relationship. Gamlaraay shows a number of vocabulary differences from the other languages and we notice the following phonological correspondences:

(1) intervocalic /ɾ/ in Gamlaraay corresponds to intervocalic /y/ in Yuwaaliyaay and Yuwaalaraay when the preceding and following vowels differ in quality.² The following table exemplifies this:

TABLE 3

English	Gamlaraay	Yuwaaliyaay	Yuwaalaraay
'hole'	biɾu:	biyu:	biyu:
'bone'	buɾa	buya	buya
'flame'	ɬu:ɾa:y	ɬuya:y	
'long, tall'	guɾa:r	guya:r	guya:r
'teeth'	yɾa	yiya	yiya
'cockatoo'	muɾa:y	muya:y	muya:y

We may summarize the regular correspondence as: $\tau = \gamma / V_1 _ V_2$

(2) intervocalic /ɾ/ in Gamlaraay corresponds to zero in Yuwaaliyaay and Yuwaalaraay between identical vowels if the word is disyllabic.

Examples are the following:

TABLE 4

English	Gamilaraay	Yuwaaliyaay	Yuwaalaraay
'chest'	biɾi	bi:	bi:
'hand'	maɾa	ma:	ma:
'to jump'	baɾa-	ba:-	ba:-
'sun'	yaɾay	ya:y	
'language'	gaɾay	ga:y	ga:y
'3sg. pronoun'	ɲuɾu	ɲu:	ɲu:
'dust'	yuɾu	yu:	yu:

In summary: $\tau = \phi / \# C V_1 \text{ ____ } V_1 (C) \#$

When the word is polysyllabic the first correspondence holds, as shown by:

TABLE 5

English	Gamilaraay	Yuwaaliyaay	Yuwaalaraay
'dog'	buɾuma		buyuma
'bird'	ɟigaɾa:	ɟigaya:	ɟigaya:
'turtle'	waɾaba	wayamba	wayamba
'left hand'	waɾaga:l	wayage:l	wayaga:l
'crooked'	waɾawaɾa	wayawaya	wayawaya

There appear to be four exceptions to the second correspondence, namely:

TABLE 6

English	Gamilaraay	Yuwaaliyaay	Yuwaalaraay
'sand'	gaɾay	gayay	gayay
'bandicoot'	guɾu	guyu	guyu
'nose'	muɾu	muyu	muyu
'throat'	wuɾu	wuyu	wuyu

It is not yet clear why these words are apparent exceptions to the $\tau = \phi$ correspondence.

From a diachronic point of view it seems likely that the Gamilaraay forms are the more prior historically and that Yuwaaliyaay and Yuwaalaraay have undergone phonological innovations. That is, we replace the equals sign = above with an arrow \rightarrow and rewrite the rules placing them in a feeding order:

(1) $\tau \rightarrow \gamma / V \text{ ____ } V$

(2) $\gamma \rightarrow \phi / \# C V_1 \text{ ____ } V_1 \# (C) \#$

4.2. MORPHOLOGY

All three languages show virtually identical morphological paradigms for all the parts of speech. For example, consider the noun case inflections set out in the following table noting in particular the minor differences for the ergative and instrumental.

TABLE 7
CASE INFLECTIONS

Case	Gamilaraay	Yuwaalaraay	Yuwaaliyaay
Absolutive	- \emptyset	- \emptyset	- \emptyset
Ergative/Instrumental	-du/n-	-du/n-	-du/n-
	- ɟu/y, i-	- ɟu/i-	- ɟu/i-
	-u/l, r-	-u/l, y-	-u/l, y-
		-yu/r- (r $\rightarrow\emptyset$)	-yu/r- (r $\rightarrow\emptyset$)
	-gu	-gu	-gu
Locative = Ergative a <i>vice</i> u in all languages			
Dative	-gu in all languages		
Ablative	-di/n-	-di/n-	-di/n-
	-i/l, r-	-i/l, r-	-i/l, r-
		- ɟi/i, y-	- ɟi/i, y-
	- ɟi	- ɟi	- ɟi

As an example of the differences, 'woman + ERGATIVE' is yinaru in Gamilaraay, but yinayu in Yuwaaliyaay and Yuwaalaraay.

4.3. SYNTAX

Syntactically, the languages seem to be identical, although much more work in this area remains to be done.

We conclude then that Gamilaraay, Yuwaaliyaay and Yuwaalaraay represent three dialect forms of a single language. Although it is not possible to prove, it would seem that the other four speech forms mentioned above are also dialects of this language.

5. RELATIONS OUTSIDE THE AREA

The question now arises of the possibility of genetic relationship(s) between this language and other Australian languages, particularly with its nearest geographically adjacent neighbours. We will briefly survey the possibilities.

To the east along the Dividing Range and the Coastal Belt a number of languages were spoken, among them Bigambal, Yugumbal, Nganyaywana, Ngarbal and Wanarua. Some of these have been shown to be genetically related by Crowley (1976) but none appears to have any westerly connections. Lexicostatistical figures for cognate counts do not exceed 25 percent and the shared vocabulary in any case tends to be of the 'Common Australian' type such as $\text{ɟina} \sim \text{ɟina}$ 'foot'. Grammatically, there are large differences between the two groups of languages. In fact, the mountain range seems to form a linguistic as well as natural boundary.

To the north the so-called Maric languages were once spoken. A lack of basic comparative data on these languages means that the possibility of genetic affiliations between them and the Gamilaraay-Yuwaaliyaay-Yuwaalaraay group must remain an open question.

Data made available by Lynette Oates on Muruwari, the western neighbour of Yuwaalaraay suggests that it is not a likely candidate for being closely genetically related, although the situation is not yet completely clear.

The languages to the south in fact provide the most likely possibilities for genetic relationship. To the south and south-west we find Wiradjuri known primarily from the writings of Gunther (1892), Hale (1838) and R.H. Mathews (1904), and further to the west the Ngiyambaa language. Donaldson has recently completed a depth study of the latter and has kindly provided data for the following comparison.

5.1. VOCABULARY

A lexicostatistical count of cognates gives the following preliminary figures:

TABLE 8
TOTAL VOCABULARY PERCENTAGE

Wiradjuri	Ngiyamba:	
41	36	Yuwaaliyaay
42	36	Gamilaraay

For the 'verb' category we have:

TABLE 9
VERBS PERCENTAGE

Wiradjuri	Ngiyambaa	
49	41	Yuwaaliyaay
44	47	Gamilaraay

Notice that:

- 1) the figures for total vocabulary are at the lower bounds of the 'equilibrium range'. Grammatical comparison is necessary before the issue can be decided.
- 2) the figures for the verb category are higher and towards the middle of the 'equilibrium range'. Again, grammatical comparison may decide.

Cognates in Wiradjuri and Gamilaraay show a number of regular correspondences:

(1a) word final palatal nasal /ɲ/ in Wiradjuri corresponds to word

final -y in Gamilaraay after the low vowel. Examples are (note that the Wiradjuri phonemicizations are tentative and that the sources do not allow us to unambiguously decide the length of vowels):

TABLE 10

English	Wiradjuri	Gamilaraay
'this way'	ɖaŋ	ɖa:y
'tongue'	ɖala	ɖalay
'blood'	guwa	guway
'mouth'	ŋaŋ	ŋa:y
'skin'	yulaŋ	yulay
'beard'	yaŋaŋ	yaŋay
'cockatoo'	muɖaŋ	muɖay

This can be symbolised as: $\text{ŋ} = \text{y} / \text{a} _ \#$

(1b) word final /ŋ/ in Wiradjuri corresponds to zero in Gamilaraay when following /i/:

TABLE 11

English	Wiradjuri	Gamilaraay
'goanna'	ɖuliŋ	ɖuli
'meat'	ɖiŋ	ɖi:
'fire'	wiŋ	wi:
'heart'	giŋ	gi:

That is: $\text{ŋ} = \emptyset / \text{i} _ \#$

There are no examples of -uy word finally in Gamilaraay corresponding to -uŋ in Wiradjuri.

(2) word final velar nasal /ŋ/ in Wiradjuri corresponds to zero in Gamilaraay. The following examples illustrate this:

TABLE 12

English	Wiradjuri	Gamilaraay
'chest'	biɖi	biɖi
'far away'	biɖu	biɖu
'brolga'	buralgaŋ	buralga
'thigh'	ɖaraŋ	ɖara
'heel'	ɖaŋaŋ	ɖaŋa
'foot'	ɖinaŋ	ɖina
'meat'	ɖiŋgaŋ	ɖiŋga:
'bark of tree'	ɖuraŋ	ɖura
'liver'	gaŋaŋ	gaŋa
'kangaroo rat'	giŋaŋ	giŋa
'fog, mist'	guwaŋ	guwa

TABLE 12 (cont.)

English	Wiradjuri	Gamilaraay
'what?'	mipaŋ	mipa
'nose'	muɾuŋ	muɾu
'breast'	ŋamuŋ	ŋamu
'lip'	yiliŋ	yili
'night'	ŋuruŋ	ŋuru
'teeth'	yirəŋ	yirə
'cloud'	yuruŋ	yuru
'water'	galiŋ	gali

That is: $\eta = \emptyset / _ \#$

From a diachronic point of view it seems that the Wiradjuri words represent older forms and that Gamilaraay has undergone phonological changes resulting in the loss of all final nasals except apico-alveolar /n/. The alternative explanation, namely that Wiradjuri had acquired word final velar nasals, seems less satisfying since it involves morphological conditioning to explain such forms as *guya* 'fish' instead of **guyaŋ* (cf. Gamilaraay *guya*).

The rules which conspire to effect the reduction of final nasals are:

- 1) $\eta \rightarrow y / a _ \#$
- 2) $\eta \rightarrow \emptyset / i _ \#$

or possibly rule (1) re-written as a feeding rule:

- $$\eta \rightarrow y / V _ \#$$
- for 2)
- $$y \rightarrow \emptyset / i _ \#$$

The third rule of the conspiracy is:

- 3) $\eta \rightarrow \emptyset / V _ \#$

5.2. MORPHOLOGY

Morphologically Wiradjuri and Ngiyambaa share many similarities with their northern neighbours. Two categories may be briefly compared:

(a) Nominals

An obvious candidate for nominal comparison is the allomorphic variation in the case realisations between languages. These are remarkably consistent suggesting a common (inherited) system. The alternants for Wiradjuri and Ngiyambaa are compared with those of Gamilaraay below, and a check of Table 7 shows that the results can be easily extended to Yuwaalaraay and Yuwaaliyaay. The cover symbols employed are:

S stands for HOMORGANIC STOP after
N NASAL

ɖ stands for the two laminal stops ɖ and ɗ which alternate under certain conditions not specified here.

TABLE 13

Case	Wiradjuri	Ngiyambaa	Gamilaraay
Absolutive	-∅	-∅	-∅
Ergative/	-Su/N-	-Su/N-	-du/n-
Instrumental	-ɖu/y-	-ɖu/y-	-ɖu/y,i-
	-u/l,r-	-u/l,r-	-u/l,r-
	-gu	-gu	-gu
Locative = Ergative a <i>vice</i> u in all languages			
Dative	-gu in all languages		
Ablative	-Si/N-	-Si/N-	-di/n-
	-i/l,r-	-i/l,r-	-i/l,r-
			-ɖi

Notice that the phonological changes postulated above account for some apparent surface dissimilarities, for example, 'water + LOC' is galinga in Wiradjuri and Ngiyambaa
galiga in Gamilaraay

(b) Verbs

Morphological comparisons within the verb category show that some similarities and differences between the groups are to be found. The Gamilaraay-Yuwaaliyaay-Yuwaalaraay group seems to have four verb conjugations which we can name after their imperative forms as y, l, n and ŋ. There is a two-term tense distinction between future and non-future. A tentative paradigm for the conjugations is:

TABLE 14

	y	l	n	ŋ
non-future	-ni	-y	-ni	-ni
future	-y	-li	-ri	-gi
imperative	-ya	-la	-na	-ŋa
purposive	future + gu			

The l conjugation is the largest and predominantly transitive. The y class is also large and predominantly intransitive. n and ŋ are small conjugations that are mixed in transitivity.

This system may be compared with that exhibited by Ngiyambaa (data from Donaldson, personal communication), which has three conjugations y, l and r, with the y conjugation having two sub-conjugations:

TABLE 15

	y ₁	y ₂	l	r
present	-ŋa	-ŋa	-ɾa	-na
past	-ŋi	-ŋi	-i	-ni
irrealis	-yaga	-yaga	-laga	-raga
imperative	-ɖa	-ga	-(ya):	-a:
purposive	-giri	-ŋgiri	-li	-ri

The r conjugation has only two members, both of which belong to the ŋ conjugation of the Gamilaraay-Yuwaaliyaay group. The similarities between the systems are apparent from the tables; notice the -giri purposive in particular which seems to fit with the futures in Table 14.

One point of similarity between Ngiyambaa and its north-easterly neighbours is the existence of certain aspectual verb affixes which when added to a stem change its conjugation but not its transitivity. They make specific time reference. For example, Gamilaraay has -ŋayi-y meaning '*action in the morning*' giving for ɖa-l '*to eat*':-

future	ɖa-l-ŋayi-y	'will eat tomorrow morning'
non-future	ɖa-l-ŋayi-ŋi	'ate this morning' or 'ate yesterday morning'

Ngiyambaa has an affix -ŋari-y with the same function as -ŋayi-y in Gamilaraay.

5.3. SYNTAX

At this preliminary stage of our analysis we have no comments on comparative syntax.

6. CONCLUSIONS

We have attempted in this preliminary report to clarify the linguistic situation in north central New South Wales. We have named and located various languages and examined the relationships between them, coming to the conclusion that they represent dialects of a single language. The relationship of this language to its neighbours has been discussed and some diachronic implications suggested. The closest languages lexically have been shown to be those of the south and west, although the cognate percentages are at the equilibrium level. Checking of morphology indicates that there are both similarities and differences but generally there would appear to be genetic connections. Much more work remains to be done especially in the area of syntax but the present results are suggestive of further directions for research.

N O T E S

1. We are grateful to a number of people for providing comparative data especially Lynette Oates, Tamsin Donaldson and Terry Crowley. R.M.W. Dixon and Peter Sutton read and commented on earlier drafts; any errors of fact or interpretation which remain are, however, the responsibility of the authors.

2. There is one example where this correspondence holds and the vowels differ in quantity, not quality. This is:

English	Gamlaraay	Yuwaaliyaay
' <i>nits of louse</i> '	gara:y	gaya:y

Compare this correspondence with '*language*' (Table 4) and '*sand*' (Table 6).

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NORMAN PAMA HISTORICAL PHONOLOGY

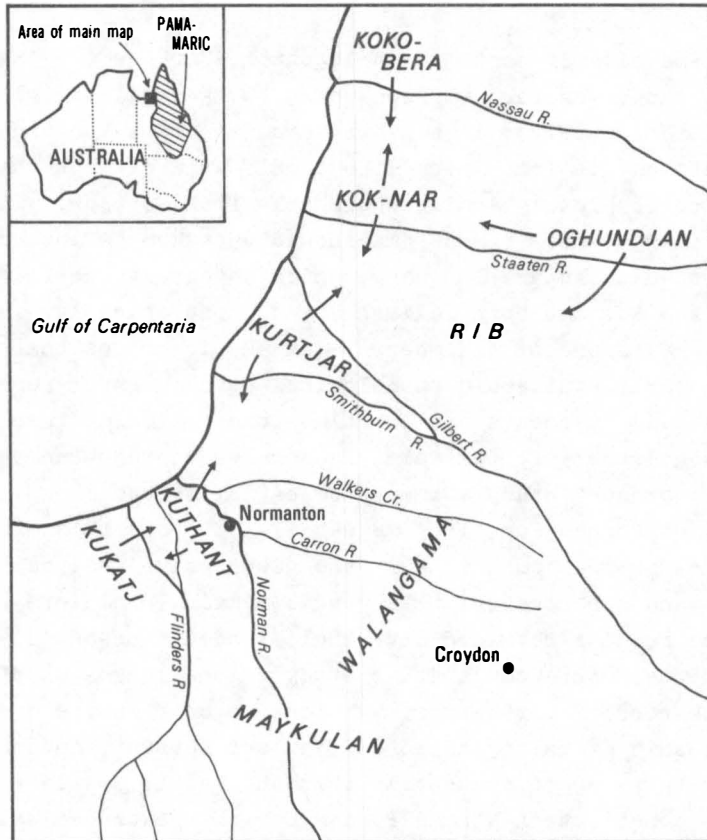
Paul Black

Norman Pama clearly contains at least the Kurtjar (or 'Kunggara') and Kuthant languages formerly spoken in the general vicinity of the mouth of the Norman River in southwestern Cape York Peninsula (see Map). It also contains Rib (or 'Areba'), but only as a dialect that now appears to be completely indistinguishable from Kurtjar. It is less obvious whether or not Norman Pama should be taken to include the very poorly attested Walangama language, which appears to be fairly similar to Kurtjar and Kuthant both lexically and phonologically.

Norman Pama is one of a number of Pama-Maric groups that have undergone particularly noticeable phonological developments, such as the loss of initial consonants and sometimes the following vowels as well: Kurtjar *lua:ŋ* 'tree', for example, is cognate to Gugu-Badhun *ɟulay* 'tree'. The present study attempts to establish the phonological development of Norman Pama in some detail. Whereas this attempt is perhaps somewhat premature in that the descriptive analyses of the Norman Pama and other relevant languages remain incomplete to various degrees, the results obtained nevertheless seem substantial and highly relevant to the future comparative study of the languages of the general area. These results furthermore turn out to bear on the question of the relationship of Walangama to Kurtjar and Kuthant, and the study concludes with evidence suggesting that the latter two languages could be taken to constitute a Norman Pama group that excludes Walangama.¹

MAP 1

Map showing the approximate former locations of the languages of the Norman Pama area in southwestern Cape York Peninsula.



1. 'PROTO-PAMAN' AND PRE-NORMAN PAMA

Hale pioneered Cape York comparative studies with his work on the reconstruction of 'Proto-Paman' in the early 1960s. Coming at a time when relatively little was known about Cape York languages, this work was especially tentative in nature. It nevertheless served to provide Hale (1964, 1966) with a solid basis for demonstrating that the seemingly aberrant Northern Pama languages at the tip of the peninsula were in fact relatively closely related to other Cape York languages, a demonstration of some relevance to theories about prehistoric migrations to Australia (Hale 1962). Whereas Hale (1976a, b and c) ultimately published further details on the development of the Northern Pama languages and the so-called 'Wik' languages immediately south of them, he has never published his more general work (Hale n.d. a and b) on 'Proto-Paman' and its then especially poorly attested descendants in the southern half of the peninsula. Especially after Sommer (1969:62-6) published a list of Hale's 'Proto-Paman' forms, Hale's work has nevertheless often been taken as a basis for drawing conclusions about the phonological development of such other languages. Occasional investigators - notably Alpher (1972) - have also attempted to refine and expand Hale's reconstruction to some degree. Since the present study is along similar lines, it seems worthwhile to begin by re-examining the nature of Hale's 'Proto-Paman'.

Hale (1964:251) described the basis of his reconstruction as follows:

Proto Paman is reconstructed on the basis of 30 linguistic corpora, obtained by Hale in 1960, from various areas in Cape York Peninsula. The term Paman is derived from the stem *pama person and is applied as a tentative label for the family to which most, if not all Peninsular languages belong. The precise sub-classification of Paman languages is only partially understood at present.

The fact that Hale could only vaguely delimit the extent of his 'Paman' group does not in any way detract from his own reconstruction, but it did fail to make clear what other languages could be taken to provide evidence bearing on the reconstruction of the same proto-language. The subsequent classification of Australian languages by O'Grady, Voegelin, and Voegelin (1966) should perhaps have clarified the matter when it failed to show that Hale's 'Paman' languages belonged to any single genetic group smaller than Pama-Maric, which also includes the Mari languages of central and southern Queensland. This classification was not however rigorous enough to be taken as conclusive, and scholars continued to assume that 'Paman' was at least a 'rather vaguely delimited subgroup' of Pama-Maric (Alpher 1972:67). As time goes on this assumption grows increasingly harder to defend: lexicostatistical

evidence cited later in the present study for example clearly suggests that some of Hale's 'Paman' languages are no more closely related to each other than they are to Mari languages. The present study accordingly assumes that 'Proto-Paman' is not in theory distinct from Proto-Pama-Maric - or whatever the latest protolanguage ancestral to Mari and the various 'Paman' groups would be - and it thus takes the evidence of several Mari languages to bear on the reconstruction of relevant forms.

This is not however to say that all of Hale's 'Proto-Paman' forms are actually assignable to Proto-Pama-Maric or to any other single protolanguage. Since the sub-classification of the languages involved was - and remains - only partially understood, there is often little basis for determining whether reconstructions based solely on the evidence of a few geographically contiguous groups are properly assignable to the earliest protolanguage under consideration or only to later, intermediate protolanguages. Whereas many of Hale's reconstructions are based on such a wide variety of languages that they are clearly assignable to Proto-Pama-Maric, many others should for the reason stated be suspected of belonging to later protolanguages. A very few of Hale's 'Proto-Paman' forms are indeed clearly not assignable to Proto-Pama-Maric: Hale (1976c:55) for example appears to have reconstructed *kuṛu(n) 'eye' solely on the basis of Kaantju and Umpila, which Thompson (1976:213) takes to be members of the same dialect chain. Such instances are however rare. More generally one can only suspect that those 'Proto-Paman' forms based solely on the evidence of languages confined to particular areas of Cape York Peninsula - typically the north for Hale's published forms, but also the southeast and southwest for forms left unpublished by Hale (n.d. b) - could perhaps prove assignable to intermediate protolanguages associated with those areas. This would account for why Hale reconstructed a great many sets of apparent synonyms² for 'Proto-Paman', including three or more forms for such basic forms as 'eye', 'ear', 'nose', 'tooth', 'foot', and 'sun'; see Sommer's (1969:62-6) listing of Hale's 'Proto-Paman' forms. It would also provide a basis for explaining why some of these apparently synonymous forms are also phonologically similar: cf. Hale's *t^ya:ra and *t^ya:wa 'mouth', *ka:ra and *ka(:)wu 'nose', *kapiṛ and *kakaṛa 'moon', and *ka:lu 'ear' and *walu 'ear, cheek, etc.'. Since the first form in each pair is based on Northern Pama and 'Wik' evidence alone and the second of each pair is based largely on the evidence of more southern languages, conceivably the members of each pair could be cognate forms belonging to different protolanguages. The phonological developments necessary to relate the members are perhaps somewhat

problematic, but nevertheless entirely plausible. The hypothesis that the first member of each pair is in any case only assignable to an intermediate 'Proto-Northern-and-Wik' protolanguage would furthermore be in accord with the fact that Hale's (n.d. a) own lexicostatistical data at least weakly suggests that Northern Pama and the 'Wik' languages could perhaps join to form a higher level grouping excluding most of Hale's other 'Paman' languages (see Black 1974:4-5).

The likelihood that Hale's 'Proto-Paman' is a conflation of several protolanguages nevertheless probably has only minor consequences, at least as far as its use as a basis for drawing conclusions about phonological development is concerned. Perhaps one consequence can be seen in Hale's treatment of the development of initial $*t^y$ before $*i$ in the 'Wik' languages. Only one reconstruction is cited as bearing on this development: $*t^yin^yt^yu$ 'near' continues with initial ɬ in the attested 'Wik' languages (Hale 1976c:58). This form does however appear to force Hale (1976c:59) to derive such 'Wik' forms as yip , $yipe$, and even $\text{ɬ}i:piy$ 'south' from earlier $*yi:par$, even though Hale (n.d. b:9) elsewhere reconstructs an alternant $*t^yi:par$ to account for many of the cognates in more southern languages. Hale could have derived the 'Wik' reflexes from earlier $*t^yi:par$ had he reconstructed $*t^yin^yt^yu$ with an initial $*\text{ɬ}$, but he found little other evidence supporting a contrast between $*t^y$ and $*\text{ɬ}$. The form $*t^yin^yt^yu$ is however reconstructed solely on the evidence of the 'Wik' languages and the adjacent Kaantju and Umpila, and thus perhaps only occurred in an intermediate protolanguage later than Proto-Pama-Maric. Since the contrast between t^y and ɬ is found in these attested languages it would not be surprising if it was also found in such a recent ancestor as well. There is however very little cited evidence bearing on this hypothesis or on conceivable alternative hypotheses that could perhaps also involve such possibly related matters as the reconstruction of $*yuku$ 'tree' on the evidence of some forms beginning with initial t^y (Hale n.d. b:9). If the evidence were more substantial and straightforward, then it would perhaps force an adjustment in the reconstruction, whether through the distinction of protolanguages or the reconstruction of additional phonemes or both. It is precisely when the evidence is little and problematic that the conflation of distinct protolanguages can contribute to the imprecision of a reconstruction without making itself correctable. Even though such a conflation accordingly would perhaps tend to have few practical consequences, it is best avoided as far as possible and certainly should not be ignored when it cannot be avoided.

In the present study it proves neither feasible nor particularly

important for the purpose at hand to distinguish between potentially distinct protolanguages. Both previously proposed 'Proto-Paman' forms and forms newly reconstructed on similar principles are taken as a basis for drawing conclusions about the phonological development of Norman Pama. Since each of the reconstructions used in this way has a reflex in Norman Pama, each is assignable to some protolanguage ancestral to Norman Pama; the forms are accordingly called 'Pre-Norman Pama' (PNP) forms.

Some PNP forms are perhaps assignable only to the latest protolanguage shared by Norman Pama and an outside language. All other PNP forms furthermore must have continued into this latest protolanguage with or without having undergone non-trivial phonological change. Whereas it would have been desirable to avoid the possibility of such change by citing the shapes of the PNP forms just as would be appropriate for this latest protolanguage alone, it turns out that to the extent these shapes are likely to differ from those actually cited the evidence for their reconstruction is largely problematic. For example, the evidence of the languages most likely to join with Norman Pama in a higher level group could suggest that some instances of initial $*n^y$ became $*y$ in their latest common protolanguage: Hale's $*n^yura$ for example perhaps became $*yura$ before developing into Kr. $\ddot{o}:\tilde{r}$, Kk. $yira$, and KB and KN yur 'you (pl.)'. Compare however Hale's $*n^yulu$ > Kr. $la:-\beta$, Kk. yil , KB $yel(-uw)$, but KN \etaulan 'he, she'. The Kok-Nar (KN) form raises problems in any case, but it could be taken as evidence that the development of $*n^y$ to y was independent in the various languages. Alternatively $*n^y$ could still be taken to have become $*y$ in a still more recent protolanguage not shared by Kok-Nar and also incidentally not supported by any other substantial evidence. This and similar problems are simply left unresolved because they are irrelevant to establishing the phonological development of Norman Pama: since initial $*n^y$ and $*y$ could both be lost in Norman Pama, Kr. $\ddot{o}:\tilde{r}$ 'you (pl.)' is as easily derived from $*n^yura$ as from $*yura$ < $*n^yura$. Until such problems are resolved however it remains possible that some pairs of PNP forms are not assignable to the same protolanguage. For example, whether $*n^yura$ is or is not assignable to the same protolanguage as $*Yimpa\tilde{r}(V)$, reconstructed solely on the basis of Kr. $mpa:\tilde{r}$ and KB $yimp\acute{e}\tilde{r}$ '(brown) snake', depends on whether the upper case $*Y$ in the latter reconstruction is taken to signify that a) the evidence is ambiguous for the reconstruction of $*y$ or $*n^y$, or that b) the form occurred in a protolanguage which had undergone a change of earlier $*n^y$ to $*y$.

It nevertheless seems likely that most of the PNP forms are cited in a shape appropriate to the latest reconstructable protolanguage. By the

same token the cited shapes would probably also tend to be appropriate to such earlier protolanguages as Proto-Pama-Maric if a basis for assigning the forms to these protolanguages exists or is discovered. In short, the newly proposed PNP forms do not differ in nature from 'Proto-Paman' forms. Even though the totality of these reconstructed forms do not necessarily represent any one particular protolanguage, they should nevertheless help research advance to point where this and other problems in the reconstruction can be resolved.

2. THE LANGUAGES

Kurtjar (Kr.) is rapidly dying out. Many younger people know at least a few words, and perhaps several dozen adults have some competence in the language, but the some dozen reasonably fluent speakers are all elderly, another dozen or so having passed away within the last ten years.

The Kurtjar call themselves *kurt^yar* and acknowledge an alternative name *kuŋkar*; the latter is probably taken from the word for 'north' in any of various other languages and apparently can also refer to such other nearby groups as the Kok-Nar. Kurtjar data was more commonly elicited under the latter name - e.g. as 'Kunggara' - by earlier investigators, who include N.B. Tindale, K. Hale, W.J. Oates and A. Healey, S. Keen (née Newland), B.A. Sommer, J.G. Breen, and P. Sutton. The present treatment of Kurtjar is based exclusively on my on-going research on the language begun in 1974.

Most attested Kurtjar data appears to be dialectally homogeneous. One old source however appears to attest a distinct dialect. This source is a manuscript 'List of Aboriginal Words [of the] Gilbert River District' taken down by H. Stuart-Russell in about 1894-95 and identified as Kurtjar by Sommer (1976a:134-5). At least three-fourths of the some two hundred words on this list match recent attestations of Kurtjar, although some appear to involve semantic inaccuracies: a form *Mirra* for example is glossed as '*Fish (general)*', but it is surely Kr. *miř* '*barramundi*'. Many of the remaining words are species names which perhaps simply remain unattested in recent work. What suggests that the list represents a distinct dialect is the fact that some of the forms it attests are clearly appropriate, but are rare in or absent from recent attestations of Kurtjar. For example, Stuart-Russell's *Aalga* '*spear*' corresponds to Kr. *a:lk*, which is however an uncommon synonym of Kr. *n^yt^ya:rkiry* '*spear*'; his *Morsh* '*rain*' was recognised by a Kurtjar speaker as *mu:rt^y*, but Kr. *ma:řiwuř* is otherwise used for '*rain*'; and his *Nilga* '*boomerang*' - probably phonemically *niŋy* - is

cognate to Kuthant *nil* 'boomerang', but the Kurtjar use *wu:rt*^y to mean both 'crooked' and 'boomerang'. This strengthens the case for the few other more obvious lexical differences, such as Stuart-Russell's *Nilbera* as against Kr. *riŋkař* 'ear', to be true dialectal differences rather than the result of elicitation errors. Whereas Stuart-Russell's form *IURANJERA* 'Tribe (Lower Gilbert)' could perhaps be a rendering of the name Kurtjar, it is not clear that it is meant to apply to the tribe whose language is attested in the list. Conceivably Stuart-Russell's data could actually be an attestation of Rib (see below), even though Sommer (1967a:135) has argued against this hypothesis.

Rib was probably a dialect of the same language as Kurtjar. Any former distinctions between Rib and Kurtjar have however disappeared, perhaps because the Rib and the Kurtjar were brought together on the various cattle stations in the area. Except for six words of 'Aripa' reported by Sharp (1939:450-2), Rib has only been attested within the last ten years and always from informants who are unlikely to have been Rib by ancestry. Sommer recorded Rib as 'Ngarab' from an informant whose father at least was probably Kok-Nar by tribe. Sutton recorded data from a Kunjen. I recorded data from two informants who claimed to be Rib - i.e. [^hrɪβⁱ] or [^hrɪβ^h] - but who appear to have been born in the territory of the Walangama, who are generally not distinguished from the Rib by contemporary Normanton sources (see Black 1976b). All of this Rib data appears to be distinguishable from Kurtjar only to the extent that it contains a few contaminations from other languages known to the informants: Sutton for example recorded a:bm 'Aboriginal man' (see Oates 1975:297) from his Kunjen speaking informant. Whereas Sommer (1976a:135) has cited two 'Ngarab' forms which appear to differ from their Kurtjar equivalents, both could in fact be Kurtjar forms: Kr. *n^yt^yal^yař* is 'hot' rather than 'ashes' and Kr. *yařikun* 'old man' is at least as common as its partial synonym Kr. *řu:miř* 'old man' or 'White man'. Conceivably some forms attested as synonyms in Kurtjar, such as the last two above, could have at one time distinguished Kurtjar and Rib as dialects, but there is no evidence that this was true. An alternative hypothesis, that the names Rib and Kurtjar actually referred to the same tribe and language, seems implausible only because the two groups were distinguished by Sharp (1939:450-2) and Tindale, the latter (most recently Tindale 1974:154) describing the inland location of the Rib in some detail. In any case, Rib will henceforth not be distinguished from Kurtjar in the present study.

Kuthant (Kt.) was a distinct language that is now virtually extinct. In recent years both Breen and I were able to elicit Kuthant data from a total of five informants - two now deceased - who remembered hundreds

of words and could put together some sentences, but who clearly lacked any real fluency. This data tends to be somewhat contaminated by forms from other languages, particularly Kukatj, which by the turn of the century had apparently become at least as dominant as Kuthant in the various mixed camps around the town of Normanton. There appears to be no systematic distinction between this recently attested data and either the 'Karrandee' word list in Curr (1886:306-9) or the 'Bourke District' wordlist submitted by Dutton (1904:24-5). Whereas Sharp (1939:449) noted that "Karandi and Kutanda are two local groups of one tribe which is usually known by the latter name", the contemporary informants recognised only the latter name, phonemically *kʉant*. Breen (1972:8) did however elicit the name 'Karindhi' for this language from a speaker of Ngawun.

Walangama (Wl.) is not only extinct but also almost completely unknown to contemporary informants. Fortunately up to three hundred Walangama words are attested in early sources, the most extensive being Palmer (1884:326-34), Curr (1886:310-3), Dutton (1904:25-6), and unpublished data collected by N.B. Tindale (1938). Black (1976b) is currently attempting to collate and analyse all known Walangama data.

The present treatment of Norman Pama involves most of the neighbourling languages and a number of more distant Pama-Maric languages to various degrees. The more distant languages generally only enter into the listing of the reconstructed forms in the Appendix, which also lists the abbreviations and data sources associated with all languages whose forms are cited with any frequency. Two of them however are noteworthy because they are Mari rather than 'Paman' languages: the Gugu-Badhun of Sutton (1973) was located in south-eastern Cape York Peninsula and the Bidjara of Breen (1973) is from south-central Queensland. Of the languages of the Norman Pama area, four enter primarily into the lexicostatistical comparison alone. Three of these are extinct and very poorly attested: Takalak is attested only by N.B. Tindale (1938), Mbara (off the Map to the southeast) has been treated by Sutton (1976a), and for Maykulan I have relied on salvage work currently being undertaken by Blake, Breen, and Sutton (personal communication). Oghundjan is perhaps not quite extinct, and for data I have been able to rely on the relatively extensive attestation by B.A. Sommer. The other three nearby languages - Kukatj, Kok-Nar, and Koko-Bera - play a more substantial role in the present study.

Kukatj (Kk.), formerly spoken to the west of Kuthant, now appears to have a single living speaker. The language - phonemically *kukətʰ* - was first attested in the 1960's by at least T.E. Dutton and S. Keen (née

Newland) and has subsequently been attested more extensively by Breen and by myself. Breen (1976a) has recently published a capsule description of the language and has kindly made his unpublished data available to me. For the most part however I have tended to rely on my data and analysis, even though I feel that Breen's data could tend to be somewhat more reliable than my own.

Kok-Nar (KN), formerly spoken north of Kurtjar, is now virtually extinct: only one of the five informants who provided data on this language in recent years is still alive. The language was first attested as 'Kundara' by Roth (1899) and more recently as kok nar by Keen, Sommer, and Breen, as kok ɲaŋ or oɣuŋɲaɽ by Sommer, and as kuŋɲaɽ or kuaŋɲaɽ by myself. The last two names could conceivably be Kurtjar compounds consisting of u:k 'language' followed by uŋɲaɽ and aŋɲaɽ respectively, and the name oɣuŋɲaɽ surely similarly begins with Oghundjan oɣ 'language'; these names are accordingly unlikely to be indigenous. The names kok nar and kok ɲaŋ on the other hand could both begin with KN kok 'language'; the fact that final *r became ŋ in Kok-Nar (see later) furthermore suggests that the roots nar - also attested as narɿ - and ɲaŋ could perhaps be historically related if the difference between their initial consonants can be explained. The last pair of names have been taken as referring to different dialects by Oates (1975:292-4), Sommer (1976:134), and by Breen (1976b:243) in his capsule description of 'Gog-Nar' because Sommer found that data elicited under the two names shared only about 95% cognates, a figure reported as both 88% and 95% by Oates. A cursory examination of the data however leads me to believe that any apparent differences among the various attestations are simply due to varying degrees of contamination from the neighbouring Kurtjar and Koko-Bera languages. Sommer encountered an extreme form of this contamination when he elicited data from an informant who called her language kuaŋɲaɽ, but who switched to Kurtjar, the language she more commonly spoke in daily life, after the first few minutes of elicitation. Since the data elicited under this previously unreported name appeared to share 80% cognates with Kurtjar, Oates (1975:295-6) accordingly took 'Gwandar' or 'Guandhar' to be a dialect of Kurtjar. Sommer (personal communication) no longer maintains such a view. I subsequently experienced similar difficulties with the same informant: whereas I was better able to control for Kurtjar contaminations, I ultimately found that the data I obtained was greatly contaminated from Koko-Bera, in which the informant was also fluent. I have attempted to exclude all probable Kurtjar and Koko-Bera contaminations from the Kok-Nar data used in the present study, most of which is my own phonemicisation of unpublished data kindly made available by Sommer and Breen.

Koko-Bera (KB), to the north of Kok-Nar territory, is a living language that has been frequently mentioned in the literature. No large-scale description of Koko-Bera has however yet been published. All Koko-Bera data cited here is again my own phonemicisation of unpublished data kindly supplied by B.A. Sommer.

3. NORMAN PAMA AS A GENETIC GROUP

Kurtjar was one of the thirty 'Paman' languages and dialects originally treated by Hale (n.d. b), although its attestation was very limited and Hale drew few conclusions about its phonological development. Hale's 100-item lexicostatistical lists suggest that Kurtjar generally shares between 15% to 25% with Hale's other 'Paman' varieties, the highest of these percentages being with Koko-Bera (see Black 1974:4-5). In accord with these figures Kurtjar ('Kunggara') was subsequently classified as the sole listed member of a 'Gulf Pama' subgroup of Pama-Maric by O'Grady, Voegelin, and Voegelin (1966:54). Such nearby languages as Kuthant and Walangama were not however listed in the same classification.

The geographically more specific name 'Norman Pama' was introduced by Breen (1972:5-6) when he became the first to group Kuthant (his 'Gudhanda') and Rib with Kurtjar (his 'Gurdyar' or 'Gunggara'). Breen noted that Kurtjar and Kuthant appeared to share about 50% cognates, a figure clearly much higher than those cited above.

Sutton (1973:62) subsequently listed Walangama as an additional member of Norman Pama without citing substantial evidence. In the same place he also made two other proposals which he appears to have dropped more recently (see Sutton 1976a:102). Whereas he originally also took Takalak (his 'Dagalag') to be a member of Norman Pama, he has more recently suggested that Takalak is more likely to be a member of the Central Pama group to the north. Sutton also appears to no longer maintain his earlier hypothesis that Norman Pama joins with Einasleigh Pama (e.g. Mbara) and Gilbert Pama (e.g. Aghwamin and Mbabaram) to form a higher level 'Southern Pama' subgroup. Oates (1975:294-9) has however followed Sutton's 'Southern Pama' grouping without distinguishing the more solidly established groups that were taken to constitute it.

In the hope of clarifying the membership and higher level grouping of Norman Pama I undertook several lexicostatistical comparisons involving all adjacent languages plus two representatives of the Mari group, Gugu-Badhun and Bidjara. For the languages that were at least as well attested as Kuthant I calculated percentages on the basis of both an 88-item test list containing only relatively basic and well confirmed vocabulary and an expanded 143-item test list which included some poorly

confirmed items and also some less basic vocabulary, such as animal species names. The following table gives the percentages based on the 88-item list.

Kukatj	Kk.							
Kuthant	41	Kt.						
Kurtjar	40	<u>65</u>	Kr.					
Kok-Nar	27	34	35	KN				
Koko-Bera	25	29	32	36	KB			
Gugu-Badhun	27	27	27	24	22	GB		
Bidjara	22	20	22	23	22	<u>43</u>	Bd.	
Oghundjan	20	20	20	17	27	18	18	Og.

The percentages based on the 143-item list tended to be slightly lower and, perhaps in part due to the somewhat problematic nature of the additional data, to suggest less structure. In both comparisons, however, Kurtjar and Kuthant clearly join to form Norman Pama at 65% in the shorter and 64% in the longer comparison. The only other solidly supported grouping is that of the two Mari languages, Gugu-Badhun and Bidjara, which shared 43% in the shorter and 32% in the longer comparison. The percentages cited in the above table suggest that the outside languages most closely related to Norman Pama are Kukatj at 40-42%, Kok-Nar at 34-35%, and Koko-Bera at 29-32%, the remaining Norman Pama percentages ranging from 20-27%. The difference between these successively lower levels of percentages however are nowhere near a reasonable level of statistical significance (see Black 1976a:84-5, fn.3) and should be taken to only weakly suggest possible successively higher level groupings involving Norman Pama. The longer comparison shows even less support for most of these groupings: the percentages of Norman Pama with Kukatj, Kok-Nar, and Koko-Bera ranged more narrowly from 33% down to 27%. The percentages between Norman Pama and the remaining languages meanwhile ranged from 23% down to 16%, essentially the same range Kurtjar was found to share with various 'Paman' languages on the basis of Hale's data, as noted earlier. The percentages of the Mari languages incidentally tend to go against the assumption that the 'Paman' languages form a subgroup within Pama-Maric. This is clearly true if Oghundjan is taken to be a 'Paman' language, as it was by Hale. It is also clear that Kukatj, whose classification has been somewhat controversial (see Breen 1976a:151-3, 161), is certainly a Pama-Maric language.

Whether or not Norman Pama joins with such nearby languages as Kukatj, Kok-Nar, and Koko-Bera to form one or more higher level groupings will perhaps be determined as the comparative study of these

languages progresses. Conceivably any such higher level grouping could be found to contain additional languages not treated here. Alpher (1972:81-2) has in fact already suggested that Koko-Bera could join with such other languages as Yir Yoront to the north to form a higher level 'Southwestern Pama' group, and if it does, then surely Norman Pama, Kukatj, and Kok-Nar would also be members of 'Southwestern Pama'. The basis for the 'Southwestern Pama' grouping is however admittedly very weak, being based on the sharing of only three characteristics which are perhaps as likely to be shared retentions as shared innovations. Kurtjar in any case has all three characteristics: reflexes $-n\ddot{t} \sim -t \sim -n^y t^y \sim -t^y$ of an ergative suffix $*-n^y t^y u$, at least the remnants of a contrast between two past tenses, as in Kr. $ma-n^y$ and $ma-l$ 'took', and the marking of one of these past tenses by a morpheme whose allomorphs include $-l$. Where any such higher level grouping has not yet been firmly established, its possible existence makes it unsafe to assume that reconstructions based solely on the evidence of the languages of the Norman Pama area are representative of such an early protolanguage as Proto-Pama-Maric.

The above percentages do not touch on the relationships between Norman Pama and the languages treated by Sutton (1973:62), all of which are too poorly attested to enter into a comparison of even 88 test items. From a comparison of even the some forty items of basic vocabulary available for each, however, it is clear that the proposals dropped more recently by Sutton (1976a) are indeed not viable. Takalak scored from 27-23% with all of the languages treated above except Oghundjan, with which it scored 37%. As Sutton now suggests, Takalak is probably, like Oghundjan, a member of Central Pama. Mbara scored from 21-31% with various other languages. Whereas the higher of these percentages were with Norman Pama, Mbara is no more likely to join in a higher level 'Southern Pama' grouping with Norman than such languages as Kukatj, Kok-Nar, and Koko-Bera - perhaps less likely, considering the small amount of data on which these percentages were based. Maykulan, to the south of Kuthant, has never been proposed as an especially close relative of Norman Pama - it is in fact generally excluded from Pama-Maric - but it was nevertheless included in the comparison for good measure, and not surprisingly it was found to generally share less than 10% cognates with each of the remaining languages.

The lexicostatistical data on Walangama is more problematic. Not only is the data brief, but some half dozen of the more basic items can only be taken to be cognate with other forms if plausible but debatable assumptions are made. If Wl. $arw\ddot{u}r$ 'thigh', for example, reflects earlier $*t^y ara$ by loss of the initial consonant and the

addition of a second element *-wuŕ* - cf. Kr. *mali-wuŕ* 'arm' < **mala* - then it can be taken to be cognate to such forms as Kr. *ða:ř* 'thigh'. The percentages of Walangama furthermore tend to be very sensitive to the choice of the particular items for use in the comparison. In three comparisons involving from 38 to 64 test items Walangama was found to share from 34-55% with Kurtjar and from 42-55% with Kuthant, the percentages between Kurtjar and Kuthant ranging from 60-71%. In the same comparisons, however, Kukatj was also found to share some 45% cognates with Kurtjar and Kuthant and up to 60% with Walangama, depending on how the cognates were counted. The percentages of such other languages as Koko-Bera on the other hand were below 40%. These percentages do not suggest that Walangama is any more closely related to Kurtjar and Kuthant than Kukatj is, but clearly they do not provide a solid basis for ruling out this possibility.

A hypothesis that Walangama was a member of Norman Pama would thus not be particularly appealing, were it not that Walangama appears to have undergone some rather striking phonological developments similar to those found in Kurtjar and Kuthant. In particular, whereas such geographically and lexicostatistically close languages as Kukatj, Kok-Nar, and Koko-Bera are 'initial preserving' languages, Kurtjar, Kuthant, and Walangama all lost at least some initial consonants: e.g. PNP **t^yili* > Kk. and KN *yei* and KB *t^yei*, but Kr. and Kt. *i:l* and Wl. *ei* 'eye'. Walangama is furthermore similar to Kurtjar and Kuthant in that it also appears to lose the vowel following a lost initial consonant in some forms: e.g. **t^yalpar* > Kk. *ǰalpɨr*, but Kr. *lβa:ry*, Kt. *lpa:ř*, and Wl. *lperɨ* 'beard'. The question of whether these similarities should be taken to support the membership of Walangama in Norman Pama regardless of the inconclusive lexicostatistical evidence will be examined after the phonological development of Kurtjar and Kuthant alone has been treated in detail.

4. PHONOLOGIES OF THE ATTESTED LANGUAGES

Kurtjar has the following inventory of consonants:

	bi-	apico-		lamino-		dorso-
	labial	alveolar	domal	dental	palatal ³	velar
stops:	p	t		t̪	t ^y	k
fricatives:	β			ð		ɣ
nasals:	m	n		ɳ	n ^y	ŋ
flaps:		r	ɾ			
trill:		ř				
lateral:		l				
semivowels:	w				y	

The contrast between p and β can be seen in $i:p$ 'father's mother' and $i:\beta$ 'father', otherwise p is usually found after nasals, an environment in which β does not occur. The distinction between the flap r and the trill \tilde{r} on the one hand and the retroflex flap or glide ɹ on the other appears to be supported by such pairs as $ri:mp$ 'bark (of tree)', $\tilde{r}i:mp$ 'stone' and $r\dot{i}nk$ 'black cockatoo', $\text{ɹ}\dot{i}nk$ 'spear (v. imp.)'; I am not however confident about these distinctions. All consonants occur initially and intervocalically and all except δ finally; final r however probably does not contrast with the cluster $r\gamma$.

Consonant clusters have the shape NS, where N is a nasal and S a stop - non-homorganic clusters include nk , np , and mt^Y - or the shape LC, where L is l , r , or perhaps \tilde{r} and C is either a) a homorganic NS cluster, b) any stop except p , or c) any labial or velar non-stop consonant. Clusters also can occur initially, intervocalically, and finally. Some of the more unusual clusters are illustrated in $nkunkur$ 'children', $yamt^Yan$ 'grandchild', $\tilde{r}nua:np$ 'to you (pl. dative)', $rmpa:l\gamma$ 'silver bream', $r\gamma i:l\beta$ 'sky', $lmu:r$ 'lame', and $rwa:n^Yt^Y$ 'rib'.

Kurtjar is here taken to have the following vowel system:

	front		non-front		
	unrounded	rounded	unrounded	rounded	
non-low:	i	ö	ɨ	u	diphthong: ua
low:			a		length marked by a colon (:)

Most possible contrasts can be found in monosyllables of shape CVC: cf. $wö:l k$ 'rat', $wu:k$ 'work', wuk 'all', $w\dot{i}k$ 'brother', $wi\dot{n}k$ 'good', $wi:k$ 'top of tree', $wa:l$ 'water', βal 'that (yonder)', and $kua:l$ 'hole'. Vowels can occur word initially in monosyllabic roots and in a very few longer roots, such as $i:y\dot{i}n$ (a man's name) and $a:\eta k\dot{i}t^Y$ 'handkerchief'. Vowels generally do not contrast with zero in word final position; the conjunction $u:$ 'or' and words bearing exclamation intonation could be exceptional. It could however be useful to posit underlying final vowels: contrast $\text{ɹu}\dot{\text{ɹ}}$ 'water goanna', erg. $\text{ɹu}\dot{\text{ɹ}}a-\eta k$ with $mu\tilde{r}$ 'emu apple', loc. $mu\tilde{r}u-\eta k$. Length is here taken to occur only on initial syllables except possibly in such apparently reduplicated forms as $mö:\tilde{r}mö(:)\tilde{r}$ 'women'. Alternations in length occur accordingly: $mu:k$ 'bone' for example loses its length in the compound $\delta\delta:\text{ɹ}\dot{i}-muk$ 'tailbone' (literally, 'anus-bone'). Phonetically the long vowels $i:$, $u:$, and $a:$ are typically both longer and lower - [e:], [o:], and [a:] respectively - than their short counterparts - [ɨ], [u], and [ə] respectively.

The vowel \ddot{o} is usually found only in initial syllables accompanied by length. Some informants however appear to have short \ddot{o} corresponding

to the *u* of other informants: e.g. *möřaŋk* or *muřaŋk* 'morning'. The diphthong *ua* is found with or without length only after consonants other than labials. Since the *u* of the diphthong tends to be unrounded, it would perhaps be better transcribed as *ɨ*, the phonemic status of which is however problematic.

The vowel *ɨ*, which never occurs with length, is problematic in several respects. Whereas it appears to contrast with short *i* for at least some informants, the environmental extent of this contrast remains unclear. Structurally on the other hand *ɨ* could almost be taken to represent short *a* - one of its historical sources (see later) - if *a*, *i*, and *u* in non-initial syllables were taken to be predictably long. This is because short *a* is generally not found in initial syllables: the one prime exception, *βa!* 'that', can however occur as a sentence meaning 'It's that one yonder.', and since its vowel is distinct from those in *wɨ!* '(It's) that one.' and *wa:!* '(It's) water.', it appears to preclude such an analysis. In the sequence $VC_1ɨC_2V$ furthermore *ɨ* could generally be taken to be predictable - C_1C_2 seldom if ever being a permissible cluster - and is in fact sometimes optionally phonetic zero: *ŋaŋiŋaβ* 'his, hers' for example is phonetically either [ŋəŋiŋəβ] or [ŋəŋŋəβ]. It is nevertheless at least not inconvenient to transcribe such occurrences of *ɨ* - generally they reflect earlier vowels historically and can probably be taken to the realisations of underlying vowels synchronically.

Stress is here taken to fall predictably on the first syllable of a word. Ultimately this analysis could prove simplistic because it entails that verb roots, which are relatively unstressed and show no vowel length contrasts, are at least phonologically part of the same word as whatever happens to precede them.

Kuthant appears to have a phonology much like that of Kurtjar. The consonant inventory differs however in two respects. Firstly, Kuthant lacks the fricatives *β* and *ð*, having *p* and *l* respectively corresponding to these Kurtjar phonemes: cf. Kr. *βi:ř*, Kt. *pi:ř*, a question marker, and Kr. *ða:ř*, Kt. *la:ř* 'thigh'. Some Kuthant informants also lack *ɣ*, but the *ɣ* of other informants tends to be confirmed by data reported by Curr (1886:306-9): Curr's 'aag' is attested as both *a:ɣ* and *a:w* 'mouth' and his 'yaang' is attested as *ɣa:ŋ* and *a:ŋ* 'blood'. Secondly, Kuthant appears to have a retroflex series *ŋ*, *ʎ*, and perhaps *ʑ*. Kuthant *ŋ* is well attested non-initially and appears to generally correspond to Kurtjar *n*: cf. Kt. *ma:ŋ*, Kr. *ma:n* 'neck' and Kt. *wuŋputʎ*, Kr. *wunputʎ* 'frilled lizard'. Kuthant *ʎ* is attested in relatively few forms, such as the negative imperative marker *ö:ʎ*. Kuthant *ʑ* is attested only after *ŋ*, as in *ŋkua:ŋʑař* 'north', and in probable

contaminations from Kukatj, such as taʒa:tɪk 'brown hawk'.

Kuthant consonant clusters are generally similar to those of Kurtjar. Kurtjar *lmp* however appears to correspond to *ŋp* in Kuthant: cf. Kr. kalmpurk, Kt. kaŋpö:rk 'kookaburra'. Kurtjar *ry* and *ly* furthermore appear to correspond simply to Kuthant *ř* and *l* respectively: cf. Kr. lβa:ry, Kt. lpa:ř 'beard' and Kr. ři:ly, Kt. řia:l 'story'.

Kuthant has a vocalic inventory similar to that of Kurtjar, but also possesses a diphthong *ia*. This diphthong is attested only in inter-consonantal position accompanied by length; it corresponds to some instances of *i* in Kurtjar: e.g. Kt. řia:l, Kr. ři:ly 'story'; Kt. řia:lk, Kr. ři:lk 'food'. Kuthant furthermore has contrastive length in non-initial as well as initial syllables: cf. Kt. t^yiku:ř, Kr. t^yi:kiř 'small' and Kt. n^yimö:ř, Kr. n^yimĩř 'sickness'. Stress in Kuthant is non-contrastive and falls on the first long vowel, or on the first vowel if none are long.

The non-Norman Pama languages most directly involved in the present study are Kukatj, Kok-Nar, and Koko-Bera. The consonantal inventories of these languages are subsets of the combined inventories of Kurtjar and Kuthant and are transcribed with the same symbols. Only Kukatj has retroflex consonants and only Kok-Nar perhaps has fricatives *β* and *ɣ*. Breen (1976b:245) notes that the apparent distinction of stops and fricatives in Kok-Nar is "somewhat blurred in the speech of the informants" and I suspect that there is actually no phonemic contrast. I have nevertheless transcribed fricatives whenever attested in at least one occurrence of a form, even though stops were also attested in other occurrences of some of these forms. The contrast between *r* and *ř* is problematic in Kukatj and Kok-Nar and lacking in Koko-Bera; I transcribe *r* for either an alveolar flap or a trill in such languages as Koko-Bera that lack such a contrast. Consonant clusters in the three languages are generally similar to those of Kurtjar but do not occur in initial position except in a few Kok-Nar forms not cited in the present paper.

Each of the three languages clearly distinguishes between at least five vowels *i*, *e*, *a*, *o*, and *u*; see Alpher (1972:70) and Breen (1976a:153 and 1976b:244-5). It furthermore seems useful to transcribe a sixth vowel *ə* of unclear status for all three languages, as Alpher does for Koko-Bera. In at least Kukatj perhaps *e*, *o*, and *a* could be reanalysed as *i*, *u*, and *ə* respectively plus length, which Breen (1976a) suggests could be contrastive for Kukatj. It appears necessary to transcribe a seventh vowel *ö* (Breen's *æ*) in a few Kok-Nar forms; the few apparent occurrences of a similar vowel in Kukatj however can probably all be attributed to contamination from Kuthant. For Kukatj an additional

vowel \dot{i} is transcribed in many forms; this is generally equivalent to the e that Breen transcribed even though he felt that it was predictable in at least some environments. My transcription of Kukatj vowels is however particularly unreliable.

Stress is contrastive in Koko-Bera and probably also in Kok-Nar and is transcribed acute when attested for a form in either language. Stress is not transcribed for Kukatj, although Breen notes that it could conceivably be contrastive.

Other languages play a relatively minor role in the present study; accordingly aspects of their phonologies are noted only when directly relevant to the discussion. The transcription of forms in such other languages generally employs the same symbols used for the languages treated above. Following the sources for such languages as Gugu-Badhun, however, the symbols b , d , d^{Y} , and g are transcribed even though p , t , t^{Y} , and k respectively would generally not be in contrast and could accordingly have been substituted.

5. PRE-NORMAN PAMA PHONOLOGY

All PNP forms involved in the present study are listed in the Appendix along with the evidence on which they are based. All are transcribed in accord with the phonemic inventory reconstructed by Hale for 'Proto-Paman':

	Consonants						Vowels	
	labial	apical	laminal	retroflex	velar			
stops	p	t	t^{Y}		k			
nasals	m	n	n^{Y}		ŋ		i	u
rhotics		r		ɽ			a	
lateral		l						
semi-vowels	w		y				length marked by a colon (:)	

The symbol C or V is used to represent a consonant or vowel respectively whose quality cannot be reconstructed with confidence. In such reconstructions as $*\text{ki}(:)\text{ɽ}(\text{V})$, the parentheses indicate that the evidence is ambiguous for vowel length and the presence of a final vowel.

All consonants are reconstructed in intervocalic position. All except $*\text{l}$, $*\text{r}$, and $*\text{ɽ}$ are also reconstructed word initially, although initial $*\text{n}$ is rarely reconstructed and does not occur in the present study. Whereas Hale did transcribe initial $*\text{ɽ}$, Alpher (1972:71-2) has shown that there is no evidence for a contrast between $*\text{ɽ}$ and $*\text{t}$ in initial position. Alpher himself employed the symbol $*\text{T}$ to represent whichever of the two phonemes did occur in initial position, but the

present study takes the phoneme to have been *t because it appears to correspond to d in Gidabal, a non-Pama-Maric language of New South Wales: compare Gidabal diran 'tooth' with *tira and cf. also Gidabal dulgu, Bd. yulgu, and GB, Dy. řulgu 'heart'. The only consonants reconstructed in word final position are *l, *r, *ř, *y, *n, and, in the present study, *n^y; cf. *t^yulan^y. Consonant clusters are reconstructed only between vowels and include a) l, r, or a nasal followed by a stop, and b) l followed by a homorganic cluster of a nasal followed by a stop. In the present study the clusters *rŋk, *rŋ, and *rm are also reconstructed in such forms as *mu(:)rŋka, *řu:rŋV, and *ŋu(:)rma respectively. Hale (1976c:60) reconstructed an additional cluster *yk in a form *yuyku. The sequence of *ki, apparently not reconstructed by Hale, is reconstructed in the present study largely on the basis of Kukatj evidence: see *ki:ŋal, *ki(:)r(V), and *ki(:)ř(V).

Whereas most Pama-Maric languages contrast lamino-dental ɟ and ŋ with lamino-palatal t^y and n^y, Hale was able to derive both series from a single laminal series in the protolanguage; see Dixon (1970) and Sutton (1976b) for further discussion bearing on this matter. The present study similarly finds no basis for reconstructing more than a single laminal series for any PNP stage. The development of *t^y in languages of the Norman Pama area is similar to that in various other languages to the extent that *t^y often became t^y before *i and became ɟ elsewhere. In Kukatj and Kok-Nar however *t^y became y in initial position before *i: e.g. *t^yili > Kk., KN yel, KB t^yel 'eye'. A similar change appears to have occurred in Koko-Bera in at least lá-yipəriy 'south' < *t^yi:par, in which the y however is no longer in initial position. In Kukatj y also appears to reflect *t^y at least after *a and before a vowel that is not reflected by zero: e.g. *ŋat^yantVkv > Kk. ŋiyantik 'my', *kat^yul- > Kk. keyil- 'cook, burn (tr.)'. PNP *n^y similarly appears to continue in these languages as y in initial position before at least what are now front vowels, as n^y after *i, and as ŋ otherwise, but the known instances are few. If the y reflexes of *t^y or *n^y do not result from a single innovation, then the evidence of these languages alone can be ambiguous for earlier *y, *n^y, or *t^y, the last especially if Koko-Bera evidence is lacking. In such instances upper case *Y is transcribed in reconstructed forms.

A few of the more western Pama-Maric languages, including Kuthant, Kukatj, and such Mari languages as Gunja, have two apical series: apico-alveolar t, n, and l and apico-domal or retroflex ɟ, ŋ, and ɭ. Since the latter occur in very few cognates considered in the present paper, they are not taken as a basis for reconstructing a second apical series even though no explanation is offered for their occurrence in the

languages other than Kuthant. Only η is involved in the Kuthant cognates, and it has been taken to be a reflex of $*n$ in either word final position or when preceded or followed by $*u$: thus $*t^Yilkan > Kt.$

$lka: \eta$, Kk. $yilk\dot{\eta}$, and Gn $\underline{d}ilga\eta$ 'moon'; $*manu > Kt. ma: \eta$, Gn. $ma\eta u$, but Kk. $m\dot{\eta}nkun$ 'neck'; and $*kuna > Kt. \ddot{o}: \eta$, but Kk. kon and Gn. $guna$ 'faeces'. These environments permit Kuthant to have $n < *n$ in such forms as Kt. $i: n$ 'foot' $< *t^Yina$ - cf. Gn. $\underline{d}ina$ and probably Kk. n^Yen 'foot' - but require that at least Kt. $kua: n$ 'grass' be treated as a borrowing of the similar Kurtjar form rather than as a regular reflex of PNP $*pukan$ 'grass'. No explanation is offered for the occasional occurrence of Kukatj $!$ as an apparent reflex of earlier $*r$, as in Kk. $ka! \dot{\eta}$ 'no' $< *ka: r\dot{i}$. Conceivably further research could reveal that the reconstruction of a distinct retroflex series is required.

Most other consonantal developments in the languages of the Norman Pama area are of a fairly obvious sort: e.g. $*p$ often continues as p . One noteworthy Kok-Nar development is the change of liquids to velars in now word final position. Clearly $*l$ became KN η even when followed by a vowel later lost in Kok-Nar: e.g. $*\eta amala > KN \eta am\acute{a}\eta$ 'big' and $*\eta apila > KN \eta a\beta\acute{e}\eta$ 'water'. This change accounts for the alternation in such forms as Breen's (1976b:249) $kimp\acute{i}\eta$ 'fire', loc. $kimp\acute{i}l-imp < *kimpal$. PNP $*r$ on the other hand apparently became KN η only if not followed by a vowel: cf. $*\eta an^Yt^Ya\dot{r} > KN \eta i\eta\acute{t}\acute{e}\eta$ 'tongue', but $*ka: r\dot{i} > KN ka\dot{r}$ 'no, not'. PNP $*r$ became KN k , again apparently only if not followed by a vowel: e.g. $*t^Yalpar > KN \underline{t}al\beta\acute{e}k$ 'beard' and $*\eta amur > KN \eta am\acute{e}k$ 'armpit', but $*wulkarV > KN wulk\acute{a}\dot{r}$ 'sawfish'.

A few Kukatj forms appear to show fairly striking but problematic changes. Kk. $yit(al)$ 'you (sg.)' $< *n^YVntV$ and Kk. $\eta at^Yi\dot{l}-$ 'climb' $< *n^Ya(:)n^Yt^Yi\dot{l}-$ appear to show loss of nasals before stops when the preceding consonant was a nasal, but Kk. $\eta in^Yt^Yi\dot{r}$ 'tongue' $< *\eta an^Yt^Ya\dot{r}$ does not show this development. Kk. n^Yen 'foot' $< *t^Yina$ and Kk. $\eta e\eta$ 'breast' $< *kuyu\eta V$ appear to show the nasalisation of an initial stop in monosyllables ending in nasals, but no such change is found in Kk. kon 'faeces' $< *kuna$. Perhaps Kukatj also has a reflex k of initial $*p$ in Kk. ken^Y 'ripe' $< *pi(:)n^YV$ and Kk. $key\dot{i}l-$ 'bite' $< *pat^Ya\dot{l}-$, but not in such forms as Kk. $pin\acute{e}lk\dot{i}n$ 'ear' $< *pina$. In any case the results of the present study do not depend on taking these problematic Kukatj forms as cognates.

Alpher (1972:78-9) has described a change of $*k$ to w after unstressed vowels in Koko-Bera and also in Yir Yoront, as in $*kutaka > KB kut\acute{e}w$, YY erg. $ku\dot{\eta}uw-\acute{a}l$ 'dog'. Perhaps such other cognates as GYm. $guda:$ and KT $kuta$ 'dog' are better taken as having lost earlier $*w < *k$ rather than as reflecting Hale's alternant $*kuta$. Gugu-Badhun furthermore

appears to have a w reflex of *k in at least the purposive suffix -wu < *-ku. Kukatj evidence provides the basis for reconstructing several other forms, including *kaŋka, *kat^yul-, and *ki:ŋal, in which initial *k also continues as w in a variety of languages. The environmental conditioning of these apparent w reflexes of *k remains however undetermined. Perhaps this problem relates to a number of other instances of seemingly sporadic consonant lenition or loss, such as in the Northern Pama languages Uradhi (see Hale 1976b:42), and Mpalitjan and Luthigh (see Hale n.d. a:10), in Umbindhamu (see Rigsby 1976:75), in Central Pama (see Sommer 1969:57-8), and in Norman Pama, whose problematic consonantal developments are treated later in the present study. The correspondences involved in these developments are so varied that they would not easily be resolved solely by the reconstruction of additional phonemes. Perhaps they will ultimately prove to be explainable in terms of regular alternations in the proto-language, but this in any case would be far beyond the scope of the present study.

Vowels are reconstructed only between consonants and in word final position. Often their reconstruction can be based on fairly straightforward correspondences among a wide variety of languages. Occasional forms, particularly pronouns with initial *n^y, offer difficulties: Hale (1976a:24) for example notes that the first vowel of Uradhi antu-βa 'you (sg.)' cannot be taken to be a regular development of that of either of the alternants *n^yintu or *n^yuntu reconstructed on the basis of his remaining evidence. Various individual languages furthermore have undergone such major vowel changes that their evidence is often ambiguous for the reconstruction of precise vowel qualities. This appears to be particularly true of the languages of the Norman Pama area. For one thing, Norman Pama, Kukatj, Kok-Nar, and Koko-Bera all lost final vowels, though largely independently: some final vowels conditioned other changes that are not shared by all of these languages. The evidence of these languages is accordingly often ambiguous for the reconstruction of final vowels and often, for similar reasons, for vowels in other non-initial syllables. Whereas Norman Pama vowel developments are treated in detail later, those of the other languages deserve some comment here.

Apparently *a became i or e in several environments in Kukatj, Kok-Nar, and Koko-Bera. One environment appears to involve a following *i separated from the *a by at least a labial consonant or cluster: e.g. *t^yami > Kk. ŋem 'fat', *Yampiṛ(V) > KB yimpér (Kr. mpa:ɾ) '(brown) snake', *t^yampi > KN ŋemp (but also Kr. ði:mp) 'nest', and *papi > KN pepŋaŋ (also Kr. i:p and Wik-Me'nh pep, with KB pupáyər being problematic) 'father's mother'. As the examples show, similar changes are

found in Norman Pama and the Wik languages, and the extent to which these changes are independent in the various groups is not clear. Kukatj also has an e or i reflex of *a before certain instances of *t^y that developed into Kk. y, as in *kat^yul- > Kk. keyil- 'cook, burn something'. Koko-Bera and Kok-Nar also have e < *a in many non-initial syllables that are now stressed: e.g. *t^yalpar > KN ʔalβék 'beard' and *kutaka > KB kutéw - but KN kúrak - 'dog'. Clearly this change did not occur in initial syllables - cf. *manu > KB, KN man 'neck' - and it apparently also did not apply when both the preceding and following syllable also contained *a: contrast *ɲamala > KN ɲamáŋ 'big', KB mar ɲamáyer 'thumb' (= 'big finger') and *pakaka > KN βakak, KB pakáw 'fish hawk' with *t^yalpar and *kutaka above. Apparently there were other environments in which it did not apply, in some of which the *a assimilated to an *u in the preceding syllable in Kok-Nar: cf. *pukan > KB pukán, KN βokóŋ 'grass', but also *wulkarV > KN wulkář 'sawfish'.

In Koko-Bera and to a lesser extent in Kok-Nar, *u also continues as e in many environments, including both initial syllables and stressed non-initial syllables: cf. *ɲamur > KB ɲamér and KN ɲamék 'armpit', *puŋu > KB peŋ 'paperbark ti-tree' and problematically KN βöŋ 'bark', and *puŋku > KB peŋk, but KN poŋk ~ puŋkuwal 'knee'. Remarks by Sommer (personal communication) suggest that different dialects of Koko-Bera alone could vary with respect to the conditioning environment. It seems clear however that the change did not apply to long *u: - cf. *ku:ku > KB, KN kok 'language' - nor to short *u when the following syllable contained *a - cf. *kuna > KB, KN kun 'faeces'.

Hale reconstructed vowel length only in initial syllables. This practice is generally followed here, although the Appendix does contain a few problematic forms in which length in the second syllable has been posited as well. Conceivably the protolanguage could in fact have had length contrasts in non-initial syllables, and possibly such a hypothesis could be used to explain various problematic reflexes of consonants and vowels as well as length, but at present there is little to suggest that such a hypothesis would be much more than an arbitrary device invoked to explain the problematic reflexes.

In treating the development of vowel length of the Norman Pama area it is convenient to view PNP length as a prosodic feature. Assume that if the first syllable of a PNP form was not long, then the second syllable was. Whereas the length of non-initial syllables would be predictable and need not be transcribed - here it will be transcribed within square brackets - this assumption simplifies the statements of sound change. In Norman Pama length would simply continue as length in many instances: e.g. *n^ya:ka-la > Kr. kił 'saw (v. pst.)' - in which

the long syllable has been lost - but *wuka[:]-la > Kr. kua:l 'gave'. As described later however the Norman Pama languages have undergone some changes in vowel length. In Koko-Bera and Kok-Nar length would continue as stress: e.g. *n^ya:ka-la > KB, KN n^áka:l 'saw (v. pst.)' but *pan^yt^yi[:]- > KB pin^yt^yé- and KN βin^yt^yé- 'be burning'. Kok-Nar in particular however appears to have undergone changes in length or stress - cf. *kuta[:]-ka > KB kutéw, but KN kúrak 'dog' - and the same appears to be true of some Koko-Bera reflexes that appear only as bound forms, such as KB pumérir 'father's sister' < *pi:muṛ. Possibly PNP length distinctions also continue to some extent as qualitative distinctions in Koko-Bera and Kok-Nar, but the evidence is not clear: whereas, for example, long *u: > o in such forms as KB, KN kok 'language' < *ku:ku, short *u > u in KB kun, KN kun(uŋ) 'faeces' < *kuna, but short *u > o in KB, KN koy 'fish' < *kuyu. Conceivably Kukatj could also continue PNP length distinctions as qualitative ones, but the present transcription of Kukatj vowels is too unreliable to permit this to be determined.

At present the evidence of the languages of the Norman Pama area alone is usually ambiguous for the reconstruction of vowel length in forms reflected as monosyllables: such forms show no stress contrasts in Koko-Bera and Kok-Nar and, as discussed later, have undergone vowel lengthening in Norman Pama. At the same time the evidence of these languages does not lead to the reconstruction of a long first syllable vowel in at least one of the very few longer forms that Hale reconstructed as having such a long vowel: Kr. ma:ry, KB ḡamér, and KN ḡamék 'armpit' continue PNP *ḡamu[:]-r rather than Hale's *ḡa:muṛ. Whereas this is but one problematic instance, it could perhaps appear glaring in the absence of substantial numbers of similar forms that confirm the hypotheses introduced above. Conceivably however such apparent problems could result from alternations in length in the protolanguage. Conceivably some putative alternations could continue in such languages as Kuuk-Thaayorre: Hale (1976b:58), for example, derives KT ṭa:maṛ ~ ṭamaṛ 'foot' from earlier *t^yamaṛ. Perhaps an alternation between the shapes *ḡa:muṛ and *ḡamu[:]-r could also explain the stress shift in Alpher's (1972:74) Yir Thangedl ḡámər 'armpit', erg. ḡámór, although Alpher has proposed an alternative hypothesis to account for this.⁴

The fact that length appears to be reflected as stress in Koko-Bera and Kok-Nar could suggest that phonetic stress was positively correlated with length in the protolanguage. Alpher (1972:71) has meanwhile maintained that stress fell predictably on the first syllable of 'Proto-Paman' forms. In either case however stress would be predictable and, if reconstructable at all, would not constitute a necessary environment

for any subsequent change. Whereas Alpher (1976:86-7) has in fact discussed 'stress-conditioned' initial dropping in Pama-Maric languages, he is actually treating stress as a motivating factor rather than a proper conditioning environment.

6. CONSONANT REFLEXES IN NORMAN PAMA

Three types of consonant reflexes are distinguished here: zero, lenited, and unlenited reflexes. PNP *k, for example, has a zero reflex in Kr. a:r 'no' < *ka:ri, a lenited reflex γ in Kr. γ a:t 'rotten' < *kat^Ya, and an unlenited reflex k in Kr. mu:k 'bone' < *muku. In any one specific protolanguage environment, however, any consonant has at most two of these types of reflexes: initial consonants have only zero and lenited reflexes, intervocalic consonants have only lenited and unlenited reflexes, and consonants in other environments have only unlenited reflexes. The conditioning of the apparent split of initial and intervocalic consonants is problematic and accordingly is discussed after the treatment of the specific reflexes of each type.

All consonants except possibly *t can have a distinct zero reflex in initial position, and in each instance this reflex is phonemic zero, i.e. the loss of that consonant. Lenited and unlenited reflexes are distinct only for stop consonants, most of which have at least two distinct lenited reflexes according to the environment of the following vowel. The following table lists the unlenited and lenited reflexes of stops as reconstructed for the latest common ancestor of Kurtjar and Kuthant. Some of these reflexes underwent further development in one language or the other.

	Lenited reflexes			Unlenited reflexes	
	Before *i	Before *a	Before *u	Before *i	elsewhere
*t ^Y becomes	γ	δ		t ^Y	t
*t becomes	(?)	r	(?)	t	
*p becomes	w	β	w	p	
*k becomes	γ		w	k	

The lenited reflexes continue unchanged into Kurtjar. Two underwent subsequent changes in Kuthant: *δ > Kt. l as in *t^Yara > Kr. ḏa:ř, Kt. la:ř 'thigh', and *β > Kt. p as in *pakaka > Kr. βakak 'eaglehawk', Kt. paka:k 'wedge-tailed eagle'. For the contrast between the γ and δ reflexes of *t^Y, see also *t^Yipa > Kr. yi:β 'liver', but *t^Yu(:)n > Kr. ḏu:n 'tail'. For the contrast between the w and β reflexes of *p, see *purt^YulV > Kr., Kt. wurḏul 'estuarine crocodile', *pi(:)n^Y(V) > Kt. wi:n^Y 'ripe', *pi(:)rV > Kr. wi:ř 'sweat', but *t^YiparV

> Kr. $\beta i:\bar{r}$, Kt. $\text{pia}:\bar{r}$ 'lily sp.'. For the contrast between the w and γ reflexes of *k, see *ku:r̄i > Kr., Kt. wu:r̄ 'string', but *kat^Ya > Kr. $\gamma a:t̄$, Kt. $\gamma a:t̄$ or $a:t̄$ 'rotten' and *ki(:)r̄(V) > Kr. $\gamma i:r̄$, Kt. $i:r̄$ 'a mark, track'. The apparent loss of γ in the last two Kuthant forms is idiosyncratic to particular informants, as noted in an earlier section. The only two instances of reconstructed intervocalic *t that continue into Kurtjar and Kuthant have the lenited reflex r: *kutaka > Kr., Kt. rua:k 'dog' and *kata- ~ *kati- > Kr. riy-, Kt. cont. ri-m 'go'.

The unlenited reflexes of stops continue unchanged in Kuthant with one exception: apparently *t̄ < *t^Y became Kt. t when followed by *i in the Norman Pama protolanguage: e.g. *pit^YarV > *t̄ia:r̄ > Kt. $\text{tia}:\bar{r}$, Kr. $\text{t}^Y a:r$ 'dream'. Similarly Kt. $\text{tia}:\bar{r}$ and Kr. $\text{t}^Y a:r$ 'coolibah' would continue earlier *t̄ia:r̄, for which no outside cognate is known. The cited Kurtjar forms on the other hand show a development of *t̄i to Kr. t^Y when followed by a vowel. Evidence within Norman Pama suggests that *t̄ also became Kr. t^Y when preceded by *i(:) at a later stage: Kr. $\text{li:n}^Y \text{t}^Y$ 'lily sp.' should reflect an earlier form similar in shape to its Kuthant cognate $\text{lia:n}t̄$ 'lily sp.'. The same development accounts for the split of PNP ergative *-n^Yt^Yu into Kr. -n^Yt^Y ~ -t^Y after *i and Kr. -n̄t̄ ~ -t̄ after other vowels. This development presumably followed the change *ia > Kr. i, which in turn must have followed the change of *t̄ia:r̄ > Kr. $\text{t}^Y a:\bar{r}$ 'dream' since it did not apply to this form. For the conditioning of the unlenited *t̄ and *t^Y reflexes of PNP *t^Y, cf. *kat^Yar > Kr. $\text{t̄ir} \gamma$ 'smoke', *nult^Yur > Kr. $\text{l̄u:r} \gamma$, Kt. $\text{l̄u}r̄$ 'black', but *nat^Yi > Kr. a:t^Y 'mother's father'.

The unlenited *p reflex of PNP *p appears to have developed into Kr. β in nearly all environments except after nasals: e.g. *t^Yampar > Kr. $\text{mpa:r} \gamma$ 'goanna', but *t^Yalpar > Kr. $\text{l} \beta a:r \gamma$ 'beard'. The β in the last form cited is taken to be an unlenited reflex, even though Kr. β is also a lenited reflex of PNP *p, because no other stop has lenited reflexes after liquids. The unlenited reflex *p < PNP *p does however continue as Kr. p after a vowel in at least one form, Kr. i:p 'father's mother' < *papi. Perhaps the change of unlenited *p to Kr. β did not occur in word final position after the loss of final vowels. Then all instances of final β in reflexes would represent either a) lenited reflexes or b) the replacement of a regular p reflex of unlenited *p by analogy with the shapes of the stems when followed by affixes. It would not be surprising for Kr. i:p 'father's mother' not to have undergone such an analogical replacement because it is in fairly minimal phonological and semantic contrast with Kr. i:\beta 'father' < *pi:pa, whose final β could be a lenited reflex.

The other unlenited stops continue unchanged into Kurtjar and Kuthant. The same is true for the non-zero - indistinguishably lenited or unlenited - reflexes of *m, *n, *ɣ, *l, *r, and *r, the last however having reflexes transcribed as Kr., Kt. ř. PNP *n appears to yield Kt. n^Y before final *i in just one form, Kt. a:n^Y 'what' < *ŋa:ni. PNP *n^Y problematically appears to yield both n^Y and n before i: the only instances are *n^Yimura > Kr. n^Yimĩř, Kt. n^Yimö:ř 'sickness' and *n^Yinŋa > Kr., Kt. n^Yi:n 'housefly', but *n^Yipi > Kr. ni:β 'one' and *ka:n^Yila > Kr. nĩl, Kt. nĩlaŋ ~ t-a:nĩlaŋ 'elder sister'. Elsewhere *n^Y has a non-zero reflex ŋ, as in Kr. ŋa:ŋ, Kt. ŋa:ŋ-uk 'me' < *ŋan^YV. In Kuthant alone final *n^Y became ŋ, as in *t^Yulan^Y > Kr. lua:ŋ but Kt. lua:ŋ 'tree'; cf. also the correspondence between Kr. ɣa:ŋ and Kt. ɣa:ŋ 'blood' and between Kr. řiŋ and Kt. řiŋ 'a smell'. PNP *w continues as Kr., Kt. w except in certain environments which appear to involve a preceding *a. In now final position ɣ appears to reflect *w after at least *a: contrast *ku:wu > Kr., Kt. u:w 'nose' and *mu(:)wV > Kr., Kt. mö:w 'king salmon' with *t^Ya:wa > Kr., Kt. a:ɣ 'mouth' and *ŋil:łVw > Kr. łiɣ 'catfish sp.'. The sequence *a:wa in non-final position on the other hand appears to yield Kr. a:, as in Kr. ɣa:-łiŋ < *ka:way. Kr. ða:ɣ 'doorway, opening' perhaps also reflects PNP *t^Ya:wa with a ɣ reflex of *w now in final position, and its locative ða:-ŋk - also attested as ða:ŋkĩt^Y with a second locative suffix -t^Y - would regularly reflect earlier *t^Ya:wa-ŋku with a: reflecting the sequence *a:wa.

7. CONSONANT LOSS AND LENITION

The environment conditioning of zero reflexes or consonant loss in initial position is problematic: initial *k, for example, has a zero reflex in Kr., Kt. a:lk 'spear' < *kalka, but a lenited reflex ɣ in Kr., Kt. ɣa:ł 'rotten' < *kat^Ya. There is, however, a hypothesis that leaves relatively few reflexes unexplained. Suppose that initial consonants were regularly lost only in forms of earlier shape *CVCVC or longer, where C is any consonant or cluster and V a long or short vowel. This would account for the loss of initial consonants in such forms as Kr. wa:l, Kt. pa:l 'water' < *ŋapila, but not in such shorter forms as Kr., Kt. a:m 'person' < *pama. Such shorter forms would however regularly lose initial consonants when followed by affixes, as most of them can be. There would thus have been a regular alternation between initial consonants and zero: *mayi for example would continue as *mayi at this stage, but its purposive, (or dative) form *mayi-ku would continue as *ayi:-ku; see Alpher (1976:86-7) for a similar proposal. Through subsequent analogical levelling, however, most roots would have

come to be reflected by allomorphs that consistently lacked or possessed initial consonants: *mayi, for example, would continue regularly in Kr. ma:y 'vegetable', but through analogy in the purposive Kr. maya-k, whereas Kt. a:y 'vegetable' would be an analogical extension of the regular reflex of the suffixed form. A number of similar variations between Kurtjar and Kuthant or within Kurtjar alone enhance the appearance of this hypothesis: cf. Kr. wu:y, but Kt. u:y 'fish' < *ku:wu, Kr., Kt a:y 'mouth', but Kr. ða:y 'opening' < *t^ya:wa, Kr. ö:rŋk ~ nö:rŋk 'rumbling', Kr. lβu:w 'dark', but Kr. wulβuw, Kt. wulβuk 'night', and Kr. muṛ, but Kt. (and Kr.?) wumuṛ 'lily root'; the last two sets however would reflect earlier shapes *CVCVC(V).

This hypothesis does not account for the non-zero reflexes of initial consonants in reflexes of nearly a dozen of the some ninety forms reconstructed as having a shape *CVCVC or longer. Three exceptions are animal names: Kr. βakak, Kt. paka:k 'hawk sp.' < *pakakV, Kr., Kt. wurŋul 'estuarine crocodile' < *purt^yulV, and Kr. ya:ŋiṛ, but Kt. ŋiṛ (also ya:ŋiṛ?) 'turtle' < *pa:ŋVrV. These forms are often preceded by Kr., Kt. i:n^y 'animal' and its cognates in other languages, and perhaps this classifier acted as a prefix and thus preserved the initial consonants of the roots. Such other animal names as Kr. mpa:ry 'goanna' < *t^yampar do however show initial consonant loss. Two other exceptions are Kt. wiŋal- (but also -ŋal- 'bite' < *pat^yal-) and Kr. yimpil- 'take' < *yimpil-; perhaps the initial consonants were protected by verbal prefixes, but this cannot be said about any other verb. Other exceptions include Kr. maðāṛ 'root' < *mat^yarV, Kr. yiβan^yt^yik 'navel' < *yipan^yt^yikV, Kr. wi:βiṛ 'snot' < *ku:parV, and Kr. yi:riṅ^y 'Wunggu (section term)' < *yi:riṅ^y(V); see also the problematic reflexes of *t^yakal and *ŋamala. The loss of initial consonants in a few shorter forms furthermore can only with difficulty be attributed to analogical levelling: Kr., Kt. a:r 'no, not' < *ka:ri, for example, does not now take suffixes, although the Kukatj cognate ka|ŋ 'no' does appear to contain one.

Whether or not a hypothesis involving word length and analogical replacement is generally appropriate, evidence suggests that the loss or retention of at least some consonants involves other factors as well. Pronouns, for example, consistently show the loss of initial *n^y but no other consonant: e.g. *n^yVlu > Kr. la:-β 'he, she' and *n^yVntV > Kr. a:nt 'you (sg.)', but *t^yana > Kr. ðana-β 'they (pl.)' and *ŋayu > Kr. ŋa:y, Kt. ŋay-u:k 'I'. Whereas the retention of initial consonants in some pronouns can be attributed to their original CVCV shape, and the loss of initial consonants in others to analogy with suffixed forms of the pronouns, it would seem odd that this analogy would operate just

on those pronouns which originally began with *n^Y. Initial *n^Y could on the other hand be taken to have been lost consistently before what was at that time *a - all of the Kurtjar reflexes of pronouns with initial *n^Y do in fact appear to require the reconstruction of following *a, although somewhat problematically in view of the evidence of other languages.

Initial *m on the other hand almost always has the non-zero reflex Kr., Kt. m. In roots of earlier shape *CVCV or shorter, initial *m is lost only in its only occurrences before *i - in *min^Ya > Kr., Kt. i:n^Y 'animal' and perhaps in *mi(:)mi > Kr. i:m 'mother's mother' - and also in Kt. a:y 'vegetable' < *mayi, but not in its Kurtjar cognate ma:y 'vegetable'. Similarly, initial *t^Y is generally retained in forms of earlier shape *CVCV, the exceptions being Kr., Kt. i:l 'eye' < *t^Yili and Kr., Kt. a:y 'mouth' < *t^Ya:wa. The few reconstructed instances of initial *t also have only non-zero reflexes Kr. and Kt. r. The zero and non-zero reflexes of other consonants on the other hand appear to be distributed more randomly: e.g. *pama > Kr., Kt. a:m 'person' and *pi:pi > Kr. i:β 'father', but *pu(:)r > Kr. wu:ry, Kt. wu:r 'belly' and *pi(:)n^Y(V) > Kt. wi:n^Y 'ripe'.

Perhaps the tentative hypothesis of regular sound change followed by analogical levelling can be taken to explain initial consonant loss, with the apparent exceptions being attributed as appropriate to borrowing or the other possible factors noted earlier. Since however the explanation is hardly elegant, it seems worthwhile to point out an alternative possibility that could be considered in future research. Perhaps the loss of initial consonants is environmentally related to the equally problematic lenition of intervocalic stops discussed below. Whereas stops were also lenited in initial position, as in *kat^Ya > Kr., Kt. ya:t 'rotten', this could be taken to be subsequent change that applied to all initial stops that were not lost. In any case, it is only in intervocalic position that the lenition of stops remains problematic.

Whereas lenition in some Cape York languages reflects original length in the preceding vowel, lenition in Norman Pama appears to be unrelated to vowel length. For example *p was lenited to w after the short vowel in *n^YVpula > Kr. wa:l, Kt. wal-u:k 'you (du.)' and *k was lenited to γ after a long vowel in *t^Ya:kat^YV > Kr., Kt. γ+i 'spittle', whereas *k remained unlenited after a long vowel in *n^Ya:kala > Kr. ki:l 'saw (v. pst.)' and after a short vowel in *wukala > Kr., Kt. kua:l 'gave'. The first two etymologies cited are the only clear instances in which Kuthant is attested as having lenited reflexes of intervocalic consonants. Two or three attested Kuthant reflexes appear to have

unlenited reflexes corresponding to lenited reflexes in Kurtjar:
 *ŋapila > Kt. pa:l, but Kr. wa:l 'water', *ŋat^YanpV-kV > Kt. ʒa:npík,
 but Kr. ɔa:np(-ík) 'to me', and *pat^Yal- > Kt. -ʒal- ~ wiʒal-, but
 perhaps Kr. liðal- 'bite', if the Kurtjar form is taken as a cognate
 with an unexplained addition of an initial syllable li-. Some forms
 furthermore appear to continue with both lenited and unlenited reflexes
 in Kurtjar. The purposive suffix *-ku continues as Kr. -ɣ ~ -k, the
 latter allomorph appearing after consonants and also commonly after
 underlying final vowels preceded by liquids, as in wa:lí-k 'for water'.
 Kurtjar has a lenited ɔ reflex of *t^Y in maðař 'root' < *mat^YarV, but
 appears to continue the same root with an unlenited reflex in the com-
 pound maʒaři-luk, a tree from whose root a fish poison is extracted;
 Kr. -luk probably means 'sap': cf. Kr. lu:k 'sperm' and Kr. yu:ŋi-luk
 'milk (breast-sap)'. The root *tat^Yi- continues with a lenited reflex
 y < *t^Y in the imperative Kr. ɾay (or ɾayiy?) 'throw' and in the
 continuous Kr. ɾayí-nam (also ɾa-nam) 'throwing', but with an unlenited
 reflex in the purposive Kr. rat^Y-ík(uŋ) 'to throw'. Kr. imp. riyul-k
 'die', pst. rit^Yu-n^Y 'died' and, before all affixes, Kr. řiʒal- ~ řikal-
 'grab, touch' similarly appear to involve alternation between lenited
 and unlenited reflexes, although no outside cognates are known.
 Collectively these alternations do not suggest any simple environmental
 conditioning for consonant lenition, some of the alternants undoubtedly
 having been extended to additional environments through analogy.

The fact that a single morpheme can continue in Norman Pama with
 both lenited and unlenited reflexes could be due to a split that devel-
 oped in Norman Pama under yet undetected environmental conditioning.
 Alternatively it could be due to regular alternations in earlier proto-
 languages. Perhaps a hypothesis involving the latter would also serve
 to explain the various similar problems found in several other Pama-
 Maric languages, as noted in a preceding section.

8. VOWEL DEVELOPMENTS IN NORMAN PAMA

Vowels underwent the following three major developments in the order
 stated:

- a) The loss of all final vowels: e.g. *ku:ku > Kr., Kt. u:k
 'language'.
- b) The lengthening of short vowels in forms that had become
 monosyllabic: e.g. *pama > Kr., Kt. a:m 'person'.
- c) The loss of vowels exposed to initial position in forms that
 had remained polysyllabic: e.g. *ŋult^Yur > *ulʒu:ry > Kr. lʒu:ry,
 Kt. lʒu:ř 'black' and, with apparent metathesis as well, *wulkarV
 > Kr., Kt. lkua:ř 'sawfish'.

A variety of other changes, including a few specific to either Kurtjar or Kuthant, are treated in conjunction with each of these major developments.

The loss of final vowels is common to many languages of southwestern Cape York Peninsula, including most of the coastal languages from the 'Wik' languages south to Kukatj. The section on Pre-Norman Pama however noted several Koko-Bera and Kok-Nar vowel developments whose conditioning environments included final vowels or their absence. Koko-Bera and Kok-Nar accordingly appear to have lost final vowels independently from other languages. Similarly conditioned changes are found in Norman Pama. One noted earlier is problematic: either *n split to become Kt. ŋ word finally or when preceded or followed by *u and to become Kt. n elsewhere, or else it is necessary to reconstruct both *n and *ŋ. A second change is similar to ones found in other languages of the area: *a > Kr., Kt. i when separated from a following *i by at least a labial consonant or cluster, as in *papi > Kr. i:p 'father's mother', but not in *ŋat^yi > Kr. a:t^y 'mother's father'. Two other changes that must have preceded or accompanied the loss of final vowels are however both unproblematic and apparently confined to Norman Pama. These changes accordingly show that final vowel loss in Norman Pama was independent of the similar development in not only Koko-Bera and Kok-Nar, but such other languages as Kukatj as well.

One such change was a fronting of *u when the following syllable contained *a or *i, which when in final position were later lost. Usually *u in this environment continues as Kr., Kt. ö, as in Kr. ö:n, Kt. ö:ŋ 'faeces' < *kuna and Kr. ö:ř 'you (pl.)' < *n^yura; contrast *pu(:)r > Kr. wu:ry, Kt. wu:ř 'belly' and *put^yu > Kr. wu:t 'ti-tree bark'. After w < *k or *p, however, at least Kurtjar has a reflex i, as in Kr. wi:βiř 'snot' < *ku:parV and Kr. wila-β 'they (du.)' < *pula. Kr. wi:ř 'fire' < *puři accordingly provides comparative based evidence that the same change occurred when the following syllable contained *i, the only other evidence being from internal reconstruction: Kr. ö:rnk 'rumbling', for example, should reflect a form ending in *i because it takes -t^y rather than -t as an ergative suffix. When length was ultimately lost in non-initial syllables in Kurtjar, ö in such syllables apparently became i when the preceding syllable contained i and became u otherwise: cf. *n^yimura > Kt. n^yimö:ř, but Kr. n^yim+iř 'sickness' and compare also Kt. numö:rnk with Kr. numurnk 'ankle', probably reflecting a compound of *t^yina 'foot' and 'mu(:)rnka 'bump'.

The second such change was the addition of y to word final r and l: contrast *t^yampVr > Kr. mpa:ry 'goanna' and *ŋulkaI > Kr. lkua:ly 'meat' with *pit^yarV > Kr. t^ya:ř, Kt. tia:ř 'dream' and *ŋapila > Kr. wa:l,

Kt. pa:l 'water'. In Kuthant the *ry and *ly clusters that developed were later simplified to Kt. ř and l respectively, at least in the pronunciation of the available Kuthant informants, none of whom is fluent: e.g. *t^yalpar > Kr. lβa:ry but Kt. lpa:ř 'beard' and *ki:ŋal > Stuart-Russell's (Kurtjar) 'Nilga' (ŋily?), but Kt. ŋil 'boomerang'. Whereas the previously noted Kok-Nar velarisation of *r to k and of *l and *ř to ŋ is somewhat similar, the ŋ reflex of *l at least is not restricted to original word final position: cf. *ŋapila > KN ŋaβéŋ 'water'. The other evidence supporting the independence of final vowel loss in Kok-Nar and Norman Pama appears ample in any case.

In a few forms Kurtjar at least appears to have added y after final *i, thus preventing the loss of the latter: cf. *ŋa:ni > Kr. niy but Kt. a:n^y 'what', *ka:ri > Kr. řiy 'not (with verbs)' but Kr., Kt. a:ř 'no, not (with nouns)' and *n^yampVmi > Kr. mpa:m^y 'stinking turtle'. This addition of y does not appear to be general - cf. *t^yili > Kr. i:l 'eye' - and remains problematic.

As noted in an earlier section, both long vowels in initial syllables and vowels immediately following short initial syllables continue as long vowels in Norman Pama: e.g. *ku:wu > Kr., Kt. u:w 'nose' and *ŋulpVn(V) > Kr. lβu:n 'whirlwind', Kt. lpu:ŋ 'dust'. After the loss of final vowels, furthermore, any short vowel in a word that had become monosyllabic was lengthened: e.g. *pama > Kr., Kt. a:m 'person' and *t^yili > Kr., Kt. i:l 'eye'. This resulted in alternations such as attested in Kr. a:m 'person' < *pama, but erg. ma:-l < *pama[:]-lu and Kr. i:l 'eye' < *t^yili, but li:k w+l- 'look', the first element of which reflects the purposive *t^yili-ku. In Kurtjar alone length ultimately became non-contrastive in what are now non-initial syllables after vowels exposed to initial position were lost: whereas length in an originally non-initial syllable remains in such forms as Kr. ma:l 'person (erg.)' < *pama[:]-lu, it has accordingly been lost in such forms as Kr. βakak 'eaglehawk' < *paka[:]ka, although not in the Kuthant reflex paka:k.

Some Kurtjar reflexes of earlier compounds suggest that the second syllable was not lengthened after a short initial syllable if the third syllable contained a long vowel at some stage. Kr. ŋki:mpifř 'pubic hair' and Kr. ŋkuwuŋ 'testicles', for example, probably arose as compounds consisting of earlier *iŋkV > Kr. i:ŋk 'penis' followed by Kr. mpiř 'body hair, fur' and by Kr. wu:ŋ 'egg' respectively. The second syllable is accordingly lengthened as expected in ŋki:mpifř, but not before the following long syllable in *iŋkV-wu:ŋ > ŋkuwuŋ. A similar pair involving only roots reconstructable for PNP is Kr. li:w+l 'tear (noun)' and lumuk 'forehead', probably arising from earlier *ili < PNP

*t^yili 'eye' followed by *awil < PNP *ŋapila 'water' and by Kr. mu:k 'bone' < PNP *muku, respectively; Kurtjar incidentally also has noun sequences i:l wa:l 'tear' (= 'eye water') and i:l mu:k 'brow ridge' (= 'eye bone') in which reflexes of the same elements are again combined to denote similar meanings. Kr. li:wil 'tear' < *ili-awil suggests that the compound was formed before length became contrastive in the second syllable of *awil < *ŋapila, and hence before the initial syllable was lost; Kr. wa:l 'water' < *ŋapila, on the other hand, continues the second syllable with length. Kr. lumuk 'forehead' < *ili-mu:k meanwhile appears to have been formed after the vowels of monosyllables had been lengthened, as in Kr. mu:k 'bone' < *muku. The compound *t^yili-muku does however appear to be reconstructable for PNP on the basis of Kk. yelimuk 'forehead': either Kurtjar introduced length into the second element of this compound in analogy with Kr. mu:k 'bone', thus essentially reforming the compound, or else the reconstruction of a short vowel in PNP *muku, based primarily in GYm. mugu 'back', is not appropriate for the latest common ancestor of Kurtjar and Kukatj.

The third major vowel development listed at the beginning of the present section was the loss of vowels exposed to initial position in words that had remained polysyllabic. This loss is for example found in Kr. lβa:ry, Kt. lpa:ř 'beard' < *alpa:ry < PNP *t^yalpar but not in Kr., Kt. i:n^y 'animal' < PNP *min^ya, the latter having become monosyllabic through the loss of its final vowel. This development resulted in a regular morphophonemic alternation between initial vowels in monosyllables and zero in polysyllables formed through suffixation. A variety of Kurtjar roots continue to display such an alternation: cf. Kr. a:m 'person' < *pama, but erg. ma:l < *pama-lu, Kr. ö:n 'faeces', purp. nua:k < *kuna(-ku), Kr. a:t^y 'mother's father' < *ŋat^yi, but with the addition of a proprietive suffix, Kr. t^yi-miřik, Kr. imp. ak 'see' < *n^ya:kV - perhaps simply the root *n^ya:ka alone - but pst. kıl 'saw' < *n^ya:ka-la, and Kr. imp. il-k 'eat' < *ŋal-kV, but cont. nam 'eating', the suffix alone being -nam; the apparent loss of l before n probably involves a PNP alternation rather than a Norman Pama development (see 'Verb suffixes' in the Appendix).

This type of alternation is however no longer regular in Kurtjar. The language now has at least a few polysyllabic roots with initial vowels, such as i:y+ŋ 'a man's name', and a:ŋkıt^y 'handkerchief'. All noun roots of shape VC can furthermore at least optionally retain this shape before inflectional suffixes: Kr. a:m 'person', for example, has an analogical ergative a:mik in addition to the regular reflex ma:l. Whereas Kr. a- 'see' < *n^ya:- loses its vowel before some suffixes containing vowels, it now always retains its vowel in the continuous

a-nim 'seeing'. Some forms that provide evidence for the earlier regular alternation involve such additional sound changes and semantic specialisations that their common origin is probably no longer apparent to Kurtjar speakers: *t^yina 'foot', for example, continues as a verb formative in Kr. i:n na- 'be standing' and as the initial element of such now opaque compounds as Kr. numurŋk 'ankle', its instrumental *t^yina-n^yt^yu continues in Kr. ni:n^yt^y riy- 'walk, go by foot', and its allative *t^yina-ku continues in Kr. ni:k wɪβay- 'fall to the ground' (i.e. 'to one's feet'); perhaps the root is also reflected before a suffix -mp in Kr. ni:mp 'foot'.

The loss of such initial vowels was preceded by several other vowel developments. The most prominent of these was what could appear to have been the metathesis of initial *i and *ö < *u with the following consonant or cluster to appear before *a in the following syllable: e.g. *kimpal > *impa:lɣ > Kt. mpia:l 'fire' and *wuka-la > *öka:l > Kr., Kt. kua:l 'gave' - as the last example shows, the initial ö would be reflected as u in the second syllable. In Kurtjar alone the resulting diphthong *ia: subsequently became i:, as in *t^yiparV > Kt. pia:ř, but Kr. βi:ř 'lily sp.'. Sommer (1976b) has suggested that there are at least theoretical reasons for believing that such apparent metathesis results from the copying of the initial syllable vowel into the second syllable before the loss of the exposed initial vowel: the development of *t^yiparV into Kt. pia:ř for example would be expected to involve some intermediate stage - perhaps *ipi arV - in which *i occurred in both syllables. Evidence internal to Kurtjar does in fact support this hypothesis by suggesting that such vowel copying took place even when the initial syllable vowel continued to be preceded by a consonant and accordingly was not subsequently lost. Kr. ŋuŋkualk 'emu', for example, could reflect an earlier compound *ŋuŋk-a:lk 'seed-eater' - cf. Kr. ŋu:ŋk 'seed' and ɪl-k 'eater' - and Kr. mukuař 'bad' would appear to consist of some root mu(:)k - perhaps Kr. mu:k 'bone' < *muku, in which case the meaning would have shifted from 'bony' to 'bad' - followed by a common adjectival suffix having an underlying shape -a:ř. Alternatively however the u in the second syllable of ŋuŋkualk or mukuař could perhaps be taken to reflect a root final vowel, in which case copying need not have occurred. If copying, rather than metathesis, did occur, however, it could have preceded even the development of *ö < *u:, e.g. perhaps *wuka-la > *wukua-la > Kr., Kt. kua:l 'gave'.

Initial vowel loss was also preceded by several other vowel developments. The comparative evidence is however limited - often the available evidence appears to be ambiguous for the reconstruction of vowels in non-initial syllables - and sometimes appears to be contradictory.

My research on Kurtjar morphophonemics that could provide additional internal evidence bearing on these developments is furthermore still incomplete. It nevertheless seems worthwhile to attempt to relate these developments to each other in terms of a very general if presently somewhat speculative hypothesis.

(a) The sequence V_1CV_2 became $V_1CV_1V_2$ at least when V_1 and V_2 were the first and second syllable vowels respectively. The apparent metathesis of *u and *i discussed earlier would represent instances in which V_1 represents these vowels and V_2 represents *a. For other combinations of V_1 followed by V_2 , V_2 was subsequently lost, as it also was in the Kr. Ci reflex of *Cia < *iCa. Thus * η amur > *(η)amaur(γ) > Kr. ma:ry 'armpit' and with \ddot{i} apparently continuing earlier *i, * π i:muṛ > (p)i:miuṛ > Kr. mīṛ, Kt. t-i:mīṛaṭ 'father's sister'; for the t- prefix, cf. Kt. nīlaṭ ~ t-a:nīlaṭ 'elder sister' < *ka:n^yila. The evidence bearing on *i as V_2 includes *mayi > Kr. maya-k 'vegetables (purp.)' and the fact that Kr. a can appear before the ergative allomorph Kr. -n^yt^y < *-n^yt^yu that has been taken to have been conditioned by a preceding *i: Kr. ya:nīlka-n^yt^y 'groper (erg.)', for example, presumably reflects earlier *ya:n-alki-n^yt^yu 'crab-eater'; cf. Kr. ya:n 'crab' and Kr. ḍuṅkualk 'emu' ('seed-eater').

The above development is perhaps more easily described as having preceded the development of the ö reflex of *u, but the matter seems trivial. If vowels are found to have been copied into syllables beyond the second, then this copying surely occurred only before short vowels at a time before some such vowels were lengthened after short initial syllables: such forms as Kr. lumuk 'forehead' < *ili-mu:k show that *i in a second syllable assimilated to a long *u: in a following root-initial syllable rather than vice versa. The development of Kt. n^yimö:ṛ 'sickness' < *n^yimura in any case remains problematic if the first syllable vowel is accurately reconstructed.

(b) It is convenient to assume that the lengthening of a short vowel following a short initial syllable was actually a more general development that applied recursively from left to right throughout each word: e.g. *CV:CVCVCVC > *CV:CVCV:CVC and *CVCVCVCVC > *CVCV:CVCV:C. This pattern of alternating long and short syllables is incidentally reminiscent of Dyirbal stress, which falls predictably on each non-final odd numbered syllable (see Dixon 1972:274). The pattern would however have been broken by the occurrence of original long vowels in non-initial syllables in such compounds as Kr. lumuk 'forehead' < *ili-mu:k, as discussed earlier. After the lengthening took place and before vowels exposed to initial position were lost, short *a in non-initial syllables was raised to Kr., Kt. \ddot{i} , as in *t^ya:kat^yV > Kr., Kt. $\gamma\ddot{i}$

'spittle'. Contrast this with *pakakV > *βaka:k > Kr. βakak, Kt. paka:k 'hawk sp.', in which the short *a in the initial syllable continues as a. Evidence largely internal to Kurtjar suggests that short *u and *i also can continue as i, but only in syllables that remained non-initial after the loss of vowels exposed to initial position: PNP *pu:lpu, for example, appears to continue in Kr. wu:lβi-ŋk 'pear tree (loc.)', but *ku:wu continues in Kr. wu-ŋk 'nose (loc.)' and *yu:kura continues as Kr., Kt. kuř 'shade'.

This hypothesis of length in alternating syllables and the reduction of short vowels is perhaps well illustrated in the paradigm of the Kurtjar directionals. These directionals properly relate to the lie of the land - e.g. Kr. ya:ɬiŋ 'upstream' or 'upland' - but for brevity are here translated by the English cardinal directions that are equivalent as long as one remains within Kurtjar territory - thus ya:ɬiŋ 'east'. Each of the four main directionals has a distinct locative or allative and ablative:

	locative/allative		ablative
'north'	ŋkua:r-iyaŋ < *kuŋka:r-it ^y a:ŋ		ŋkua:-n ^y iŋt < *kuŋka:r-n ^y ant
'south'	βi-r-iyiŋ < *t ^y i:par-i:t ^y aŋ		βi-n ^y ant < *t ^y i:par-n ^y a:nt
'east'	ya:-ɬiŋ < *ka:-(i)t ^y aŋ		ya:-ŋiŋt < *ka:-n ^y ant
'west'	luŋ < ?		ŋunt < ?

The reconstructed roots given for 'north' and 'south' are essentially those appropriate for PNP except that they probably would have undergone initial consonant loss and vowel copying before non-initial syllables were lengthened. The root ya:- 'east' < *ka:- appears to ultimately reflect PNP *ka:way with the loss of both semivowels. The locative/allative morpheme is taken to have been -it^yaŋ at some stage; perhaps it reflects a morpheme ancestral to similar Northern Pama suffixes, such as Ur. -iðu, followed by *-ŋu, which generally continues as a genitive. The *t^y continues as a lenited reflex y after the first two directionals and as unlenited ɬ after the third, whose final *a: apparently conditioned the absence of the initial *i of the suffix. When the suffix followed a short syllable, as in βi-r-iyiŋ 'south', its initial *i became lengthened and the *a in its second syllable remained short to continue as Kr. i. When the suffix followed a long syllable, however, its initial syllable remained short and the *a in the second syllable was lengthened and accordingly continues as Kr. a. The ablative suffix shows a similar development.

A few vowel developments remain problematic. In particular Kurtjar and Kuthant sometimes differ in their vowel reflexes in verbs, as in *kanpil- > Kr. mpil-, but Kt. npal- 'cut'; see 'Verb prefixes' in the

Appendix. The origin of some instances of \ddot{o} furthermore remains poorly explained: see the reflexes of $*kVn^YVl-$, $*n^Yura$, $*VnVr(V)$, and $*YVpVt^YV$ in the Appendix.

9. WALANGAMA PHONOLOGICAL DEVELOPMENTS

Walangama forms cited in the present study are transcribed in accord with Black's (1976b) analysis of Walangama phonology on the basis of all known attestations. These attestations suggest that Walangama had a phonology much like that of Kurtjar and Kuthant, but the transcriptions tend to be too imprecise to permit a detailed comparison to be made with confidence. Six vowels - i, e, u, o, ə and a - appear in the present transcription; conceivably they could represent a three vowel system with contrastive length, and the possible existence of additional vowels cannot be ruled out. There is some basis for transcribing the fricatives γ and δ ; β also could perhaps have occurred but is not easily distinguished from p and w in the attestations. There is actually only weak evidence that γ and even more so δ are in contrast with k and \mathfrak{k} respectively; I am in fact confident of my transcription of γ in only one form, Wl. $lper\gamma$ 'beard'. Often such poorly transcribed distinctions as between t and \mathfrak{k} , n and \mathfrak{n} and between r and \mathfrak{r} have been made on the basis of comparative evidence. There is no basis for determining if Walangama had such distinctions as between alveolar and retroflex consonants, such as found in Kuthant, or between tense and lax stops, such as found in Central Pama languages.

To the extent that the generally imprecise and unreliable transcription permits conclusions to be drawn, Walangama appears to have undergone a phonological development much like Kurtjar and Kuthant. Here only the clear differences in development will be discussed in order to examine the question of whether or not Walangama should be taken to be a member of Norman Pama.

Walangama differs in two ways from Kurtjar and Kuthant with regard to the loss of initial consonants. First, nearly all attested Walangama reflexes appear to have lost initial consonants, even when their Kurtjar and Kuthant cognates show non-zero reflexes of these consonants: cf. $*muku >$ Wl. ok, but Kr., Kt. $mu:k$ 'bone'; $*\etaayu >$ Wl. iy, but Kr. $\etaa:y$, Kt. $\etaay-u:k$ 'I'; probably $*t^Yara >$ Wl. arwuj, but Kr. $\delta a:\bar{r}$, Kt. $la:\bar{r}$ 'thigh'; and perhaps $*ma\eta a >$ Wl. $o\eta enuw$ 'hand', $o\eta in\mathfrak{k}$ '(drink) with the hand', but Kr., Kt. $ma:\mathfrak{r}$ 'hand'; cf. also Wl. $\mathfrak{k}an$ but Kr. $wi\mathfrak{k}an$ 'short'. The best evidenced apparent exceptions are Wl. mem 'mother's mother' $< *mi(:)mi$ and Wl. 'roonjarah' ($\gamma on^Yt^Yur?$) $< *ku:n^Yt^YirV$. Secondly, the loss of at least initial stops was preceded

or accompanied by the prestopping of any following nasal separated from the stop by a short vowel: e.g. *pama > Wl. apm 'man', *t^yina > Wl. itn 'foot', and *kuna > Wl. utn 'faeces'. In the Central Pama languages, which show a similar development, this prestopping does not occur when the initial consonant was a nasal. This is probably also the case in Walangama, but evidence bearing on this point is limited: Wl. int 'you' reflects *n^yVntV, and Curr's 'innoo' 'you' is probably actually in 'me (acc.)' < *ŋan^yV. Clearly the prestopping in Walangama did not take place after long vowels: cf. *ka:n^yila > Wl. ənel (or aŋil?) 'sister' and *ka:n^ya > Wl. aŋ 'yamstick'. Conceivably the loss of initial consonants in Walangama was entirely independent from that in Kurtjar and Kuthant, as it surely was in such more remotely related nearby languages as Mbara and Oghundjan. To take the loss of initial consonants as evidence of the membership of Walangama in Norman Pama on the other hand would require a hypothesis including the following points: a) the development of prestopped nasals was a Norman Pama innovation preceding or accompanying the loss of some initial consonants, b) in Kurtjar and Kuthant the prestopped nasals developed into simple nasals, and c) Walangama lost additional initial consonants, whether by regular sound change or analogical levelling. Even so, development b) would be an innovation common only to Kurtjar and Kuthant.

Walangama also differs from Kurtjar and Kuthant in that it failed to lose long vowels exposed to initial position by the loss of initial consonants: e.g. *ka:n^yila > Wl. ənel (or aŋil, etc.), but Kr. nɪl, Kt. nɪla:ɬ 'elder sister', *ki:ŋal > Wl. eŋəl, but Kt. ŋil 'boomerang', and *ka:raŋkV > Wl. ariŋk, but Kr. riŋk 'black cockatoo'; see also *ma:t^yur > Wl. aður 'pelican'. Walangama does however agree with Kurtjar and Kuthant in losing short vowels in words that had remained polysyllabic: e.g. *t^yaɪpar > Wl. lpeɾɪ, Kr. lβa:ɾɪ, Kt. lpa:ɾ 'beard' and *pukan > Wl. kuen, Kr kua:n 'grass'. If the loss of short vowels did not occur independently in Walangama on the one hand and Kurtjar and Kuthant on the other, then at least the loss of long vowels is an innovation common only to Kurtjar and Kuthant.

Two other clear differences do not bear as strongly on the question of subgrouping. Kurtjar and Kuthant agree in having lenited r < *t in one instance in which Walangama clearly has an unlenited reflex t < *t, namely in *kutaka > Kr., Kt. rua:k, but Wl. tueɾ 'dog'. Kurtjar and Kuthant can however disagree with regard to lenition, whose conditioning in any case remains problematic. More generally the transcription of Walangama is too unreliable to permit the distinction between lenited and unlenited reflexes: the ɾ in Wl. tueɾ 'dog' for example could conceivably just be a misphonemicisation of k. A second difference

simply represents an independent innovation in Walangama: Walangama often appears to have an e reflex of *a where Kurtjar and Kuthant have the reflex a:. This is perhaps generally true in what is now non-initial position: cf. *t^yalpar > Kr. lβa:ry, Kt. lpa:ř, but Wl. lpery 'beard', *pukan > Kr. kua:n but Wl. kuen 'grass', and *kuŋkar > Kr. ŋkua:r-iyŋ 'north', but Wl. ŋkuer or ŋkueř 'east'; cf. also Kr. n^ya:n, but Wl. n^yen 'sun'. Probably the same reflex Wl. e < *a is also seen in *t^yilkan > Kt. lkia:ŋ, Kr. lki:n, Wl. (l)ken 'moon', although here Walangama could perhaps appear to have undergone a development of earlier *ia to e similar to the Kurtjar development. In initial position Walangama generally has an *a corresponding to Kr., Kt. a:, as in *pama > Wl. apm, Kr., Kt a:m 'man'. Wl. iy 'I' < *nayu and perhaps Wl. iŋ 'you' ('me'?) < *ŋan^yV, however, show an i (or e?) reflex of *a in now-initial position before laminals.

There are no other clear differences between the development of Walangama and that of Kurtjar and Kuthant. At least one of the similarities in development, namely the fact that final *r continues as ry in Wl. lpery 'beard' as it does in Kr. lβa:ry 'beard' < *t^yalpar, does appear to involve an innovation characteristic of Norman Pama. With regard to at least the loss of initial consonants - or alternatively the simplification of prestopped nasals - and the loss of any following long vowel however Kurtjar and Kuthant could have shared innovations not found in the development of Walangama. There is thus some reason to believe that Kurtjar and Kuthant are more closely related to each other than either is to Walangama, as the somewhat problematic lexicostatistical results discussed earlier would also appear to suggest. If Norman Pama is defined as the smallest genetic group containing Kurtjar and Kuthant, then this group would accordingly be unlikely to contain Walangama as a third member. Whereas Norman Pama could alternatively be defined in such a way to include Walangama, the fact that even such a major development as the loss of initial consonants could perhaps have occurred independently in Walangama leaves open the possibility that such other languages as Kukatj could perhaps ultimately be found to be members of Norman Pama under such an alternative definition. The present study has been written in accord with a third possible definition that leaves the classification of Walangama unresolved: Norman Pama is the largest genetic subgroup that includes Kurtjar but excludes Kukatj, which appears to be one of the most closely related non-Norman Pama languages.

N O T E S

1. I wish to thank the many people who helped provide me with a basis for writing the present study. They include many people in Normanton, especially Mrs. M. Casey, Mr. R. Gilbert, Mr. H. Harry, and Mr. J. Jack, who helped me undertake my fieldwork on the languages of the area, and such scholars as Dr. B. Alpher, Mr. J.G. Breen, Dr. B. Sommer, and Mr. P. Sutton, who gave me access to their unpublished data and in some instances provided me with valuable comments on various drafts on this study. [1980 note: Since the present paper was submitted for publication my research on Kurtjar, and also on Koko-Bera, has continued, and John Dymock has furthermore kindly pointed out an additional and extremely important source of Walangama data. Whereas this paper thus deserves to be re-written to correct many minor points, as well as its unduly convoluted style, the fact that all major conclusions continue to be confirmed makes it seem best to let the paper appear in its present form without further delay.]
2. Hale himself did not undertake the somewhat problematic task of assigning meanings to the reconstructed forms. For the sake of the present discussion however it seems safe to assume that protoforms usually had the meanings universally or at least generally attested for their reflexes, the exceptions presumably being too few to substantially affect the present argument.
3. Properly alveopalatal, the t^y furthermore being an affricate.
4. Alpher's hypothesis is basically that stress in Yir Thangedl shifted from the first to the second syllable when a third syllable followed: whereas $\eta\acute{a}m\acute{a}r$ 'armpit' reflects earlier $*\eta\acute{a}m\acute{u}r$, the ergative $\eta\acute{a}m\acute{o}r$ reflects earlier $*\eta\acute{a}m\acute{u}r\acute{u}$. The closely related Yir Yoront on the other hand would retain initial syllable stress on all relevant forms. Whereas this hypothesis provides the simplest explanation of the data Alpher considered, a more inclusive comparison could perhaps find that a more complex hypothesis is the appropriate one.

APPENDIX
RECONSTRUCTED FORMS

In order to stimulate further research this appendix not only contains solidly established reconstructions but also more problematic ones as well. Some of the latter, which are usually followed by a question mark in parentheses, will perhaps be shown to be incorrect by future research. Whereas most of the reconstructions are Pre-Norman Pama forms, a few have no reflexes in Norman Pama but do have reflexes in the poorly attested and neighbouring Kukatj and Kok-Nar languages. All known reflexes in Norman Pama, Kukatj, Kok-Nar, Koko-Bera, Gugu-Badhun, and Bidjara are cited. Reflexes in other languages are cited more sporadically. Those that have been cited previously are generally cited here only if they provide otherwise unobtainable evidence bearing on such features as vowel length or final vowel quality. The following three abbreviations are used to indicate that a reconstruction or an attested form was reported in a source associated with the abbreviation:

- A Alpher (1972)
- H Hale (n.d. b, 1976a, 1976b, or 1976c)
- S Sutton (1976a)

Abbreviations for language names and sources of data:

- Bd. Bidjara; Breen (1973)
- Dy. Dyirbal; Dixon (1972)
- GB Gugu-Badhun; Sutton (1973)
- Gn. Gunja; Breen (1971)
- GY1. Gugu-Yalandji; Oates and Oates (1964)
- GYm. Guugu-Yimidhir; Haviland (1972)
- KB Koko-Bera; Sommer (see text)
- Kk. Kukatj; Black, Breen (see text)

KN	Kok-Nar; Sommer, Breen, Black (see text)
Kt.	Kuthant; Black (see text)
KT	Kuuk-Thaayorre; Hale (1976c), Hall (1968)
Og.	Oghundjan; the Og-Ond ^y al of Hale (n.d. a and b)
Oy.	Oykangand; Sommer (1972)
Tj.	Tjaapukay; Hale (n.d. b)
Um.	Umpila; Hale (1976c)
Ur.	Uradhi; Hale (1976b)
Wl.	Walangama; Black (1976b)
YY	Yir Yoront; unpublished data kindly made available by B. Alpher

Grammatical abbreviations:

acc.	accusative
cont.	continuous
du.	dual
erg.	ergative
ex.	exclusive
imp.	imperative
in.	inclusive
inst.	instrumental
loc.	locative
pl.	plural
pst.	past tense
purp.	purposive
sp.	species
v.	verb

1. AFFIXES

Nominal Suffixes: In Norman Pama the reflexes of stem-final vowels in some instances became re-analysed as the initial vowels of suffixes. The ergative suffix *ŋku for example has in this way gained an initial vowel to continue as Kr. -aŋk or -iŋk which has spread by analogy to occur after nouns reflecting forms ending in consonants: cf. Kr. n^ya:n-t or, in analogy with other nouns, n^ya:n-iŋk 'sun (erg.)'. For simplicity, however, such possible re-analysis in Norman Pama and other groups is ignored and *-ŋku for example is accordingly taken to continue as Kr. -ŋk.

Ergative and Locative Suffixes: The many reconstructable allomorphs of the ergative and locative suffixes differed only in that those of the ergative ended in *u whereas those of the locative ended in *a. Since the allomorphs of each accordingly became homophonous in Norman

Pama after the loss of final vowels, they are here treated together. See Dixon (1972:9-11) and Sommer (1976c) for further discussion of these suffixes.

-ŋku/-ŋka (H) > Kr., Kt. -ŋk after nearly any stem whose last consonant is not k, Kk. and KN -ŋk after a few stems, GB and Dy. -ŋgu/-ŋga after at least dis-syllabic stems ending in vowels, Ur. erg. -ŋku.

-ku/-ka > Kr., Kt., and Kk. -k typically after stems denoting humans, Dy. -gu/-gu after trisyllabic or longer stems ending in vowels.

-n^yt^yu/-n^yt^ya (A *-n^yt^yv) > Kr. -(n^y)t^y after earlier *i and -(ŋ)ɿ elsewhere (the nasal does not occur if the last consonant of the stem is a stop preceded by a nasal) typically after stems whose last consonant is k, p, or ŋ; Kt. -n^yt^y and possibly other allomorphs; probably Wl. -nɿ; KN -n^yt^y on one stem, perhaps also found as the second element of the more widespread -ŋiməŋɿ; KB -nɿ; Oy. -n^yt^y after l.

-t^yu/-t^ya > Kr. -ɿ and Bd. -du/-da after ŋ.

-tu/-ta > Kr. -t and GB and Bd. -du/da after n.

-mpu/-mpa (H) > KN, KB, and Oy. -mp on a few stems, GYl. loc. -mpa after y, Ur. erg. -mpu; fossilised in Kurtjar in such place names as ɾayɿt^yamp, formed as a locative of ɾayɿt^y 'fig sp.', and perhaps also fossilised in Kr. ni:mp 'foot' < ? *t^yina.

(*-pu?)/*-pa > Sommer's (1976c:148) Og. and Ogh-Anggula loc. -β, Ikaranggal loc. -w; fossilised as -β in such Kurtjar forms as ŋku:β 'on the knees' (used before verbs meaning 'be' or 'go'), wu:ɾiβ 'along the string', and ma:ɾiβ or maɾaβ 'clapping' (i.e. 'with the hands'). Cf. *-pa in following section.

-lu/-la (H) > Kr., Kk., KB, Oy. -l, Ur. erg. -lu, probably KN -ŋ, used in each language with a very few nouns, such as Kr. ma:l, Kk. pəmɿl, KB pamel, Oy. abmal, Ur. amalu 'person (erg.)' < *pama-lu.

Other Nominal Suffixes include:

*-ku (H) > Kr. -y ~ -k, the latter after reflexes of stem final consonants and also typically after stems whose last consonant is a liquid; Kk., Kn -k, Bd., Dy. -gu, GB -gu after consonants and -wu elsewhere, Oy, -g ~ -y, Ur. -yu purposive (or dative) and usually also allative.

- *-ŋu (H) > Kr. -ŋ genitive on pronouns, also found fossilised in such forms as wa:lŋ 'wet' - cf. wa:l 'water'; KN -ŋ, GB -gu after consonants and -ŋu elsewhere; Dy. -u after nasals and -ŋu elsewhere; perhaps in Kk. -ŋin genitive; Ur. -ŋu and apparently Kt. -ŋ locative.
- *-n^Ya (H) > Kr., Kk., KN -ŋ accusative of some pronouns, Dy. -n^Ya optional accusative of nouns referring to humans.
- *-ŋVmV (?) > Kr. -ŋam(iŋ), GB -ŋumay ablative, perhaps also in KN -ŋiməŋŋ ergative and locative.
- *-a(:)rV-ŋV > Kr., Kt., Kk. -arŋ, KN -ar privative suffix.
- *-wVlVmV > Kr. -(a)lŋm, KN woləm 'having' suffix.
- *-ka(:)rV > Kr. -yar, Kk. -kəŋ, YY -kar semblative; GB -gad^Yi and Bd. gadŋi semblative could conceivably be cognate.
- *-pa > Kr. -β invariably found on all third person pronouns, Ur. -βa found on various pronouns.
- *-kan > Kr. kŋn 'female' (attested as a stem), Bd., Dy., GB -gan feminine suffix.
- *-t^Yu (H) > Kt. ŋ and KN ŋ (also t?) fossilised on such kin terms as Kt. nŋlaŋ, KN kanilaŋ 'elder sister', Yinwum -y ~ -ð suffix for junior kin.
- *-maŋaŋkV > Kr. -miŋaŋk, KN -marəŋk kin proprietive suffix.
- *-pat^YaŋV > Kr. (and Kt.?) -wiŋaŋ 'characterised by?' - cf. Kr. ŋkua:ŋ 'big', ŋkua:ŋi-wiŋaŋ 'big one' and mpu:n^Y 'fishing net', mpu:n^Yi-wiŋaŋ 'man's name' - KN paŋaŋ as in wara-paŋaŋ 'is spoilt', perhaps GB -baŋun 'proper' and Dy. -ba^Yun 'real, very'.
- *-para > Dy. -bara 'concerned with', probably fossilised as Kr. -βiŋ and GB -bara in various nouns: Kr. nua:βiŋ 'diarrhoea', for example, probably reflects earlier *kuna-para.

Verbal Suffixes. Most Kurtjar and Kuthant verbs have stem final consonants -l, -y, -r, -n, and -ŋ which are morphophonemically replaced by zero before nasals: cf. Kr. mpar- 'go around', imp. mpar-k, purp. mpar-t^Yik(uŋ), but pst. mpa-n^Y, cont. mpa-nim. Whereas Dixon (1972:54) similarly took Dyirbal verbs to end in -l or -y, treatments of other languages often take such consonants to be separate class-marking morphemes. In any case such final consonants are here included in the reconstruction of verb stems and as far as possible also in the citation of the reflexes of these stems.

- *-ku ~ *-ka (H) > Kr., Kt. -k imperative and future, Kk. -k imperative, -ka future, KN -k, GB -gu purposive, Ur. -yu imperative (second conjugation); in Kurtjar, Kuthant, and Kukatj, the k does not appear after stems ending in y.
- *-n^yu (H *-n^y) > Kr., Kt. n after y and n^y elsewhere, past; Kk. n past, KN -n^y ~ -n imperfect; Dy. -n^yu non-future after stems ending in y; Mpalitjan (H) -n(u).
- *-n (H) > Kr., Kt., Kk., Gb, Mpalitjan (H) -n past, Dy. -n non-future after stems ending in l.
- *-la (A *-l) > Kr., Kt., KB -l past on three verbs, Kk. -l imperfect, probably KN -ŋ past, Bd. -la past.
- *-ma > Kr. -m continuous in ri-m 'going', the allomorphs -nam ~ -nim for other verbs probably containing an additional element; Ur. -ma nonpast (third conjugation); perhaps KN -m ~ -nm ~ -β, ~ -p ~ -tp present and possibly also in Oy. -nm customary.
- *-n^yt^yara > Kr. n^yt^yař after purposive verbs, meaning unestablished; perhaps Kt. -n^yt^yař 'having' suffix on noun stems; Bd. -n^yd^yara on verb stems to indicate that the action takes place as the actor moves along.
- *-mpal- > Kr. mpil- 'cause, make' (follows a purposive verb or a noun), KN -mpa- 'became', KB, GB -mpa- transitive, Bd. -mpa- causative?, Dy. -mbal- ~ -mal comitative/instrumentive suffix.

Verbal prefixes in Norman Pama. Kuthant verbs are often preceded by prefixes whose meanings have not been established; these include Kt. i:-, mi-, and ři-. The latter two are probably cognate with the preverbal particles Kr. miy 'perhaps' and Kr. a:ř and Wl. ar, respectively; the latter appears to occur predictably before verbs that are not preceded by other particles or by non-subject nouns or time expressions. Probably the use of such forms as prefixes in Kuthant accounts for some differences in vocalism and lenition between Kurtjar and Kuthant verbs: cf. Kr. a:ř ðil-k but Kt. ři-řal-k 'Burn (it)!'. Only one preverbal particle, which however continues as an independent word in Kuthant, is reconstructed for PNP: see *ka:ři in the following section.

2. STEMS

- *kakay- > Kr. kay-, Kk. kakiy-, pst. kakə-n, KN kake- 'return, come back'.
- *kal- > Kr. řil-, Kk. kəl- 'put, leave be'.

- *kalka (H) > Kt., rarely Kr. a:l̩k, Wl. alk, KN, KB kalk, GYm. galga 'spear'.
- *kalŋka > Kr. a:l̩ŋk 'air bladder of fish?', Kk. kalŋk, Dy. walŋga 'breath', Oy. alŋg(a) 'belly' GYm. (brother-in-law language) walŋga 'heart'. Cf. A *walŋga 'swamp, hollow place'.
- *kami (H) > Kr. i:m ~ mi-miŋik (alternatively < *mi(:)mi, q.v.), KN kimŋáŋ, GB gami(-na), Bd., GYm. gami 'mother's mother'.
- *kamu (H) > Kk. kəm, Bd. gamu 'water', Um. kamu 'blood'.
- *kana-ŋka > Kr., Kt. na:ŋk 'now', also 'Right!' or 'Enough!', Wl. niŋk 'yes', KN kan ~ kanəŋk 'now'. The suffix is presumed to be the locative *-ŋka, q.v.
- *kanpil- > Kr. mpil-, Kt. (ŋi-)npal-, Kk. kempil-, KN kimpé- 'cut', perhaps Dy. gunba- 'cut', GB gunma- 'cut' and Bd. gunma- 'hurt'.
- *ka:n^Ya (H) > Wl. an, Bd. gana (n < *n^Yŋ), Gn. gaŋa, GYm. ga:ŋa, also in Kr. ɣa:n^Yt^Yiŋɣ 'yamstick'.
- *ka:n^Yila > Kr. nil, Kt. nila-ŋ ~ t-a:nila-ŋ, Wl. ənel or əŋel, Kk. kan^Yil, KN kanilát, KB káni-ɣər, probelmatically GYm. ga:na:l 'elder sister'.
- *ka:raŋkV > Kr. riŋk, Wl. ariŋk, KB káreŋk, Aghwamin (S) 'karəŋ'ari 'black cockatoo'.
- *ka:rki:lV (?) > Kr. rki:l 'sparrowhawk', GYm. ga:rgi:l 'hawk (generic)'.
- *ka:ri (H *kari ~ kara) > Kr. a:r 'no, not' (after nominal predicates), riɣ 'not' (before verbal predicates), Kt. a:r no, not', Wl. ar, Kk. kaŋiŋ, GYm. ga:ri, and with vowel assimilation, GB gaŋa and Bd. gaða 'no'.
- *kata- ~ kati- (H) > GYm. kata- ~ kati-, Tj. kara- 'come', perhaps Kr. riy-, Kt. imp. rit^Yar-k, cont. ri-m 'come, go'.
- *kat^Ya (H) > Kr. ɣa:ŋ, Kt. (ɣ)a:ŋ, KN, KB kaŋ, Bd, Gn. gad^Ya 'rotten' GYm. gada 'foul'.
- *ka:t^Yar > Kr. iŋɣ, KB káŋər 'smoke'.
- *kat^Yul- > Kr. ŋil-, Kt. (ŋi-, mi-, i:-)ŋal-, Kk. keyil-, KB wəŋél-, GB, Bd. waɣu-, GYl. wad^Yul- 'cook, burn something'. Cf. H *Ca:t^Yi- 'burn'.
- *ka:way (H) > Kr. ɣa:-ŋiŋ, abl. ɣa:-ŋiŋt, Um. ka:way 'east'.
- *kayVkv > Kr. ya:k, Kk. kek 'tooth'.

- *kimpal > Kt. mpia:l, KN kimpŋ, loc. kimpŋlimp, GB gaybal 'fire'.
For GB y < *m, cf. GB guyba, Bd. gumba 'give'. Cf. H *kampal(a) 'sun'.
- *ki:ŋal (H *waŋal) > Kt. ŋil, Wl eŋəl, Kk. keŋl, KB t^yeŋəl, GB, Bd. waŋal, perhaps KN win^yeŋ 'boomerang'.
- *ki(:)r(V) > Kr. yi:r, Kt. i:r, Kk. keŋ 'track, mark'.
- *ki(:)rV > Kr. yi:r(-lβiŋ), Kt. i:rŋlβiŋ 'long, tall', Kk. kiŋ 'high'.
- *ku:n^yt^yirV(?) > Kr. n^yt^yuŋ 'goanna sp.' and perhaps Wl. 'roonjarah' (yon^yt^yuŋ?) 'goanna'. Other apparent cognates are problematic for this reconstruction: cf. GB gund^yar 'sand goanna' and GYm. gungdir 'short red lizard species'.
- *ku:ka:rV > Kr., Kt. kua:r, KN kokar 'quiet', presumably *ku:ku 'talk' plus the privative *-a:rV, q.v.
- *ku:ku (H) > Kr., Kt. u:k, Kk. kuk, KN, KB kok, GB gugu, GYm. gu:gu 'language, talk'.
- *kukut^yV (?) > Kr. wu:t, GB gugud^yi 'egg'. Final *t^yi should however yield Kr. t^y; see also *kut^yumV.
- *kulumpVŋ(V)(?) > Kr. lu:mpŋr, KB kəlámpeŋ 'dew'.
- *kumpVŋ(V) > Kr. mpu:r 'white ant, ant bed', Kk. kompŋr 'ant (generic?)'.
- *kumpu (H) > KN komp ŋaw 'buttocks', GB gumbu 'buttocks', GYm. gumbu 'urine'.
- *kuna (H) > Kr. ö:n, Kt. ö:ŋ, Kr., Kt. purp. nua:-k, Wl. utn, Kk. kon, KN kun(uŋ), KB kun, GB, Bd. guna, Um. kuna 'faeces'.
- *kunka (H) > Kk. konk, GB, Bd. gunga, Oy. udng, KT kunk 'raw, alive'.
- *kun^yt^yi > KB kon^yt^y 'urine', KT kun^yt^y 'penis'; Kr., Kt. u:ŋŋ 'buttocks' would on the other hand reflect earlier *Cu(:)n^yt^yu.
- *ku(:)n^yt^yiy- > Kr. n^yt^yiy-, Kk. kon^yt^yiy- 'become broken'. Conceivably GYm. bund^yil- 'broken' could perhaps be cognate despite its final l, and could suggest reconstructing initial *p; cf. *pat^yal-, *pi(:)n^yV.
- *kuŋka(r) (H) > Kr. ŋkua:r-iyang, abl. ŋkua:-n^yŋnt, Kt. ŋkua:ŋŋaŋ, KB lă-kuŋkaŋiy, GB gungari 'north', Wl. ŋkuer or ŋkueŋ, Kk. kuŋkaŋ 'east'.
- *ku(:)ŋku > Kr. u:ŋk, KN kuŋk 'a smell'. H *n^yuŋka- 'to smell', on the other hand, would be expected to yield Kr. *ö:ŋk.

- *kuŋulV (A *kuŋul) > Kr. ŋu:l, KN woŋól, KB koŋol 'mosquito'.
- *kuŋuɾ(V)(?) > Kr. ŋu:ɾ 'shell sp.', KN koŋóɾ 'bailer shell'.
- *ku:paɾV > Kr. wi:βiɾ, KB kópəɾ 'snot'.
- *kuɾaŋV > Kr. ɾua:ŋ, Sharp's (1939:450) Kt., Wl. 'Ruang' and KN 'Kurang' 'Kurkila (section term)'.
- *ku:ɾ(u) > Kr. wu:ɾ 'string, sinew', KB kóriy 'string'.
- *ku:rumuku > Kr. ɾumuk 'kite sp.', GYM. gu:ɾumugu 'meat hawk sp.'.
- *kutaka (H) > Kr., Kt. rua:k, Wl. tuey, Kk. korik, KN kúɾək, KB kutéw 'dog'.
- *ku:t^YurV > Kr. ɬuɾ, KN koɬóɾ 'sugarbag bee sp.'
- *kut^YumV (?) > Kt. ɬu:m, KN kóɬam, KB kəɬém 'egg'. Kr. wu:ɬ 'egg' could perhaps reflect only the initial syllable, but alternatively it could reflect *kukut^YV, q.v.
- *ku:wu (H) > Kr. u:w, loc. wu-ŋk ~ u:w-ŋk, Kt. u:w, Kk., KN, KB kow, Bd. guwu, Gn. gu:, KT ko:w 'nose', perhaps also Wl. u(r?)kəl 'nose' (cf. Kr. u:w kua:l 'nostril') and wəɾ 'nose' (cf. Wl. awəɾ 'mouth' < *t^Ya:wa).
- *kuyu (H) > Kr. wu:y, Kt. u:y, Wl. uy, Kk., KN, KB koy, GB, BD., GYM. (rare) guyu 'fish'.
- *kuyuŋV > Kr., Kt. yu:ŋ, Wl. yuŋ, KN, KB koŋ, Flinders Island (S) uyona, perhaps Kk. ŋəŋ 'breast'.
- *kVn^YVl- > Kr. n^Yil-, Kt. pst. ɾi-n^Yö:-n ~ ɾi-n^Yt^Yö:-n, Kk. ken^Yil- 'chop, cut, break'.
- *mala (H) > Kr. maliwuɾ 'arm', ma:ɾ ma:l 'thumb', Kt. ma:l, Kk. məl 'hand', GYM. mala-dir 'right handed', Gn. mala 'arm', Bd. mala 'wing'.
- *ma:n- > Kr., Kt. man-, Kk. imp. man, GYM. ma:n-di: 'take'; cf. H *ma-.
- *manta (?) > Kr. ma:nt 'mother', KB mantán^Y 'grown female'.
- *manu (H) > Kr. ma:n, Kt. ma:ŋ, Kk. mənikun, KB, KN man, GB, GYM. manu, Gn. maŋu 'neck'.
- *ma(:)rkV > Kr., Kt. ma:rk, Kk. mərk 'wind feather'. Cf. H. *mara.
- *maɾa (H) > Kr., Kt. ma:ɾ, Kk., KN, KB maɾ, GB maɾa, Bd., Gn. maɾa, Um. maʔa 'hand', perhaps also Wl. oɾənuw 'hand', oɾiŋɬ '(drink) with the hand'.
- *mat^YaɾV > Kr. maɬaɾ, KN (Roth) 'ma-jar', perhaps Kk. məɬeɾ 'root'.

- *ma:t^Yur > Wl. a₁ur or a₂ur, KB má₁er, Um. ma:t₁uy 'pelican' (the *ma:t^Yur of O'Grady 1976:61).
- *mayi (H) > Kr. ma:y, Kt. a:y, Kk., KN, KB may, GB, GYm. mayi 'vegetable food', Bd. mayi 'tucker, fruit'.
- *mi(:)mi > Kr. i:m ~ mi-mi₁rik (alternatively < *kami, q.v.), Wl., Kk. mem 'father's father, mother's mother', Bd. mimi 'father's mother'.
- *min^Ya (H) > Kr., Kt. i:n^Y, Kk., KN, KB min^Y, GB, GYm. mi₁ga 'animal'.
- *muku (H) > Kr., Kt. mu:k, Wl, ok, Kk. mok, GB mugu 'bone', Bd., Gn. mugu 'knee', GYm. mugu 'back'.
- *mukur (H) > Kk. mok₁r, KB muk₁rir, perhaps Kr. u:r (with unexpected zero reflex of non-initial *k) 'father's brother'.
- *mulur(V) (?) > Kr. lu:r, Sharp's (1939:450) Kt., Wl. 'Lor', KN 'Malori' 'Banbari (section term)'.
- *mu(:)n^Yu > Kr. mu:n, Kt. mu:n^Y, Kk. mon^Y or mo₁n, KN mö₁ 'blacksnake', 'Ngaon' (Mbara?) (S) 'wor 'moinj' 'carpet snake'.
- *mu(:)ra (?) > Kr. mö:ř, perhaps KN miy₁ř, attested as 'moora' and such for Curr's (1887) lists 141-3 of Mari languages, 'cold'.
- *mu(:)r₁ka > Kr., Kt. mö:r₁k, Kk. mur₁k 'bump, lump'.
- *murkV > KN mork 'ground', KT murk 'stone'.
- *mu:ri > Kk. mo₁l, GYm. mu:ri 'hair'.
- *mu(:)wV > Kr., Kt. mö:w, Kk. mow 'king salmon'.
- *n^Ya:- (H *n^Ya-) > Kr., Kt. a-, Kk., KN, KB na-, KT na:- 'see'; cf. *n^Ya:ka-la.
- *n^Ya:ka-la > Kr. k+l, Kk. na₁k+l, KN, KB na₁kal 'saw (v. pst.)', GB, Bd., GN. na₁ga- 'see'; cf. *n^Ya:-.
- *n^YampVmi > Kr. mpa:miy 'stinking turtle', Kk. n^Yemp₁m 'turtle sp.'. Alternatively perhaps PNP *t^YampVmi, since Kk. could have nasalised the initial consonant; cf. *kuyunV and *t^Yina.
- *n^Ya(:)n^Yt^Yil- > Kr. n^Yt^Yil-, Kk. na₁t^Yil- 'climb'; for the loss of the preconsonantal nasal in Kukatj, cf. *n^YVntV.
- *n^Yimura > Kr. n^Yimi₁ř, Kt. n^Yimö:ř 'sickness', KT numur 'sweat', Curr's (1886:334) Mayabi 'nyamooroo' 'small-pox'.
- *n^Yi:na- (H) > perhaps Kr., Kt. na-, imp. i-k 'be', u:na₁ na- 'sit' (alternatively < *t^Yana-), perhaps Kk. imp. yen-m(a), cont. na₁na-n^Yt^Y, KN n^Yen-, KB n^Yine-, GB na₁na-, Um. ni:na- 'sit'.

- *n^yi(:)ŋa > Kr., Kt. n^yi:n, KN n^yinŋ, GB ɲinŋa 'housefly'.
- *n^yipi (H) > Kr. ni:β, Um. niʔi(-l ~ -lama), Ur. ɲipi-ma 'one'.
- *n^yura (H) > Kr. ö:ř, Kt. řö:-k, Kk. yira, KN, KB yur, GB, Bd. yuřa, KT ɲur 'you (pl.)'.
- *n^yVla (H) > Kr. la:-β, Kk. yil, KN ɲulaŋ, KB yel(-uw), GB, Bd. ɲula 'he, she'.
- *n^yVna > Kr. a:n, GB yina, Bd. yuna (also yuřana) 'you (sg. acc.)'.
- *n^yVntV (H) > Kr. a:nt, Kt. nto:k, Wl. int, Kk. yit(-al), KN yint, KB yen, Gb, Bd. yinda, Gn. inda, GYm. n^yuntu 'you (sp.)'.
- *n^yV:ntVr(V) (?) > Kr. ntir, Kk. n^yeŋɟil 'burrs or a grass sp. having burrs?'. Alternatively perhaps PNP *t^yi:ntVr(V); see the remarks under *n^yampVmi.
- *n^yVpula (H) > Kr. wa:l, Kt. wal-u:k, Kk. yuwil ~ wil, KN yupal, KB yipel, GB, yubala, Bd. yubalu, Um. ɲuʔula 'you (du.)'.
- *ŋakat^yaŋV > Kt. ka:ɟiŋ (borrowed as Kk. kat^yiŋ), KB ŋakáɟaŋ 'young girl'.
- *ŋal- > Kr., Kt. ɟl-, KN ŋal- 'eat'.
- *ŋali (H) > ŋa:l 'we (du. ex.)', Kt. ŋal-u:k, KN ŋaliŋ, KB ŋalin^y, GB, BD., GYm. ŋali 'we (du.)', Kk. ŋal 'we (du. in.)'.
- *ŋalVŋ- > Kr., Kt. laŋ-, KN ŋali- 'carry'.
- *ŋamala > Kk. ŋamɟl, KN ŋamáŋ, KT ŋamal, Oy. amay 'big', KB mař ŋamáyer 'thumb' (= 'big finger'), GB ŋamala 'many'. Kr. n^ya:mɟl 'big' would show unexpected first syllable length and n^y < *ŋ.
- *ŋamur (H *ŋa:mur) > Kr. ma:ry, KN ŋamék, KB ŋamér 'armpit'.
- *ŋana (H) > Kr. ŋa:n 'we (pl. ex.)', KN ŋanaŋ, GB ŋaŋa (ŋana?), Bd., GYm. ŋana 'we (pl.)', Kk. ŋan 'we (pl. in.)'.
- *ŋa:ni (H) > Kr. niy, Kt. a:n^y, Kk. ŋan^y, KB ŋəntíy, GB ŋani ~ ŋana, Bd., Gn. ŋani, Um. ŋa:ni 'what'.
- *ŋan^yV (H) > Kr. ŋa:ɲ, Kt. ŋaŋ-u:k, GB ŋaŋa-, Kaantju (H) ŋan^yi 'me (acc.)'; probably also Wl. 'Innoo' (iŋ?) glossed as 'you'.
- *ŋan^yt^yař (H) > Kr. n^yt^yi:ř (with unexplained i:), Kt. ɲta:ř, Wl. ɲter, Kk. ɲiŋtir, KN ɲiŋtér, GYm. ŋaŋda:ř 'tongue'.
- *ŋapila > Kr. wa:l, Kt. pa:l, KN ŋaβéŋ, Curr's (1886:325) Maykulan 'nabilla' (ŋabila?) 'water'.
- *ŋat^yanpa-ku > Kr. ɟa:nɟ(-ik), Kt. ɟa:nɟik, Kk. ɲiyanɲiŋ 'to me'; cf. purp. *-ku.

- *nat^Yanpa-ku > Kr. ða:ntik (erg. only), Kk. ñiyantik, KN ñu^ántæk 'my'.
- *nat^Yi (H) > Kr. a:t^Y ~ t^Yi-mi^{rik}, Kt. a:t^Y, Kk. ñet^Yi^{ik}, Bd., GYm. ñagi 'mother's father', GB ñad^Yina 'father's father', probably in Wl. t^Yəñəð 'mother's father' and owəñəð 'father's father'.
- *ñayu (H) > Kr. ña:y, Kt. ñay-u:k, Wl. iy, Kk. ñuwəl, KN ñuy, KB ñántuw ~ ñay, GB, Bd., Gn. ñaya, GYm. ñayu 'I'.
- *ñi:lVwV > Kr. liy, Kt. liw (liy?), Kk. ñiluw 'catfish sp.'.
- *ñit^YV (?) > Kt. ñi^{ik} (with unexplained short vowel), KN ñi^{ik}it 'father'.
- *ñulkal > Kr. lkua:ly, Kk. molkol (ñolkol?), KN ñolkón 'meat'.
- *ñulpVnV > Kr. lpu:n 'whirlwind', Kt. lpu:ñ, Kk. ñolpín 'dust'.
- *ñult^Yur > Kr. li^u:ry, Kt. li^u:ř, KB ñol^úór 'black'.
- *ñu(:)rma > Kt. ö:rm 'four-pronged spear', Kk. ñurm 'spear', GYl. ñurma- 'to test the balance of a spear'.
- *paka:ka > Kr. ðakak 'eaglehawk', Kt. paka:k 'wedge-tailed eagle', KN ðakak, KB pakáw 'fish hawk'.
- *pala > Kr. ðal 'that yonder' (with a rather than a: in analogy to such suffixed forms as ðal-ant 'that way'), KT. píl or pí!, Dy. bala- 'that'.
- *pa:lanV > Kr. lan, KB pélan 'sugarbag bee sp.'.
- *palpan > Kr. lpa:n (and walpan?) 'scar', perhaps Wl. 'peua' (lpen?) 'sores', GB balban 'body lump'.
- *pama (H) > Kr. a:m, erg. ma:-l ~ a:m-ik, Kt. a:m, Wl. apm, Kk. pəm, KB pam, KN ðam, GB, GYm. bama 'person'.
- *pankVrV > Kr., Kt. ñka:ř, Kk. pankir 'wife'.
- *pan^Yt^Yar (?) > perhaps in Kr. n^Yt^Ya:rkiry 'spear' (with unexplained n^Yt^Y < *n^Yt^Y), GYm. ban^Yd^Yar 'four-pronged spear'.
- *pan^Yt^Yil- (H) > Kr. n^Yt^Yal-, Kt. pst. n^Yt^Ya-n, KN ðin^Yt^Yé-, KB pin^Yt^Yél- 'be burning', also as a noun stem in Kr. n^Yt^Ya:ly 'flame, pain', n^Yt^Yaly-ař 'hot', KN ðin^Yt^Yéñ 'sick', KB pin^Yt^Yél 'pain', perhaps GYm. ban^Yd^Yil 'dry'; Kr. n^Yt^Yily 'dry' could be cognate to at least the last form cited, but it appears to require the reconstruction of a long first syllable.
- *pankapV > Kr. ñka:ß, KN páñkəß, KB pan^{ké}w, conceivably Kk. pa:k 'brołga'.
- *pa:ñVrV > Kr. ya:ñiř, Kt. ñiř (also ya:ñiř?), KB páñər, YY péñər; cf. GB bañguru 'turtle sp.'.

- *papi (H) > Kr. i:p ~ pi-miřik, KN περηάι, KB pupáyər, GB babina, Um. paʔi 'father's mother'.
- *pa(:)ri- (?) > Kr. βa:řik, KN βιřίη 'near, close'; the final consonants in the reflexes could perhaps reflect case suffixes.
- *parpVr (?) > Kr. rβa:ry 'sweet lily', KB pírpər 'lily root'.
- *patiy- (H) > Kk. petiy-, GB, GYL. badi-, Bd. badi- ~ bari-, Tj. pari-'cry'; cf. H *pa:ri-, A *pa:tʲi- 'cry'.
- *pa(:)tʲa (S *pata) > Kk. paɿ 'grass', KB paɿ 'ground', Manbara (S) ata 'ground', Gangulu (S) paɿala 'stone'; cognation with A *pa:tʲu 'fire' is problematic but not implausible: cf. Oy ukan 'grass' or 'grass fire'.
- *patʲal- (H *patʲa-) > perhaps Kr. liðal- with unexplained initial li-, Kt. wiɿal- ~ -ɿal-, KN payél-, KB paɿél-, GB, BD., Gn baɿa-, Um. paɿa- 'bite'. Kk. keyil- 'bite' appears to have k < *p; cf. *pi(:)nʲV and *ku(:)nʲtʲiy-.
- *pi:muř (H) > Kr. miř, Kt. t-i:miřaɿ, Kk. pi miř, KB pumérir, GYM. bi:muř 'father's sister'.
- *pina (H) > Kk. pinəlkin, Tj. pina, KB pin-ɿakél 'ear', perhaps with a suffix in Wl. 'knomora' (initial tn?) 'ear'.
- *pintV (?) > Kr. wi:nt ~ wintiwint, Kk. penipen 'flat'.
- *pi(:)nʲ(V) > Kt. wi:nʲ, KN βinʲ, KB pinʲ, perhaps Kk. kenʲ, and conceivably Kr. ma:nʲ 'ripe'.
- *pi:nʲtʲuwVr(V) > Kr. nʲtʲuwuř, KN pinʲtʲuweŋ 'catfish sp.'.
- *pi:pi (H) > Kr. i:β, erg. i:β-ik ~ βi-ŋk, Wl. yuw (i:β?), KB pip, Um. pi:pi 'father', Kk. pew 'father-in-law'.
- *pirampV > Kr. ři:mp, Kt. řia:mp, KN périmp, Mbara (S) ryw 'stone'.
- *pirV (?) > Kr. wiř (with unexplained short vowel), KN piřwak 'wide'.
- *pi(:)rV > Kr. wi:r 'sweat', Kk. piřiřira- 'sweat (v.)'.
- *pitʲarV > Kr. tʲa:ř, Kt. tia:ř, Wl. ker (tʲer?), KN miřeř (with unexplained m < *p), KB pičér, YY pičar, GYL. bidʲar (with unexplained final consonant) 'dream, totem'.
- *pukan > Kr., Kt. kua:n, Wl. kuen, KN βokón, KB pukán, Oy. ukan, loc. ukaŋ-ɿ 'grass'.
- *pula (H) > Kr. wila-β, Kk., KN pil, KB puluw, GB, Bd., GYM. bula 'they (du.)'.
- *pu(:)lpu > Kr. wu:lβ, Kk. polp 'pear tree'; cf. H *pulpu 'white'.

- *puŋku (H) > Kr. ŋkuyil 'knee', ŋku:β na- 'kneel', Kk. poŋkipal, KN poŋk ~ púŋkuwál, KB peŋk ~ peŋkət^Yit^Y, GB buŋguyal, GYm. buŋgu 'knee'.
- *pu(:)r > Kr. wu:ry, Kt. wu:ř, Kk. por 'belly'.
- *purt^YulV > Kr., Kt. wurɬul, Kk. porɬil, perhaps KB pərt^Yéř 'estuarine crocodile'.
- *purkalV > Kr. rkua:l 'lily stalk', KN porkól 'lily leaf'.
- *puři (H) > Kr. wi:r, KB peř, Bd., Gn. budi, Tj. piri 'fire'; Kr. erg. wi:řin^Yt^Y, KB erg. péřinɬ however suggest earlier *pu:ři-n^Yt^Yu.
- *put^Yu > Kr. wu:ɬ, GYm. buɬu 'ti-tree bark', KN βöɬ 'bark', KB pet, GB buɬu 'paperbark ti-tree', YY poɬ 'black tea tree'.
- *ta:kur (A, H) > Wl. 'aroorroor (ayur?), Ogh. (A) ayur, KT řa:k, Yir Thangedl (A) takər 'ground'.
- *ta(:)t^Yiy- (H *řa:-) > Kr. imp. řay(iy?), purp. řat^Y-ik(uŋ), Kt. imp. řaɬ, Ur. imp. řaɬi 'throw', KN řa- ~ řat^Y 'throw away', perhaps KT řaɬ 'chop', and conceivably GYl. daya- 'give'.
- *tira (A, H) > Wl. ir, GB řira, Bd. yira, Tj. tira 'tooth'.
- *tirikVlV (?) > Kr. ři:kil, YY lřr?l, conceivably KB rəkáyel 'Burdekin duck'.
- *turŋu (?) > Kr. řu:rŋ, KT řořŋkur 'soft, light in weight'.
- *tu(:)t^YV (?) > Kr. řu:t^Y, Kt. řu:t^Yiɬ, KN řitén, Kuku-Thaypan (Rigsby 1976:70) řuða 'husband'.
- *tVkal (?) > Kr. řiyal- 'hit, kill', Yidin (H) dagal- 'cut, chop'.
- *t^Yakal > Kr. ðakal (final ɣ expected), Kt. lakal, Kk. ɬakəl 'head', KB pin-ɬakél 'ear', GB ɬagal, Dy. d^Yagal 'jaw'.
- *t^Ya:kat^Ya > Kr., Kt. ɣit, KN, KB ɬəkáɬ 'spittle'.
- *t^Yalpar > Kr. lpa:ry, Kt. lpa:ř, Wl. lperɣ, Kk. ɬalpír, KN ɬalβék, GB ɬalbar 'beard'.
- *t^Ya(:)mi (H *t^Yami) > Kk. ɬem, Dy. d^Yami 'fat'; conceivably Kr. ða:mp and Kt. la:mp 'fat' could be cognate.
- *t^Ya(:)mpi > Kr. ði:mp, KN ɬemp, YY ɬap 'nest'.
- *t^Yampuka-arV > Kr. mpa:k, Kt. mpıya:ř, Kk. ɬampukar, 'Ngaon' (Mbara?) (S) 'm^lboala', Aghwamin (S) 'mbak' 'two'.
- *t^Yana (H) > Kr. ðana-β, Kk. ɬin, KN ɬanaŋ, KB ɬántuw, GB, Bd., GYm. ɬana 'they (pl.)'.

- *t^yanay- (H) > Kr., Kt. na-, imp. i-k 'be', Kr. i:n na- 'stand' (alternatively < *n^yi:na-), Kk. ɬaŋiy-, GB, Bd., Gn. ɟana-, Tj. t^yana- 'stand'.
- *t^yaŋkaɾ- (H) > Kt. ŋka:ɾ yawɬl-, Wl. ŋkeɾ, KN ɬənké(l?), KT ɬaŋkaɾ- 'laugh'.
- *t^yaŋkVn(V) > Kt. ŋka:ŋ, Kk. ɬəŋkɪn 'snake (generic?)', possibly KN yaŋkəŋ 'file snake'.
- *t^yara (H) > Kr. ɔa:ɾ, Kt. la:ɾ, Kk., KN ɬaɾ, possibly KB t^yirɪt^y, GB, Bd., Gn. ɟara, Tj. t^yara 'thigh'.
- *t^ya:wa (H) > Kr., Kt. a:ɣ, Wl. awəɾ, Kk., KN, KB ɬaw, GB ɟawa, Bd., Gn. da:, KT ɬa:w 'mouth', perhaps also Kr. ɔa:ɣ 'doorway'.
- *t^yili (H) > Kr., Kt. i:l, Wl. el, Kk., KN yel, KB t^yel, GB d^yili, Bd., Gn. ɟili, Tj. t^yili 'eye'.
- *t^yili-muku > Kr. lumuk, Kk. yelɪmuk 'forehead'.
- *t^yilkan > Kr. lki:n, Kt. lkia:ŋ, Wl. (l)ken, Kk. yilkɪŋ, Gn. ɟilgaŋ 'moon'.
- *t^yina (H) > Kr. i:n na- 'stand', perhaps also Kr. ni:mp 'foot'; Kt. i:n, Wl, itn, perhaps Kk. n^yen, GB d^yina, Bd., Gn. ɟina, Tja. t^yina: 'foot'.
- *t^yipa (H) > Kr. yi:β, KN yeβ, GB d^yiba, Bd., GYm. ɟiba 'liver'.
- *t^yi:paɾ (H) > Kr. βɪr-iyɪŋ, abl. βɪ-n^yant, KB lá-yipəriy, YY ɬipər, Um. yi:pay 'south', Wl. wer 'west'.
- *t^yipaɾV > Kr. βi:ɾ, Kt. pia:ɾ, KN yiβéɾ, KB t^yiper 'lily sp.'.
- *t^yulan^y > Kr. lua:ŋ, loc. lua:ŋ-ɬ, Kt. lua:ŋ, GB ɟulay, Mbara (S) lwaŋ 'tree'.
- *t^yu(:)n (H *tu(:)nV) > Kr. ɔu:n, loc. ɔu:n-t, KN ɬo(n)ŋ, KB ɬen 'tail', perhaps Um. ɬunpi 'glans penis' and GB ɟumbi 'tail, penis'.
- *t^yupu (?) > Kr. yu:β (*ɔu:β expected), GYm. ɟubu 'narrow'.
- *t^yut^yar > Kr. ɬua:ɾɣ, Dy. d^yud^yar, and problematically GB ɟuɟara and Bd. ɟuɟaɟ 'urine'.
- *wa(:)n^yt^yi (?) > Kr. wa:n^yt^y, Wl. wan^yt^y, Kk. ŋan^yt^y (with nasalisation of initial *w) 'left hand(ed)'.
- *wa:n^ya (H) > Yinwum (H) aŋa 'heart', Wik-Muminh (H) waŋa 'liver', perhaps Kk. wan^yɪŋən 'sated'.
- *waŋkaɾ (H) > Kr., Kt. ŋka:ɾ, Tj. waŋkaɾ 'up', GB waŋgaɾi 'east'.
- *wara (H) > Kr., Kt. wa:ɾ 'nothing', KN waɾəŋ, GYm. wara 'bad'.

- *wa(:)rkV > Kk. warkin 'hard', KN werk 'heavy', perhaps Bd. wargu 'bad'.
- *warukV (?) > Kr. wuřuk, KB w rék 'long ago'.
- *wa(:)t^YV (?) > Kr. wa:t^Y 'old fellow', Bd. wađu-řan^Y 'old man',
wađu-gan 'old woman'; perhaps also in Kr. wat^Yiwat^Y 'women'.
- *wu- (H) > Kr., Kt. imp. u-k, Kk. imp. yo-k, KB wa-, KYl, wu-, Gn wa-
'give'.
- *wuka-la > Kr., Kt. kua:l, Kk. yokil 'gave'; cf. *wu-.
- *wulkarV > Kr., Kt. lkua:ř, KN wulkář 'sawfish'.
- *wu:lpar(V) (?) > Wl. olwær, Kk. wolpär 'wind'.
- *Y: capital *Y can be ambiguous for *y, *n^Y, and sometimes also *t^Y.
- *Yampir(V) > Kr. mpa:ř 'snake (especially brown)', KB yimpér 'brown
snake'; YY pópoř and Bd. bumbařa 'brown snake' appear to reflect
a somewhat similar root *pumpařa.
- *yapu-t^Yu (H) > Kt. pa:ř ~ t-apa:ř, KN yiřát, GB yabuđana 'younger
brother'; Bd. has yabu 'father, father's brother', but also wabu
'younger sibling'; see also H *yapa > GYm. yaba 'elder brother'.
- *ya(:)t^YVy- > Kk. yeyey-, pst. yeya-n, GB yad^Yi-, Bd. yađi- 'laugh'.
- *YilamVIV > Kr. li:mil, KN yeliámén 'galah'; conceivably cognate with
YY kaləmər 'galah'.
- *yili-ŋamVŋV > Kr. i:l, Kt. liŋa:mŋ, Kk. yeliŋamiŋ 'heart', Bd. yili
'rib', Wakaman (S) alŋa:m 'kidney'.
- *YiliŋV > Kr. li:ŋ, Kk. yeliŋ, KN yele-m 'knowing'.
- *Yinpil- > Kr. yimpil-, Kk. yenpi-, KB yimpél- 'take'.
- *Yinpan^Y-t^YVkV > Kr. yiřan^Yt^Yik, KN yéřan^Yt^Yék, Bd. yibun^Y 'navel'.
- *Yi(:)rka > Kr. yi:rk, Kk. yerk 'lightning'.
- *yirmpa (A) > KB yirmp 'cloud, rain', perhaps Kk. yenp 'star'.
- *Yi:rVn^Y(V) > Kr. yi:řin^Y, Sharp's (1939:450) Kt. and KN 'Yering' and
Wl. 'Renia' 'Wunggu (section term)'.
- *Yit^Yar(V) (?) > Kr. yi:ř, Kk. yit^Yar 'body'.
- *yu:kura > Kr., Kt. kuř, KN yakér(or řakér?), GB yugura 'shade'.
- *YVnVr(V) (?) > Kt. nö:ř, Kn yenář 'plain turkey'.
- *YVpVt^YV (?) > Kr. řö:t^Y, Kk. yawiř 'frog sp.'.
- *CarakVIV > Kr. řa:kil, Ogh. ara:yel 'shoulder'.

*CikVr (?) > Kr. wi:ry, Sharp's (1939:450) Kt. 'Raker' (initial r̥ or
 γ?), Wl. 'Rer' (γer?), and KN 'Wakek' (with final k < *r) 'Kubaru
 (section term)'.

*Ci(:)rVŋ- (?) > Kk. yeřŋ-, KN ŋiřaŋ-, conceivably Kr. r̥ŋ- 'spear
 (v.)'.

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PHONOLOGICAL TARGETS AND NORTHERN CAPE YORK SANDHI

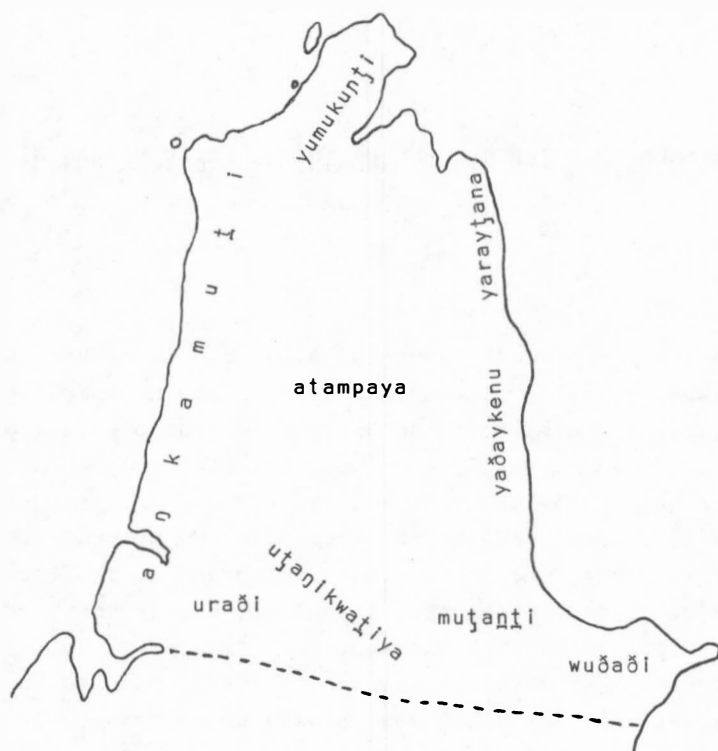
Terry Crowley

0. INTRODUCTION

The present paper presents certain facts concerning the phonological systems of three closely related languages of the northern Cape York Peninsula area. The discussion centres on the phonological alternations that can be observed operating over word boundaries in each of the three languages, though in different ways in each. The reconstructed proto-language, it is claimed, had no such set of alternations. This paper presents a likely explanation for the development of at least some of these sandhi rules in the daughter languages, namely that even though there was a shift in the syllable structure from CV(C) to (C)V(C), the daughter languages strictly maintained their adherence to the morpheme structure target that any two V must always be separated by at least one C. The further development of the sandhi system was triggered by the acquisition of two new phonological targets: the avoidance of CC sequences over word boundaries and the avoidance of utterance final V.

1. BACKGROUND

The languages which are the subject of this paper are Atampaya, Angkamuthi and Yadhaykenu.¹ The three languages form part of a fairly well-defined sub-group that occupied the northernmost tip of the Australian mainland. There were considerably more members in the sub-group originally, but only the three languages mentioned have survived to the present. The map following delineates the sub-group referred to and shows the probable original locations of its constituent languages and dialects.



Thus, on the eastern side of the Cape, the sub-group extended northward from just below Cape Grenville, while on the western side it extended from Port Musgrave north as far as the tip of Cape York. Atampaya is the language of the upper MacDonald River; the Uradhi described by Hale (1976) is a very closely related dialectal variant of this language, which is spoken on the upper Skardon River. Angkamuthi occupies a very narrow coastal strip from Port Musgrave in the south to just beyond the Jardine River in the north, and Yadhaykenu originally occupied the coastal area about midway between Cape Grenville and Cape York on the east coast.

Linguistic differentiation within the sub-group is not great, and we could argue strongly for the claim that the sub-group actually comprises a dozen or so dialects of a single language (some of which possibly border on mutual unintelligibility), rather than a collection of closely related languages. Lexical sharing (in percentages) between the languages discussed in this paper is:

Yadhaykenu	
78	Angkamuthi
72	65 Atampaya

Taking into account all the languages/dialects for which we have data, we find that lexical variation seldom exceeds 40 per cent and almost never exceeds 50 per cent. In their morphologies, there are occasional differences of form, but almost no differences of category, and the syntax patterns almost identically throughout the sub-group. The phoneme inventory is identical. Since it is necessary to have an idea of the phonological segments that occur in the languages, the system is presented in Table 1:

TABLE 1

	labial	apical	lamino-dental	lamino-palatal	dorsal
stop	p	t	t̪	tʃ	k
nasal	m	n	ɲ	ɲ	ŋ
fricative	β	ð			ɣ
lateral		l			
trill		r			
retroflex continuant					
semi-vowel				y	w
high vowel				i(:)	u(:)
mid vowel				*e(:)	
low vowel				a(:)	

*e(:) is a marginal phoneme at best, and its inclusion here may even be mistaken.

2. SANDHI IN THE NORTHERN CAPE YORK SUB-GROUP

In this section a body of data is presented in the form of a set of statements for each of the three languages studied which account for the alternations that occur when words are strung together in sentential or phrasal constructions and when words occur in isolation.

2.1. ATAMPAYA SANDHI

The sandhi rules of Atampaya are discussed below, as they affect each segment or class of segments that occurs word finally.

The first set of sandhi rules accounts for alternations with forms which in unmarked environments end in what could be symbolised as -N. The rules for the realisation of -N in these environments are: [ŋ] after a back vowel (either a or u) and a fronted velar [ŋ'] after the front vowel (i). For example, the following forms are encountered in elicitation:

'person'	[amaŋ]
'tree'	[yukuŋ]
'morning bird'	[iwiŋ']

(Note that the marginal vowel *e* does not occur in final syllables and so does not come into consideration here.) The environments in which such forms are heard are:

- (i) in elicitation
- (ii) when used vocatively
- (iii) at the end of a sentence
- (iv) at the end of a 'pause group' where the pause is actualised.

The generalisation we can make about these environments is that there is never any linguistic material following. If we are willing to misinterpret the term 'utterance' for the purposes of the present discussion, we can characterise these -N final forms as being in 'utterance-final' environments.

These same forms however, when appearing in sentences and phrases with following lexical material, have different realisations in Atampaya. If the following word has an initial consonant, then the segment characterised by -N is dropped. Thus, the examples given above appear pre-consonantly as:

'person' [ama]
 'tree' [yuku]
 'morning bird' [iwi]

as, for example, in the sentence:

- (1) [yuku wampaŋ]
tree-S float-PRES
'The tree is floating (on the floodwaters).'

However, if the following word in the sentence is vowel-initial, then the whole -VN is lost. So, the same set of examples has the realisations:

'person' [am]
 'tree' [yuk]
 'morning bird' [iw]

as illustrated in the sentence:

- (2) [yuk ana:lun]
tree-S go-PRES-TO SPEAKER
'The tree is coming this way (with the flood).'

There is another set of sandhi rules that operate on words which in their utterance-final form have a final -n. Such words include:

'head' [wapun]
 'possum' [ulan]
 'dig-PAST' [aŋan]

If in a sentence, the following word begins with a consonant, these words can undergo one of two changes: they can either lose the *n* or

they can retain the n and add a prothetic a. Thus, the alternative forms are:

- 'head' [wapu(na)]
 'possum' [ula(na)]
 'dig-PAST' [aŋa(na)]

There is no conditioning factor apparent in the choice of variant, and informants vary freely between the alternative forms. These variations are illustrated in the sentence:

- (3) [ayu muɬ {aŋa } nani-mun
 aŋana]
 I-A grub-O dig-past ground-ABL
 'I dug the grubs from the ground'.

When the following word in the sentence begins with a vowel, then the final segment is realised as r rather than n. Thus, we find:

- 'head' [wapur]
 'possum' [ular]
 'dig-PAST' [aŋar]

as in the sentence:

- (4) [uŋkyaw mayi-wapur uŋyaw]
 flying fox-A food head-O eat-PRES
 'The flying fox is eating fruit'.

Any words which in their elicitation forms end in a laminal segment (i.e. ɲ, ɳ and ɣ) lose this segment if the following word begins with a vowel. The preceding vowel is lost if it is back; if it is i it changes to y, e.g.

	utterance final	prevocalic
'back'	[uðumpuɳ]	[uðump]
'dugong'	[watay]	[wat]
'flying fox'	[uŋkiŋ]	[uŋky]

The shortened forms are illustrated below in sentences:

- (5) [ul utay uðump iɣaŋaŋan]
 he-A dog-O back-O break-PAST
 'He broke the dog's back'.
- (6) [ul uŋky amaŋ]
 he-S flying fox-S fly-PRES
 'The flying fox is flying'.
- (7) [ayuβa wat akyi-n]
 I-A dugong-O see-PAST
 'I saw a dugong'.

When the following word begins with a consonant, a prothetic a is often added as happens with an utterance final n. As with final n, there is

a second option, in that the final laminal can be deleted. There is a slight irregularity with the laminals however, because if the vowel of the final syllable is *i*, this becomes *ya*, e.g.

- 'back' [uðumpu(ɲa)]
 'dugong' [wata(ya)]
 'flying fox' [uŋkya; uŋkiŋa]

as illustrated in the sentence:

- (8) [_{mantina} uyuðiŋ']
 mantya
 ironbark-S tall
 'The ironbark is tall'.
 (9) [_{wataya} wuŋkamaŋ]
 wata
 dugong-S raw
 'The dugong is raw'.

There is one more set of correspondences in Atampaya, and that concerns words whose elicitation forms have final *w*. Such forms are:

- 'foot' [ɲukaw]
 'hole' [aðaw]
 'smoke' [ukyuw]

If such words are used in sentences with the following word having an initial consonant, then there is no change in the shape of the word, as in:

- (10) [aðaw naniŋuŋ]
 hole-S ground-LOC
 'There is a hole in the ground'.

However, if the following word is vowel initial, then the final *w* corresponds to *l*, e.g.

- 'foot' [ɲukal]
 'hole' [aðal]
 'smoke' [ukyul]

as illustrated by the sentences:

- (11) [ama:l aðal aŋaw]
 man-A hole-O dig-PRES
 'The man is digging a hole.'

All of the facts of Atampaya sandhi have now been presented and are summarised in Table 2.

TABLE 2
ATAMPAYA SANDHI CORRESPONDENCES

Utterance final	prevocalic	preconsonantal
-aŋ; -uŋ -iŋ'	-ϕ -ϕ	-a; -u -i
-n	-r	-ϕ/-na
*-aY; -uY -iY	-ϕ -y	-aYa; -uYa/-a; -u -iYa/-ya
-w	-l	-w

*Note that Y is used as a cover symbol for n, ŋ and y.

2.2. EXPLANATION OF THE CORRESPONDENCES

As the rules are summarised in Table 2, there is a certain amount of arbitrariness about them. We can simplify the statement of the facts somewhat if we accept the existence of underlying forms which do not necessarily have the same form as they have when given in elicitation. The suggested underlying forms, with the realisations according to the environment, are set out in Table 3.

TABLE 3
ATAMPAYA UNDERLYING FINAL SEGMENTS AND SANDHI REALISATIONS

underlying form	utterance final	prevocalic	preconsonantal
-V	-VN	-ϕ	-V
-n	-n	-r	-ϕ/-na
-VY	-VY	-ϕ	-V/-VYa
-l	-w	-l	-w

Most of the sandhi rules can be expressed quite simply as operations on these underlying forms. The rules that are needed are Atampaya are discussed below. The first of these is the rule:

I. $V \rightarrow \phi / _ \# V$

i.e. a vowel followed by another vowel over a word boundary is lost. Thus, in (1) above, the underlying form is yuku ana:lu; the u preceding the vowel a is deleted producing yuk.

The second rule that is needed is:

II. $\phi \rightarrow N/V _ \# \#$

i.e. an utterance final vowel takes a prothetic N. This rule accounts for the realisation of ana:lu as ana:luŋ in (1).

Concerning the treatment of underlying final -n, we need a rule of two parts:

$$\text{III. } n \rightarrow \left\{ \begin{array}{l} r / \text{---} \# V \\ \left\{ \begin{array}{l} \phi \\ na \end{array} \right\} / \text{---} \# C \end{array} \right\}$$

i.e. n is rhotacised between two vowels over a word boundary, but if there is a following consonant over a word boundary, the n is either deleted or a prothetic a is added.

To derive the various forms involving final underlying laminals, we will need the rule:

$$\text{IV. } y \rightarrow \left\{ \begin{array}{l} \phi / \text{---} \# V \\ \left\{ \begin{array}{l} \phi \\ ya \end{array} \right\} / \text{---} \# C \end{array} \right\}$$

i.e. a laminal is deleted when it is followed by a vowel over a word boundary. If there is a following consonant over a word boundary, the rule reads as for final n.

The application of this rule leaves the preceding vowel open to deletion by rule I. Thus, the derivation of the crucial items in (5) and (7) is:

uđumpun	watay	underlying forms
uđumpu	wata	Rule IV
uđump	wat	Rule I

There is of course a necessity to formulate a special rule to deal with -iY. These forms undergo rule IV. in the regular way, but the y is not then deleted by rule I. This special rule is:

$$\text{V. } i \rightarrow \left\{ \begin{array}{l} y / \text{---} \# V \\ ya / \text{---} \# C \end{array} \right\}$$

Actually, the second parts of rules III. and IV. can be collapsed into a single rule as the same process applies to n and the laminals preconsonantly. This revised rule would have the form:

$$\text{VI. } \left\{ \begin{array}{l} [+ \text{nasal}] \\ y \end{array} \right\} \rightarrow \left\{ \begin{array}{l} \phi \\ Ca \end{array} \right\} / \text{---} \# C$$

The only other sandhi rule that is needed for Atampaya is one to explain the alternation of l and w word finally. The rule we suggest has the form:

$$\text{VII. } l \rightarrow w / \text{---} \left\{ \begin{array}{l} \#\# \\ \#C \end{array} \right\}$$

i.e. l becomes w except before a vowel. So, in (10), the underlying form ađal becomes ađaw because the following word begins with n. If the following word begins with a vowel, as it does in (11), then the form is ađal. Note that utterance finally the l also becomes w.

It could be argued that instead of VII. which treats l as being the

underlying form, we should argue for an underlying w, since l occurs in only a very limited number of environments, whereas w is very frequently encountered. This would necessitate the reformulation of VII. as:

VIII. $w \rightarrow l / ___ \# V$

It is not difficult to argue against this point however, because rules of the form $l \rightarrow w$ are very common in many languages of the world, whereas $w \rightarrow l$ rules are very rare. There is also clear historical evidence for regarding l as being prior. Hale (1976) gives the following etymologies for Uradhi (a very closely related sister dialect of Atampaya):

* η ka η l nukaw 'foot'
 *pa: η ka η l a η aw 'shoulder'

He writes the Uradhi forms with a final w but was evidently unaware that this w participated in a morphophonemic alternation with l. The fact that the $l \sim w$ alternation arose from an original *l further suggests that we can regard l as being synchronically prior.

2.3. YADHAYKENU SANDHI

Table 4 summarises the Yadhaykenu sandhi alternations.

TABLE 4
 YADHAYKENU SANDHI ALTERNATIONS

underlying form	utterance final	prevocalic	preconsonantal
-V	-V/-V η	- ϕ /-V η	-V
-n	- ϕ	-r	- ϕ
- η	- η	- η	- η a
-l	-:	-l	-:

There are several very obvious differences here, when compared to the Atampaya system. While rule II of Atampaya applies obligatorily in Atampaya, it is only optional in Yadhaykenu. For example, the following words are presented in their elicitation forms:

'person' [ama(η)]
 'tree' [yuku(η)]
 'water' [ipi(η)]

Note also that N in Yadhaykenu always has the value η , whatever the quality of the preceding vowel. Also, when a word with an underlying final vowel is followed over a word boundary by a vowel, Yadhaykenu can apply either rule I or rule II. Atampaya can only apply rule I. Thus in:

(12) [<sub>{ yap }
yapiŋ</sub>] aɾama wiŋɬuŋ]

forehead-S not wrinkled

'His forehead is not wrinkled.'

Yadhaykenu can have either yap or yapiŋ before aɾama, where Atampaya could have only yap.

Another significant difference in Yadhaykenu is in the treatment of final underlying n. In Table 4, in fact, there is no evidence for the existence of this n; rather, it suggests that we should posit the existence of r, with this r being lost in certain environments. There are two facts however, which suggest that we should treat it as being derived from n:

(1) All examples that take part in this alternation are clearly cognate with forms in Atampaya with final n. Compare the following forms as elicited in Atampaya and Yadhaykenu:

	Atampaya	Yadhaykenu
'beach'	ɾi:ɣin	yi:ɣi
'head'	wapun	apu
'hard'	ɾapan	yapwa
'swollen'	wampan	wampa
'passionfruit'	ampun	ampu
'mosquito'	iwan	iwa

(11) When these Yadhaykenu forms occur before a long pause, instead of saying 'hmm ...' while thinking as we do in English, the Yadhaykenu informant plays out the final syllable of the word, and in doing so inserts as n (and not an r) where this would historically be expected. e.g.

(13) [ul apuna:::: yaka]

he-S wallaby-S jump-PAST

'The wallaby ... hmm ... jumped'.

If we accept that there is an underlying n here, rule III in Atampaya needs to be re-expressed in Yadhaykenu as follows:

$$\text{III(Y). } n \rightarrow \left\{ \begin{array}{l} r / \text{ ___ } \#V \\ \phi / \text{ ___ } \{ \#C \} \\ \quad \quad \quad \{ \#\# \} \end{array} \right\}$$

In Yadhaykenu, the opposition between final underlying -n and -r is neutralised and the representation is -r, and all final -y in Atampaya (which are extremely rare in any case) are lost. So, rule IV. in Yadhaykenu treats only r rather than the cover symbol y. This rule becomes in Yadhaykenu:

$$\text{IV(Y). } \phi \rightarrow a / r \text{ ___ } \#C$$

i.e. preconsonantal *n* undergoes a prothesis at the end of a word.

For example,

- (14) [uyɸuɸa yaka]
fly-S jump-PAST
'The fly jumped'.

In (14), the underlying form for '*fly*' is *uyɸuɸ*.

There is also a major difference in *Yadhaykenu* with regard to rule VII. Essentially, the difference is that where *Atampaya* has *-Vw*, *Yadhaykenu* undergoes monophthongisation and has *-V:*. For example, we have the elicitation forms:

- '*foot*' [uka:]
 '*hole*' [aɔ̃a:]
 '*net*' [ata:]

The rule in *Yadhaykenu* for the treatment of *l* will need to be:

$$\text{VII(Y). } V_l \rightarrow V: / \text{ ___ } \left\{ \begin{array}{l} \#\# \\ \#C \end{array} \right.$$

The elicitation forms above show how forms which in *Atampaya* have *-Vw* in *Yadhaykenu* have *-V:*. The surfacing of the *-l* is illustrated by the sentences:

- (15) [aɹal uɔ̃ayki]
net-S small
'The net is small'.
- (16) [aɹum ukal upiri]
my-S foot-S painful
'My foot hurts'.

2.4. ANGKAMUTHI SANDHI

In Table 5, a summary of *Angkamuthi sandhi* is presented.

TABLE 5
 ANGKAMUTHI SANDHI ALTERNATIONS

Underlying form	utterance final	prevocalic	preconsonantal
-V	-V/-Vŋ	-ϕ/-Vŋ	-V
-V:	-V:ŋ	-V:ŋ	-V:
-n	-n	-n	-na
-ɸ	-ɸ	-ɸ	-ɸa

This sandhi system is different from both the *Atampaya* and *Yadhaykenu* systems with regard to the final underlying short vowels; the situation is essentially the same as for *Yadhaykenu* except that utterance final *ŋ* can also cause nasalisation of the preceding vowel and then itself be

deleted. So, the elicitation forms of vowel-final words presented earlier for Yadhaykenu are to be heard in Angkamuthi as:

'person' [ama, amaŋ, amä]
 'tree' [yuku, yukuŋ, yukū]
 'water' [ipi, ipiŋ, ipī]

Angkamuthi differs from the other two languages discussed in that it has underlying final long vowels contrasting with short vowels.

Historically, these long vowels are derived from -Vl sequences. While this rule is still part of the synchronic phonology of Yadhaykenu (see rule VII(Y)), it has ceased to be a real rule in Angkamuthi. There is now no trace of the original l in this language. The sandhi correspondences for -V: are expressed by the rule:

IX. $\emptyset \rightarrow \eta$ /V: _____ {#V}
 {##}

i.e. before vowels and utterance finally, we add a prothetic η . Thus, from the underlying forms below we can derive the appropriate elicitation forms:

	underlying form	elicitation form
'foot'	uka:	uka:ŋ
'net'	ata:	ata:ŋ
'hole'	aða:	aða:ŋ

Sentence (17) illustrates the introduction of the prothetic η when the following word is vowel initial:

(17) [uka:ŋ upiri]
 foot-S painful
 'My foot hurts'.

while the lack of η can be observed in:

(18) [aŋum uka: waŋkaŋk awan]
 my-O foot-O mud-INST cover-PAST
 'My foot is covered in mud'.

where the following word is consonant initial.

The final -ŋ of Angkamuthi behaves in exactly the same way as it does in Yadhaykenu. However, Angkamuthi n has fallen in with ŋ in its sandhi alternations. Thus we need to restate rule VI. as:

VI(A). $\emptyset \rightarrow a$ / [+nasal] _____ #C

i.e. an epenthetic a is added between a nasal and a following consonant over a word boundary. Thus, Angkamuthi n is never deleted in Angkamuthi as it is in Yadhaykenu; nor does it ever have the realisation r.

3. PROTO-NORTHERN PAMAN AND ITS DAUGHTER LANGUAGES

Hale (1976) has reconstructed the major features of language from which the three languages described, together with many other languages

of the northern Peninsula, are descended. It is not necessary to examine his arguments and data in this paper; his proto-forms will simply be quoted as required.

The proto-language he reconstructs is phonologically very typical of Australian languages anywhere to the south. The phoneme inventory is shown in Table 6:

TABLE 6
PROTO-NORTHERN PAMAN PHONEMES

	labial	alveolar	(lamino-dental?)	lamino-palatal	dorsal
stop	*p	*t	*(tʔ)	*tʃ	*k
nasal	*m	*n	*(nʔ)	*ɲ	*ŋ
lateral		*l			
trill		*r			
retroflex continuant		*ɻ			
semi-vowel				*y	*w
high vowel				*i(:)	*u(:)
low vowel					*a(:)

Phonotactically, PNP (Proto-Northern Paman) adhered to the pattern of disyllabic stems with a CV(C)CV(C) structure, i.e. all stems began with a consonant and ended in a vowel or consonant, and no two vowels were found without one or two (occasionally even three) intervening consonants.

There is no evidence that PNP had a set of sandhi rules such as those discussed in 2. Thus, words in sentences were simply strung together one after the other, as in:

- (19) *kutakampu ɲapi ɲampunku paʃan
 dog-A I-O tooth-INST bite-PAST
 'The dog bit me with his teeth'.

So, even over word boundaries, the CV(C) syllable structure is maintained in PNP.

However, the three languages studies have innovated phonologically on PNP in a number of crucial ways. The innovations that are of importance to this discussion are those that took place word-initially. Essentially, what has happened is that the languages have lost many of the word initial consonants of PNP. The losses have been more thoroughgoing in Angkamuthi and Yadhaykenu than in Atampaya, but the overall result is that the number of possible word-initial vowels has jumped from zero in PNP to about two-thirds of the total of the lexical items

of Atampaya, Yadhaykenu and Angkamuthi. Examples of these changes are:

	Atampaya	Angkamuthi	Yadhaykenu
*kami 'mother's mother'	ami-	ami-	ami-
*kaʃa 'rotten'	yaʃa	aʃa	aʃa
*ɲipima 'one'	ɲipima	ipima	ipima
*ɲali 'we'	ali	ali	ali
*paŋa 'dig'	aŋa	aŋa	aŋa
*wanta 'put'	anta	anta	anta
*pama 'man'	ama	ama	ama

In the intermediate proto-language, which was descended from PNP, and which later split into the various languages of the tip of Cape York, including the three languages studied, sentence (19) became (20) *utayampu a_uni ampun_uku wa_utan by regular and well-attested phonological rules. This language now faced a serious dilemma. The loss of initial consonants had altered the basic syllable structure from CV(C) to (C)V(C), thereby allowing sentences such as (20) in which two vowels come together over a word boundary. This language had inherited the PNP structural constraint forbidding two vowels to occur one following the other. This structural constraint did not apply only within words, but also over word boundaries.

The languages which are described in this paper have inherited this structural constraint, which has not been changed since the time of PNP, despite all of the other phonological changes. It is clear that (20) violates this structural constraint, because it contains illicit VV sequences.

What could the languages do? They could act in one of two ways:

- (i) They could delete one of the offending vowels, or
- (ii) they could insert a consonant between the vowels.

In fact, they have done both. All three languages discussed above have rule I: $V \rightarrow \emptyset / _ \# V$.

It deletes the first of two vowels which come together. Yadhaykenu and Angkamuthi also have an alternative rule of the form:

$$\emptyset \rightarrow \eta / V _ \# V$$

in which η is inserted to keep the two vowels apart. So, by applying either of these two rules, these languages are able to keep within the structural constraint that there be no VV sequences.

4. FRILLS ON THE ANTI-VV CONSTRAINT

In the preceding section, it was shown that as, by a series of phonological changes, PNP evolved into a language with underlying VV sequences, the daughter languages acted to avoid such sequences on the surface by either vowel deletion or consonantal epenthesis. However, the sandhi systems of the modern languages have developed much further than this need would have compelled. We can explain the complexity of the modern systems if we assume the following facts:

- (i) PNP, and its daughter languages, have an anti-VV constraint, even over word boundaries.
- (ii) The daughter languages have acquired an anti-CC constraint over word boundaries since developing from PNP, and
- (iii) The daughter languages have acquired an anti-utterance final V constraint since developing from PNP.

The modern languages allow consonant clusters within words, but they do not allow clusters to occur word-finally. This is a target that was not aimed for in PNP. The modern languages could avoid CC clusters over word boundaries in one of two ways. They could incorporate either a rule of the form:

$$\phi \rightarrow V/C \text{ ___ } \# C$$

i.e. insert an epenthetic vowel between the consonants, or a rule of the form

$$C \rightarrow \phi / \text{ ___ } \# C$$

i.e. delete one of the offending consonants. In fact, variants of both rules can be found. The Angkamuthi rule VI(A) represents the former rule in its neatest form, while the latter rule is illustrated by the appropriate parts of rules III and IV.

There is a further phonological target that has been acquired by these languages since they developed from PNP, namely that utterance final forms should always end in a consonant. Rule II, or variants thereof, is universal throughout the group of languages being studied. This rule adds a η to utterance-final vowels.

It might be reasonable to ask why η has been chosen to act as utterance final consonant in such environments. One would expect a less marked nasal to be chosen, say n , which is supposedly the least marked nasal of all. However, apart from the evidence of the three languages described in the present paper, there is evidence from other languages of eastern Australia that η is chosen in preference to n as an 'unmarked' nasal. An interesting comparison we can make is with the languages of much of New South Wales. Certain Common Australian forms with final vowels appear in a New South Wales language such as Bandjalang

(Crowley, 1978) with a prothetic η , e.g.

CA	Bandjalang	
bina	binaŋ	'ear'
guna	gunaŋ	'excrement'
gina	ginaŋ	'foot'
gara	garaŋ	'leg'
dira	diraŋ	'tooth'
mipa	mipaŋ	'what'

These correspondences are obviously reminiscent of rule II. in Cape York.

N O T E S

1. The data in this paper come from my own fieldwork, which was carried out at Bamaga, North Queensland, in July and October 1975. My thanks go to my three field-consultants, Mr. Larry MacDonald, Mr. Roy Stevens and Mr. Willie Somerset, all long-term residents of Cowal Creek near Bamaga. As detailed a grammar of the languages is planned for some future date.

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KAITITJ NOMINAL INFLECTION: SOME COMPARATIVE NOTES

Harold J. Koch

1. INTRODUCTION

The Kaititj language is spoken by some 200 people resident in the area around Barrow Creek, Northern Territory. The main community lives at Neutral Junction Station, and others live at the Warrabri Aboriginal Settlement and at Murray Downs Station and Stirling Station.

Kaititj is classified genetically as a member of the Arandic language family, along with Aranda in its numerous dialects (Hale, 1962; O'Grady et al., 1966:41). Kaititj is bordered on two sides by dialects of Aranda, Alyawarra on the east and Anmatjarra on the south. Its other linguistic neighbours are Walbiri to the West and Warramunga to the north.

The aim of this study¹ is to present some of the main features of the inflectional morphology of the Kaititj nominal system. It will include a discussion of the categories marked by inflection and a presentation of the formants used to express various categories. Where these have more than one shape, the distribution of the variants will be indicated. Etymologies will be attempted for the affixes which seem most amenable to historical analysis.

A few remarks on the phonology are in order. The phonological analysis of the language is only tentative at this stage and may be revised in the near future.² Morphemes as cited here end in a consonant or the vowel *u*; however, a vowel *i* appears morpheme-finally after a consonant, but not after *u*, when the following morpheme begins with a consonant. Thus 'dog' will be written *alik* but 'dog-DU', *aliki-gir*, while 'water' and its locative are written as *aṅṅu* and *aṅṅu-ŋ* respectively. A predictable vowel *i* is added word-finally after consonants and

u: it is realised as [a] if stressed (see (18) below for stress), otherwise as [ə] or nothing. Thus the absolutive and locative forms of 'water' and 'mouth' are phonetically [aŋdʷá], [aŋdúŋ(ə)] and [ará], [aréŋ(ə)] (for ar, ariŋ). The phoneme i is usually realised as a mid-to-high central vowel.

Two further particularities of the language should be mentioned. Kaititj has a back unrounded glide phoneme, symbolised by ɣ as in aɣir 'kangaroo'. There is also a series of 'pre-stopped nasals', or nasals with delayed velic opening. These are indicated here by the use of a capital letter, as in aNuŋ 'child', and aMu 'snake'.

2. INFLECTIONAL CATEGORIES

The nominal system includes substantives, or 'nouns' in the narrow sense, adjectives, demonstratives, interrogatives, and personal pronouns. All nominals can be inflected for number and case. In addition, kinship nouns can be inflected for person of possessor.³ Thus we have aMa|i-y 'my mother's brother', ŋk-aMa! 'your MoBr', and ku-aMa! 'his/her MoBr'. Finally, non-singular personal pronouns are inflected for kinship relations.

There are three series of non-singular pronouns whose usage is determined by the mutual relations of the referents within the kinship system. Although there are eight named subsections in the kinship system, the pronoun system only presupposes a classification of the population into four sections. In order to use the pronouns correctly, the speaker needs to know whether the referents are in the same moiety or in opposite moieties, and if they are in the same moiety, whether they belong to the same generation (or more accurately, to the same set of alternate generation levels) or to opposite generations. Thus if all of the persons referred to by the pronoun belong to the same section, i.e., to the same moiety and the same generation, this will be indicated by a suffix -aŋk (added to plural pronouns) or by the absence of a suffix on the pronoun (in the case of duals). If the referents all belong to the same moiety but include members of opposite generations, the pronoun will contain the suffix -ak. Finally, if the set of people referred to includes members of opposite moieties, the pronoun will have a suffix -aŋt̩.

A similar kin-based inflectional system is found in Eastern and Southern Aranda⁴ and in Alyawarra⁵. The language immediately to the south of Arandic, Arabana-Waŋkaŋuru has essentially the same system, even to the point of using similar morphemes -akia and -aŋta, although the moieties referred to are matri-moieties rather than patri-moieties

as in Arandic (Hercus and White, 1973:63-4).

3. NUMBER

Three numbers are distinguished: singular, dual, and plural. The singular is formally unmarked. The dual is marked with a suffix *-ḡir* (e.g. *aliki-ḡir* 'dog-DU'). This suffix, which occurs in Aranda as well, is obviously related to the independent word for 'two', namely *aḡir*. Both forms are descended from a Proto-Australian **kuḷara* 'two' where *ḷ* indicates a laminal stop (Dixon, 1970:90). Compare the cognate dual suffix *-t^yara* in Walbiri. The plural suffix is *-amiṅ* (e.g. *aliki-amiṅ* 'dog-PL') for which I can suggest no etymology. The Aranda dialects use completely different forms to express the plural.⁶

There is another suffix *-ṅiṅ* in Kaititj, which bears some resemblance to a number suffix. This suffix is used to designate a 'kinship pair', i.e., a pair of individuals who are in a relation of converseness (in the sense of Lyons, 1968:467-69) to each other. The suffix *-ṅiṅ* is added to the kinship term which denotes the older member of the relationship. Thus 'father and his child' is indicated by *aḷuyi-ṅiṅ*, derived from *aḷuy* 'father'. Similarly the word for 'brothers', *alkiri-ṅiṅ* is based on *alkir*, the term for 'older brother'.⁷ The suffix *-ṅiṅ* is to be regarded, however, as a derivational formant rather than a dual number inflection. Note that the suffixed word may actually designate more than two individuals; for example, *aḷuyi-ṅiṅ* may refer to a father and more than one of his children. The number of individuals actually referred to can be further specified by adding a dual or plural suffix to the whole stem. Thus *aḷuyi-ṅiṅi-ḡir* explicitly indicates a father and one child, or, in Aboriginal English "two father'gethers" while *aḷuyi-ṅiṅ-amiṅ* indicates a father and two or more children or a person and two or more of his fathers. The same suffix occurs in Aranda, where however it has been analysed as an archaic dual (Strehlow 1944:61).

4. ORGANISATION OF CASES

We have seen above that personal pronouns, that is, non-singular personal pronouns, differ from other nominals in being inflected for the section relations of their referents. Personal pronouns also differ from other nominals in their organisation of cases. In the first place, no formal distinction is made between the direct and indirect object cases. In other words, pronouns have no accusative form distinct from the dative. These unitary 'objective' forms are historically datives. Partially for this reason, I will refer to the case as dative. Another reason for preferring the term dative is the fact that there are

adnominal uses of this case. Within their paradigms, the dative serves as the base for the other oblique cases of the pronoun. Thus for the third person singular we have dative *kuɾ*, locative *kuɾi-!*, allative *kuɾi-wa!*, ablative *kuɾi-ɣiy*, possessive *kuri-yiŋ*, etc.

Another difference between personal pronouns and other nominals is that in the former the intransitive subject always has a different form from the object of transitive verbs. That is to say, objects are always distinguished from subjects. Most personal pronouns use the same form for intransitive subjects and for transitive subjects or agents.

For these pronouns there is no separate ergative form marking transitive subjects. But the first and second singular pronouns do have a separate ergative form for transitive subjects, which is distinct from the intransitive subject form. The forms of the singular pronouns are given in Table 1 (the 3sg being present for the sake of contrast).

TABLE 1

	1sg	2sg	3sg
transitive subject (A)	at ^y	nt	}
intransitive subject (S)	ayiŋ	ŋ	
object	at ^y iŋ	ŋkiŋ	kuɾ

Aranda distinguishes A and S only in the first person singular. For the 2sg, the western dialects have *unt(a)* for both functions, while the eastern dialects have *ŋ(a)* for both functions (Strehlow 1944:92). This distribution can be accounted for if we assume that Proto-Aranda had *unt(a)* for A and *ŋ(a)* for S, as in Kaititj, and that the western and eastern dialects have each extended a different form to cover both functions. Alywarra still uses both *unt(a)* and *ŋ(a)*.

The Kaititj organisation of the major syntactic cases is set out in Table 2. The functions indicated are, in order, transitive subject (A), intransitive subject (S), direct object (O), and dative (D). Two functions enclosed together share the same formal means of expression.

TABLE 2

{Non-sg} pronouns 3sg	1, 2sg pronouns	other nominals
<div style="border: 1px solid black; border-radius: 50%; padding: 2px; display: inline-block;">A</div> <div style="border: 1px solid black; border-radius: 50%; padding: 2px; display: inline-block;">S</div> <div style="border: 1px solid black; border-radius: 50%; padding: 2px; display: inline-block;">O</div> <div style="border: 1px solid black; border-radius: 50%; padding: 2px; display: inline-block;">D</div>	<div style="border: 1px solid black; border-radius: 50%; padding: 2px; display: inline-block;">A</div> <div style="border: 1px solid black; border-radius: 50%; padding: 2px; display: inline-block;">S</div> <div style="border: 1px solid black; border-radius: 50%; padding: 2px; display: inline-block;">O</div> <div style="border: 1px solid black; border-radius: 50%; padding: 2px; display: inline-block;">D</div>	<div style="border: 1px solid black; border-radius: 50%; padding: 2px; display: inline-block;">A</div> <div style="border: 1px solid black; border-radius: 50%; padding: 2px; display: inline-block;">S</div> <div style="border: 1px solid black; border-radius: 50%; padding: 2px; display: inline-block;">O</div> <div style="border: 1px solid black; border-radius: 50%; padding: 2px; display: inline-block;">D</div>

Note the absence of a separate O form.⁸ Pronouns formally identify O with D, and other nominals identify it with S, in the absolutive case.

I will use the label nominative to refer to either a unique S form or a combined S/A form. Thus personal pronouns, except for 1, 2 sg, have a nominative-dative system of inflection; first and second singular pronouns have an ergative-nominative-dative system; and other nominals have an ergative-absolutive (-dative) system.

5. CASE SUFFIXES

Table 3 gives the actual case suffixes that are used in ordinary nominal (as opposed to pronominal) inflection. The forms are illustrated with some paradigms of demonstratives.

TABLE 3

		'this-SG'	'that-DU'	'that-PL'
ABSolutive	∅	n ^y -aṭ	ṅi-ṭir-aṭ	ṅ-amiṅ-aṭ
ERGative- INSTrumental- LOCative	-l ~ -ṅ ⁹	t ^y i-l-aṭ	ṅṭi-li-ṭir-aṭ	ṅṭi-l-amiṅ-aṭ
DATIVE	-w	t ^y i-w-aṭ	ṅṭi-ṭiri-w-aṭ	ṅṭ-amiṅi-w-aṭ
ALLative	-wa!	t ^y i-wa!-aṭ	ṅṭi-ṭiri-wa!-aṭ	ṅṭ-amiṅi-wa!-aṭ
ABLative	-ṭiy	t ^y i-ṭiy-aṭ		
COMITative	-la!iṅ -ṅa!iṅ	t ^y i-la!iṅ-aṭ		
'danger'	-kit ^y	t ^y i-kit ^y -aṭ	ṅṭi-ṭiri-kit ^y -aṭ	
'after'	-piṅ	t ^y i-piṅ-aṭ		

Certain suffixes call for special comment. The suffix that I have provisionally glossed as 'danger' resembles the ablative, in that it may denote movement away from something. However, there is always present the notion of seeking protection from some danger.¹⁰ Thus, for example, aMu-kit^y 'snake - danger' may occur in the context 'be afraid of the snake' or 'run away from the snake'. In combination with the noun ayirk 'sun' we have 'build a shelter from the sun'. This suffix is homophonous with a suffix (or enclitic) that occurs following a verb in sentence that express warning, such as (1).

- (1) aMu-ṅ ṅkiṅ aṅi-mi-kit^y
 snake-ERG 2SG DAT bite-may-danger
 'Look out, the snake may bite you!'

A noun bearing the suffix -kit^y can be used by itself with much the same sense of warning: aMu-kit^y 'look out for the snake!'

In some respects -kit^y can be seen as a causal suffix. But causality is also expressed by the suffix -piṅ, as the following uses show:

ṅkwa!i-piṅ '(stagger) from grog', 'after (drinking) grog'; warki-piṅ '(receive money) for working, after working'. The basic sense must be

'after', however, since no causal notion is present in another usage, awuri-piŋ '(become a man, i.e. be initiated) after (having been) a boy'.

6. DERIVATIONAL SUFFIXES

In addition to the suffixes given on Table 3 there are a number of suffixes which are commonly used but which are not to be regarded as case suffixes, but rather as derivational morphemes. Their function is to convert the base nominal into an adjective. This derived adjective can then be further inflected for case. First there is the possessive (or genitive) suffix, which results in a derivative with the sense 'belonging to N', where N indicates the base nominal. The possessive suffix has two forms, -yiŋ after personal pronominal stems, and -aŋiŋ following other stems. Examples are given in (2) to (5).

The proprietive suffix -akak conveys the sense 'having N'. This suffix is not to be confused with the comitative case, which expresses accompaniment, but not physical possession. For a similar distinction in Aranda see Strehlow 1944:200. The proprietive suffix is illustrated in (6). The privative function ('without N') is indicated by the suffix -wanin^y. This is illustrated in (7).

- (2) t^y-aŋiŋi-l-aŋ 'this-POSS-ERG-aŋ'
 (3) aMa|i-y-aŋiŋi-l 'MoBr-my-POSS-INST'
 (4) at^yi-yi i-l 'I-POSS-ERG'
 (5) mpuw-aki-yiŋi-w 'you DU-{same moiety
 opp. gen.}-POSS-DAT'
 (6) waŋ-akaki-l 'fire-PROP-ERG'
 (7) irt^yaŋi-wanin^yi-l 'spear-PRIV-LOC'

7. ORDER OF CASE AND NUMBER SUFFIXES

A question arises as to the relative order of case and number suffixes in the circumstance where both occur in the same word. The normal situation is for the case inflection to follow the number marker. This can be seen in the demonstrative paradigms given in Table 3 and is further illustrated in (8) and (9). In contrast to this normal pattern, however, the ERG-INST-LOC suffix always precedes the number affix, as the examples in (10) to (14) show.

- (8) aMa|i-ŋiŋ-amiŋi-wa| 'MoBr-kin pair-PL-ALL'
 (9) pinanŋki-tŋiri-w 'Panangka (subsection name)-DU-DAT'
 (10) aŋuyi-li-tŋir 'man-ERG-DU'
 (11) aMa|i-ŋiŋi-l-amiŋ 'MoBr-kin pair-ERG-PL'
 (12) awiyawi-l-amiŋ 'dead person-LOC-PL'
 (13) ilt^yi-ŋi-tŋir 'hand-INST-DU'
 (14) aMu-ŋ-amiŋ 'snake-ERG-PL'

The combination of case plus dual marker is sometimes avoided by the use of a noun phrase including the numeral 'two'. Thus (15) may be used in place of (13). Another variation that has been recorded involves a double marking for case, as in (16).

(15) aḡiri-! ilt^yi-ŋ 'two-INST hand-INST'

(16) aMu-ŋi-ḡiri-! 'snake-ERG-DU-ERG'

The difference in the relative order of case and number suffixes probably reflects an earlier situation where the dual and plural affixes were independent words, and where the case of the noun phrase could be marked either on the head noun (or pronoun) or on the quantifier, or possibly on both. It is still possible in Kaititj to mark case on more than one word in a noun phrase. The facts of Aranda, as presented by Strehlow (1944:78-99), are somewhat similar to those of Kaititj, but more involved. Although in nominals case normally follows number, in demonstratives and interrogatives it may either precede or follow the number marker. This statement requires further qualification: case precedes number in the dual of the interrogative (the same holds for the dual of third person pronouns), and the ablative suffix always follows the number affix. It is possible that at an earlier stage Kaititj case suffixes enjoyed a similar variability in position but that the position has since become fixed, although in a different manner for different cases. It is not clear, however, why it should have been the ERG-INST-LOC marker alone which was fixed in the pre-number slot in Kaititj.

We might consider whether the number markers of modern Kaititj should perhaps be analysed synchronically as independent words rather than as suffixes. There are two pieces of evidence that support the suffixal analysis. Demonstratives in Kaititj always end with a suffix -aḡ, which seems to indicate deictic function. In non-singular demonstratives the dual and plural markers always precede this word-final morpheme (see again Table 3). These number markers also precede derivational suffixes, as can be seen in ḡi-ḡir-aḡiŋ-aḡ 'belonging to these two' and alik-amiŋ-akak 'having a number of dogs'. Since there is no reason to analyse either -aḡ or the derivational suffixes as independent words, it follows that the morphemes which precede them are also affixes.

8. ERGATIVE-INSTRUMENTAL-LOCATIVE

We turn now to a consideration of the case suffixes one at a time. The ergative-instrumental-locative suffix has two shapes, -! and -ŋ, which are distributed in an interesting manner. The allomorph -! is by far the more common. It occurs after any stem consisting of three or

more syllables (see Table 4, column 1). The alternant -ŋ is confined to disyllabic stems (Table 4, column 3). But there are some disyllabic stems that require the choice of -l (Table 4, column 2).

TABLE 4

1		2		3	
aliki-l	'dog'	ŋkit ^y i-l	'foot'	aki-ŋ	'head'
aɣiri-!	'kangaroo'	ɾari-!	'wind'	ilt ^y i-ŋ	'hand'
aɕuyi-l	'man'	ŋuɕi-l	'elbow'	aŋmi-ŋ	'red ochre'
aɣirki-l	'sun'	kayti-!	'grub'	aynpi-ŋ	'pouch'
!uNpiri-!	'forehead'	wirki-l	'scrub'	aMu-ŋ	'snake'
		wupi-l	'spider'	an ^y t ^y u-ŋ	'humpy'

Closer inspection of the disyllabic stems reveals that -l occurs only after stems of the structure CVCV-, where C stands for a consonant or a consonant cluster. I will describe these stems as stems containing two consonant positions. The allomorph -ŋ, on the other hand, follows stems containing only one consonant position, i.e. stems of the structure VCV-. Thus the choice of suffix is determined by the rule given in (17).

- (17) Choose -ŋ if the stem has only one consonant position, otherwise choose -l.

The conditioning of allomorphs by the number of consonant positions in the stem is not common in the Australian languages. Nevertheless, reference to the number of consonant positions must be made elsewhere in the grammar of Kaititj as well. The stress rule, formalised in (18), assigns stress to the vowel that follows the first consonant position in a word.

- (18) V → stressed / # (V) C _

This means that a word beginning with a consonant (cluster) is stressed on the first syllable, e.g. ŋkít^yi! or káyti!, while vowel-initial words receive stress on the second syllable, e.g. alíki! or akíŋ.

Now the Arandic languages in their historical development have lost initial consonants and in some cases the first CV (Capell, 1956:100). Thus Kaititj alik corresponds to Walbiri maliki 'dog' and Kaititj aɣir to Walbiri wawiri. Therefore words which now begin with a vowel would earlier have been preceded by a consonant, and words beginning with a consonant (cluster) would have been preceded in an earlier stage of the language by a consonant-plus-vowel sequence. Thus what is now the first C continues what was formerly the second C. Consequently the stems of column 3 in Table 4 continue earlier stems of the shape CVCV-, while those of column 2 reflect an original structure CVCVCV-. Note that the difference is now one of number of syllables. It becomes clear that

the choice of ergative-locative allomorph was previously determined by the number of syllables of the stem, -ŋ being selected after disyllabic stems and -l elsewhere. This principle governing the distribution of alternants which we have reconstructed for Pre-Kaititj is virtually identical to that found in Walbiri, the western neighbour of Kaititj. In Walbiri the ergative suffix is -ŋku and the locative -ŋka after disyllabic stems but -!u and -!a respectively after stems of more than two syllables.

A number of exceptions to the general rule (17) merit discussion. At least two words show variation in their suffix: some older speakers use -ŋ in a word containing two consonant positions, where other speakers, in accordance with the rule of (17), employ the allomorph -l. Thus the locative of 'fire' and 'meat' may be waŋi-ŋ and wiyi-ŋ respectively, besides the regular waŋi-l and wiyi-l. The cognates of these words indicate, however, that the initial consonant w does not continue an earlier second consonant position but is the result of a secondary development.

Kaititj waŋ is related to Aranda uŋ(a) 'fire'. Capell (1956:100) has derived the Arandic words from a Common Australian ŋura 'camp', which in some languages (primarily in the eastern Arnhem Land area) denotes 'fire' (op.cit. 90). It is equally plausible, in my opinion, that they are related rather to Dieri ɟuru 'fire'.¹¹ The other word in question, wiy, is apparently cognate to Walbiri kuyu 'meat'. Therefore our two Kaititj exceptions continue an earlier uŋe (still attested in Aranda) and *uye, with subsequent diphthongisation of u in initial position. At this earlier stage the allomorph -ŋ was regular since there was only one consonant position in the stem. However, after the words were restructured with initial w, there were two consonant positions and -l is the alternant required by the rule. This restructuring has apparently taken place in the fairly recent past, since its morphological consequences have not yet been carried out in the speech of some of the older members of the community.

Another type of exception to (17) is found in the Kaititj demonstratives. The ergative-locative suffix is -l in t^yi-l-aŋ 'this' and ŋɟi-l-aŋ 'that', although we would expect -ŋ because there is only one consonant position in the stem. If we look again at Walbiri, where the choice of allomorph is governed by the same principle as in Pre-Kaititj, we find that disyllabic demonstratives are also exceptional in that they take the alternant -!u/-!a, which is normally reserved for stems of three or more syllables (Hale, 1973:327, fn. 18). The Kaititj demonstratives would also have been disyllabic at an earlier stage. Thus we see that the rule governing the selection of ergative-locative allomorphs in an earlier stage of the Kaititj language is the same, even in its

exceptions, as the rule that applies in present-day Walbiri.

There seems to be no reason not to consider the actual forms, as well as the condition for their alternation, as reflexes of proto-types identical to the suffixes found in Walbiri (and in many other Australian languages). We can then derive -ŋ from -ŋku or -ŋka and -l from -lu or -la, where the suffixes containing the vowel u are ergative and those with a represent the locative. The instrumental function would have been expressed either by the ergative or by the locative form, as in many other Australian languages. The formal distinction between the ergative and locative was lost in the Arandic languages through the neutralisation or loss of final vowels. In addition, the stop was dropped out of -ŋku and -ŋka, possibly after the loss of final vowels.

9. ABLATIVE

These phonological changes would have had a further effect, beyond the merger of ergative and locative case forms. An original ablative case suffix -ŋu, widely attested in the Australian languages, would regularly have developed into -ŋ(a) by the neutralisation (or loss) of final vowels. This form of the ablative suffix is found in Aranda. Kaititj, however, has a totally different form -ɬiy.¹² Assuming that -ŋ was the inherited ablative suffix, why, we might ask, has Kaititj replaced it?

Notice, in the first place, that -ŋ would have signalled the function of ablative and, after stems of a certain structure, of ergative, instrumental, and locative as well. Such a situation apparently involved more case syncretism than the language was willing to tolerate. This functional overloading of -ŋ was remedied by means of different strategies in Kaititj and Aranda. Aranda simply eliminated -ŋ as an alternant of the ergative-instrumental-locative morpheme and generalised -l to all stems. In Kaititj, on the other hand, it was the ablative -ŋ that was replaced. Its place was taken by a suffix -ɬiy, whose earlier function within the language (if any) is unknown. Formally, -ɬiy can be analysed into -ɬi-yV. The first part, -ɬi, may be related to a suffix -ɬi which is found quite commonly as a marker of ablative function in the languages of north-western New South Wales, such as Ngiyambaa, Wiradjuri, and Gamilaraay (see the contribution of Austin, Williams and Wurm to the present volume).

The presumed original ablative suffix -ŋ may nevertheless have left some traces in certain Kaititj adverbs. A comparison of uruɬiŋ 'on top of' with uruɬ 'high up' and of kuniŋ 'underneath' with kun 'down/inside' suggests that the former member of each pair can be analysed (diachronically) as containing a suffix -ŋ. This -ŋ cannot be a locative suffix,

since the preceding stem contains more than one consonant position. It may then continue an older ablative inflection. Some support for interpreting these adverbs as earlier ablatives comes from a third adverb, 'behind', which I have recorded as *anantiŋ* and (*ana*)*ntiŋiŋiy*. The longer version of the latter form appears to consist of the first cited form followed by the productive ablative suffix *-ŋiy*. (Note incidentally that if *anantiŋ* itself contains an earlier ablative suffix *-ŋ*, the longer form *anantiŋiŋiy* is, diachronically speaking, doubly marked for the ablative.) This example indicates that at least some adverbs expressing position may receive an ablative inflection. It is therefore reasonable to posit that other positional adverbs were inflected ablatives at an earlier stage of the language, especially when the suffix yielded by such an analysis is identical to the productive ablative suffix of the most closely related language.

10. COMITATIVE AND ALLATIVE

The comitative suffix has two forms, whose distribution is conditioned in the same manner as that of the ergative-locative allomorphs. The alternant *-ŋaŋiŋ* occurs after stems containing only one consonant position, with the exception of demonstratives, while *-laŋiŋ* occurs elsewhere. For examples see Table 5.

TABLE 5

<i>aŋuyi-laŋiŋ</i>	'man'	<i>aŋŋu-ŋaŋiŋ</i>	'water'
<i>aŋuŋi-laŋiŋ</i>	'child'	<i>aŋu-ŋaŋiŋ</i>	'deaf/mad'
<i>ŋuŋi-laŋiŋ</i>	'other'	<i>ilku-ŋaŋiŋ</i>	'old man'
<i>tʸi-laŋiŋ</i>	'this'	<i>aŋŋi-ŋaŋiŋ</i>	'rock'

The comitative suffix can therefore be analysed formally into locative plus *-aŋiŋ*.¹³ It is conceivable that *-aŋiŋ* was an independent word at some earlier stage of the language. From a formal point of view, it could be the locative or the ablative of a stem *-aŋ*. A phrasal origin for the comitative appears attractive when we compare the comitative with other formally similar constructions, as in (19) and (20), where N represents a noun.

(19) N - LOC *-aŋiŋ* 'with N'

(20) N - LOC *kuniŋ* 'under N'

Here the only difference is that *kuniŋ*, unlike *-aŋiŋ*, is an independent word. Thus *-aŋ* may have once been an independent stem as well, although I have no suggestion as to what its original meaning may have been.

The allative suffix *-waŋ* can similarly be analysed into *-w* plus *-aŋ*. The first part is identical to the dative suffix. The second part may

be the same stem that we find in inflected form in -a|in. Compare the forms of the allative and comitative in (21) and (22).

(21) ALL = DAT + a|

(22) COM = LOC + a|in

11. DATIVE

The dative suffix is -w, e.g. aNuŋi-w 'child-DAT'. This I propose to derive from the Common Australian data suffix -ku, with loss (or neutralisation) of the final vowel and lenition of the stop.¹⁴ Several pieces of evidence point to -ku as the source of -w. In the first place, the purposive (or infinitive) of verbs has the suffix -wiŋ, as in api-wiŋ 'go-PURP'. Now the purposive inflection of verbs in Australian languages is often identical to the dative of nominals. If we derive Kaititj -w from -ku and -wiŋ from -ku + -ŋV, Kaititj continues a familiar pattern, except that the purposive has been extended by the addition of the increment -ŋV.

Further support for regarding an earlier -ku as the source of -w is the fact that in Aranda the dative suffix is -k(a). A suffix -k is found in Kaititj as well, in the dative of the first person dual and plural exclusive pronouns, where it contrasts with the normal -w of the corresponding inclusive forms. See the examples given in (23) and (24).¹⁵

(23) ayli-k-ak '1DU-DAT+EXCL-(same moiety),
(opp. gen.)

(24) ayli-w-ak '1DU-DAT+INCL-(same moiety),
(opp. gen.)

The full form of the earlier dative suffix -ku is actually preserved in Kaititj in one pronominal form. To show this, it will be necessary to make a brief digression into the marking of possession. The possessor of a noun is indicated by the preposing or prefixation of the dative of the corresponding pronoun. (I will omit any discussion of the first and second person singular possessor, for which see Section 2 above.) The system is illustrated on Table 6.

TABLE 6

Person	NOM	DAT	Poss. + 'father'
2 DU	mpul	mpu-w	mpuw-a uy
3 PL	at-aŋki-r	ati-w-aŋki-r	atiwaŋk-a uy
3 SG	ɾ	kuɾ	ku-a uy

Plural pronouns contain an optional final increment -r, which is never present in the preposed form. Note that the prefixed form of the 3sg lacks the final ɾ of the independent form of the dative. This suggests that this -ɾ was also an optional increment at an earlier stage. Now,

bearing in mind that Kaititj in its historical development has lost initial C(V), we can reconstruct the 3sg dative as *CVku(r). The nominative would then continue an earlier *CVr, or, assuming that the final -r was an optional increment here as well, *CV(r). If this is correct, the whole stem of the original pronoun has been lost, leaving as the present-day nominative stem of the pronoun what was once only an optional increment. Now if we compare the reconstructed dative *CVku (omitting the optional r) with the nominative *CV, we can isolate -ku as the marker of the dative function. This same original dative suffix -ku is preserved as the prefix marking third person singular possessor.

It is thus pretty clear that Pre-Kaititj knew the dative -ku. It is reasonable to derive the modern dative suffix -w from the same source. Whatever the exact conditions for the change from k to w, it did not affect the 3sg pronoun.

12. CONCLUSION

According to our reconstruction, which should be regarded as tentative, Kaititj contains reflexes of a number of case suffixes that are familiar to us from other Australian languages. These correspondences are set out on Table 7.

TABLE 7

Case	Common Australian	Kaititj
ERG	-ŋku ~ -lu	-ŋ ~ -l
LOC	-ŋka ~ -la	
DAT	-ku	-w
ABL	-ŋu	(-ŋ)

The Kaititj allative has been built on the dative and the comitative on the locative. The ablative has been replaced by a suffix -ŋiy, although there are traces of the original suffix in some adverbs. The alternation of allomorphs in the ergative and locative cases is governed by the (original) number of syllables in the stem, the first alternant occurring only after disyllabic non-demonstrative stems, exactly as in Walbiri. I have no proposals at this point for the origin of the suffixes -kit^y and -piŋ or the derivational suffixes mentioned in Section 6.

The dual number suffix -ŋir has a fairly typical form while the suffix indicating plural is unique. Possession is expressed by means of prefixes for 2sg and 3sg possessor, but with a suffix for the 1sg. Plural possessors require further study, especially to determine whether the possessor morpheme is to be analysed as a prefix or a preposed dative of the personal pronoun.

The kinship relation markers of the non-singular pronouns are a

distinctive feature of Kaititj (and other parts of Arandic). This feature is shared with many of the languages of South Australia, some of which have even more complex kinship reflections in the pronominal system (Schebeck 1973; Hercus and White 1973). The system of kin-based pronouns, along with the phenomenon of pre-stopped nasals (Hercus 1972), link Kaititj and the other Arandic languages to the languages to the south. On the other hand, the ergative-locative allomorphy links Kaititj with its western neighbour Walbiri. Both of these facts will be important in the working out of the areal and more distinct genetic relations of the Kaititj language.

N O T E S

1. The data on which this study is based was collected on two field trips undertaken in December-January of 1974-75 and of 1975-76, the second of which was supported by a grant from the Australian Institute of Aboriginal Studies. I have also benefited by having access to a copy of the field notes of Kenneth Hale, who did some work on Kaititj in 1959.
2. I now (1980) prefer a phonological analysis that differs in the following ways from that given in the paper: 1) In place of the vowel *i* I would write *ə*, which can be represented orthographically by *e*. 2) There is no round vowel *u*; instead there are rounded consonants. A phonetic round vowel is a realisation of *ə* when it is adjacent to a rounded consonant. 3) All morphemes, and hence all words, end in the vowel *ə*. This vowel disappears before a vowel-initial suffix. Word-finally when stressed, *ə* is lowered almost to [a]. The words cited in this paragraph would then be represented as follows: *aleke*, *aleke-tere*; *aŋt^we*, *aŋt^we-ne*; *are*, *are-ne*.
3. This applies to singular possessor only.
4. See Hale 1966:323-4, for an earlier discussion of this system in the Arandic languages. He uses the terms *harmonic* and *disharmonic* to refer to same vs. opposite generation, and *agnate* and *non-agnate* to refer to same vs. opposite moiety.
5. Yallop 1977:5f, 92ff.
6. Alyawarra has a non-singular marker *-inim*, which would appear to be related in some way to Kaititj *-amin*.

7. This suffix can also be added to reciprocal kinship terms, as in *mpuṇi-ṇiṇ* 'brother-in-law pair', where neither member of the relationship is necessary senior to the other.
8. In this respect Kaititj differs from Aranda, which has a separate accusative form which appears to be built on the stem of the nominative by means of a suffix *-ṇ(a)*.
9. The *l* of the ERG-INST-LOC case automatically becomes *l̥* when the preceding consonant is apical, as in examples 15 and 16.
10. The label AVERSIVE has been proposed for such a case in Dixon 1980.
11. In either case the word was originally disyllabic. Other possible cognates are Western Desert *waṛu*, Walbiri *waḷu*.
12. An ablative *-ṭiy* also occurs in Alyawarra.
13. Further support for this analysis comes from *ilku-ṇ-amiṇ-aḷiṇ* 'with the old men', where *-aḷiṇ* is separated from the locative marker *-ṇ* by the plural affix *-amiṇ*. Note incidentally that this form provides another example of the locative suffix preceding the number affix. Another form, *ilku-ṇi-ṭiri-ḷ-aḷiṇ* 'with two old men', shows the same phenomenon of double case marking with the dual that was mentioned in Section 7.
14. A sound change *k > w* is needed to account for the apparent correspondence between Kaititj *aṇiwit^Y* and Walbiri *maṇikit^Yi* 'conkerberry'.
15. Observe that the exclusive datives of Kaititj thus resemble the inclusives of Alyawarra, the only Aranda dialect for which an inclusive/exclusive distinction has been reported.

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PUNGUPUNGU AND WADYIGINY: TYPOLOGICALLY CONTRASTIVE DIALECTS

D.T. Tryon

1. INTRODUCTORY (THE PROBLEM)

Australian Aboriginal languages have often posed problems of classification occasioned by such features as dialect chaining. In fact, in many Australian languages, adjacent dialects show neighbour intelligibility, whereas the cognate density between the dialects of that language is of the same order as that usually encountered between different languages in other language families in the world. Thus terms such as 'Family-Like Languages' (Voegelin, Voegelin et al. 1963) have been coined by linguists whose chief interest is in language classification, especially those with a special interest in lexico-statistics as a classificatory tool.

Within the Daly Family there exists a language, Wadyiginy (Wogaity) whose dialects pose almost the opposite problem to that just suggested, in that while the dialects, Wadyiginy and Pungupungu share approximately 79% cognates based on a 200-item wordlist, and would thus be normally unquestionably dialects of the same language, there exist serious morphological or morphologico-typological differences between the two dialects. In fact, these differences lead to what may be termed unidirectional bilingualism, if one may use the term "bilingualism" when speaking of dialects, for speakers of Wadyiginy have no problem in speaking Pungupungu, while Pungupungu speakers have great difficulty with Wadyiginy because of the central nature of the morphological differences to communication. Such a situation is, of course, abnormal, for normally, in the Australian context, a cognate density of more than say 70% is accompanied by almost total syntactic and morphological

identity. In order that the problems posed by Pungupungu and Wadyiginy may be highlighted, it is proposed to examine briefly the areas of near-identity, and, in a more detailed form, the areas of difference which have been observed to present such a barrier to communication.

2. WADYIGINY AND PUNGUPUNGU - SIMILARITIES (GENERAL OVERVIEW)

In terms of noun morphology, both dialects manifest the measure of similarity that one might expect from Australian languages.

Unmodified nouns fall into four classes, indicated by prefixes in both dialects, as follows:

- 1) \emptyset - parts of the body, kinship terms and most natural phenomena
- 2) $\text{met}^Y\text{em-}$ with animals hunted for flesh meat
- 3) $\text{menen}^Y\text{-}$ with vegetable food and plants
- 4) $\text{wi}\eta\text{-}$ with trees, weapons and wooden implements.

Thus:

Pungupungu	Wadyiginy	English
$\text{pæd}^Y\text{e}$		'head'
$\text{met}^Y\text{em-walan}^Y$	$\text{miran}\eta\text{uk}$	'knee'
$\text{menen}^Y\text{-melun}\eta\text{melun}$	$\text{met}^Y\text{em-}\eta\text{æræ}\eta$	'snake'
$\text{wi}\eta\text{-mele}$	$\text{menen}^Y\text{-melun}\eta\text{melun}$	'emu'
	$\text{wi}\eta\text{-mele}$	'cheeky yam'
		'ironwood'

In both dialects the adjective always follows the noun which it modifies and is normally invariable. The adjective may undergo partial or complete reduplication if plurality is emphasised. There is no concord between modifier and noun head.

Examples:

Pungupungu	Wadyiginy	English
$\text{muyin}^Y\text{ pamala}\eta$	$\text{muyin}^Y\text{ pamala}\eta$	'big dog'
$\text{ma}\eta\ \eta\text{ælma}$	$\text{ma}\eta\ \eta\text{ulma}$	'heavy stone'

The Noun morphology of the two dialects, then, is typical of the Daly Family languages, and indeed of the languages of this part of Australia. For more detailed information see Tryon (1974).

3. THE DIFFERENCES (THE VERB PHRASE)

The principal differences between the two dialects, and indeed those which seriously hamper communication concern the verb morphology, particularly in the area of transitive verbs/pronoun objects.

It is proposed, therefore, to move from the less to the more problematic, beginning with a brief examination of Pungupungu verb morphology, after first listing the subject and object pronouns, which will soon be seen to be central to the discussion. The Pungupungu pronouns are as follows:

	Subject	Object
'I'	ŋet ^Y e	-ŋarka
'you'	kene	-wiŋ
'he'	t ^Y amuyit ^Y	-nuŋ
'she'	t ^Y anmuyit ^Y	-ŋet ^Y eŋ
'we pl. inc.'	ŋerere	-ŋerereŋ
'we pl. exc.'	ŋere	-ŋereŋ
'you pl.'	nawara	-nawaraŋ
'they pl.'	parmuyit ^Y	-pæraŋ
'we dl. inc.'	ŋaŋka	-ŋaŋku
'we dl. exc.'	ŋereken ^Y	-ŋereŋken ^Y
'you dl.'	nawaraken ^Y	-nawaraŋken ^Y
'they dl.'	parmuyit ^Y ken ^Y	-pæraŋken ^Y

The only true dual form is ŋaŋka, expressing first person inclusive. The remaining dual forms consist of plural forms to which the dualising suffix -ken^Y is affixed.

In Pungupungu there are approximately twenty verb classes, based on the type of action being performed; thus, for example, we find verbs of lying, sitting, standing, etc. This is characteristic of all of the languages of the Daly Family.

In Pungupungu, the verb phrase may be represented by the formula:

± Verb Stem + Affix Unit (+ Actor ± Tense + Aspect)

In other words, the verb stem, normally a free form, must be accompanied by an affix unit appropriate to the verb class of which it is a member. The affix units are trimorphemic, with the exception of the non-future, which is usually dimorphemic. The morphemes within the affix unit indicate actor, tense and aspect/type of action. (In Pungupungu the affix unit follows the free form verb stem, while in other Daly Family languages it has been observed either preceding or following.) In some cases, to be discussed below, the affix unit alone may constitute a

complete utterance.

A specimen verb class will be presented. However, it should be noted that all Pungupungu verb classes function in exactly the same manner as that to be described.

3.1. VERBS OF LYING

The affix units which obligatorily accompany the free form verb stems belonging to this class are as follows:

	Non-F	FF
'I'	ŋi-ye	ŋa-pi-yaŋ
'you'	ken ^y i-ye	na-pi-yaŋ
'he'	ki-ye	ye-pi-yaŋ
'she'	ken ^y -ye	yen ^y -pi-yaŋ
'we inc.'	ŋeri-ye	ŋara-pi-yaŋ
'we exc.'	ŋere	ŋar-pi-yaŋ
'you'	kenki-ye	nar-pi-yaŋ
'they'	kere	per-pi-yaŋ
'we 2 inc.'	ŋaŋki-ye	ŋaŋka-pi-yaŋ

The basic tense distinction is between future and non-future. An habitual or continuous aspect is indicated by suffixing -m to the non-future affix units.

The affix unit describes the general field of action, normally, while the free form verb stem describes the action performed within the specified field.

Examples of usage:

mærakara marka n^yul ŋi-ye
yesterday flower smell I-lie
 'Yesterday I smelled the flower'.

yin^ymek ŋatta luruŋ ŋa-pi-yaŋ
tomorrow house clean I-F-lie
 'I shall clean the house tomorrow'.

The actions denoted by verb stems belonging to this class are predominantly thought of as normally performed in a supine position. The inclusion of some verb stems, for example t^yam 'to drink', may appear strange to Europeans.

Further example:

mærakara muyin^y ŋele tar ki-ye-ŋarka
yesterday dog hand bite he-lie-me
 'Yesterday the dog bit my hand.'

With verb classes whose sense is basically 'intransitive', such as with 'Verbs of Lying', each of the affix units may constitute a complete utterance in its own right, or may be used with an accompanying free form verb stem.

Thus:

ŋi-ye 'I lay down'
 ken^Ye-ye 'You lay down'
 ki-ye 'He lay down'

However, with verb classes whose sense is basically transitive, (i.e. not sitting, standing, lying, going) the affix unit may not be accompanied by a free form verb stem.

Thus:

pambat^Y pərak wiŋ meke ka-ren^Ye
child small tree from he-fall
 'The small child fell from the tree.'

The main point to be made here is that in the Pungupungu dialect, there is no overt marking of transitive versus intransitive verbs. If a pronoun object is expressed, either direct or indirect, it is normally suffixed to the affix or auxiliary unit, as in the example above.

Further examples:

maŋ wup ŋi-ye-nuŋ
stone give I-lie-him
 'I gave him the money.'

muyin^Y tar ye-pi-yaŋ-wiŋ
dog bite he-hit-lie-you
 'The dog will bite you.'

t^Yat ŋi-ye-nuŋ ŋurut^Yul
spear I-lie-him emu
 'I speared an emu.'

mərakara ŋaka ŋe-d^Ye-nuŋ wunkel
yesterday ask I-stand-him tobacco
 'I asked him for some tobacco.'

yin^Ymek win^Yiŋkin^Y marin^Y ye-pi-yaŋ-ŋarka
tomorrow boomerang make he-future-lie-me
 'He will make me a boomerang tomorrow.'

The above examples show, then, that in the Pungupungu dialect, no distinction is made between direct and indirect object pronouns or benefactives for that matter, as well as no formal distinction between transitive and intransitive verbs. We shall see now how this contrasts with the state of affairs in the Wadyiginy dialect (or Batyamal).

4. THE DIFFERENCES (WADYIGINY)

As we have seen, above, in the area of phonology and noun morphology, Wadyiginy and Pungupungu are, as one might expect, almost identical.

It is in verb morphology that the principal difference between the two 'dialects' lies. While Pungupungu makes no formal distinction between transitive and intransitive verbs, in Wadyiginy transitive verbs operate in a manner unique within the Daly Family. The verb morphology of Wadyiginy will, then, be described under three heads:

- 1) Intransitive Verbs,
- 2) Transitives with Direct Object,
- 3) Transitives with Indirect Object.

4.1. INTRANSITIVES

Intransitive verbs in Wadyiginy fall into exactly the same verb classes as in Pungupungu. The same affix units are found marking the same classes, with paradigms almost identical to the Pungupungu ones. Compare the following with the Pungupungu class 'verbs of lying':

	Non-future	Future
'I'	ŋi-yæ-(we)	ŋa-pi-yaŋ
'you'	ken ^Y i-ye-(we)	n ^Y a-pi-yaŋ
'he'	ki-ye-(we)	ye-pi-yaŋ
'she'	ken ^Y -ye-(we)	yen ^Y -pi-yaŋ

The sole difference between the affix unit paradigms for 'basically intransitive' verb classes, comparing Pungupungu and Wadyiginy, is that the actor morpheme for the second person singular, future tense, is n^Ya- in Wadyiginy and na- in Pungupungu. As with Pungupungu, in Wadyiginy the affix or auxiliary unit defines the field of action, while the free form verb stem describes the action performed within the field so specified.

Examples:

mærakara pænet^Y ŋi-yæ-we
yesterday dream I-lie-comp. act.
 'I dreamed yesterday.'

4.2. TRANSITIVES WITH DIRECT OBJECT

It is, with transitive verbs which take a direct object, either substantival or pronominal, that Wadyiginy departs most radically from Pungupungu, and indeed, from the other members of the Daly Family. In

Wadyiginy, all noun objects, whether animate or inanimate, reappear in pronominal form within the verb phrase. As we have seen, in Pungupungu the pronoun object always occurs suffixed to the affix unit. However, in Wadyiginy it is prefixed, the transitive verb phrase having the structure:

Verb Phrase (Transitive) = (+ S/O + Predicate [+ V Stem + Tense])

Not only are the Wadyiginy forms prefixed rather than suffixed, but also they are phonologically unrelated to the forms used in the Pungupungu dialect. In fact, the subject and object pronoun are fused into a combined or portmanteau morpheme, a feature not found elsewhere in the Daly Family. With noun objects, then, there are four possible forms for each actor, as illustrated by the following examples:

wiŋ yin - pirine

wood you/it - cut NF

'You cut the wood.'

wiŋ n^yan - pirine

wood you/them - cut NF

'You cut the wood.'

wiŋ ye - pira

wood you/it - cut F

'You will cut the wood.'

wiŋ n^yat - pira

wood you/them - cut F

'You will cut the wood.'

[For purposes of this paper, the changes for tense in the verb stem need not concern us.]

The subject-object portmanteaux just listed form an integral part of the personal pronoun object system. The complete table of forms for singular actors, non-future, is as follows:

	'Me'	'You'	'Him'	'Her'	'Us'(a)	'Us'(b)	'You (pl)'	'Them'	'Us'2
'I'	-	ŋen-	yaŋ	yaŋan ^y	-	-	n ^y en	ŋan	-
'you'	n ^y en	-	yin	ken ^y t ^y e	-	n ^y atpe	-	n ^y an	-
'he'	ŋan	kan ^y a	ke	ken ^y	ŋarinpe	ŋatpe	ŋanpe	kanpe	ŋankanpe

Examples:

mærakara ŋen-nene

yesterday I/you-see NF

'I saw you yesterday.'

mærakara yaŋ-nene
yesterday I/him-see NF
'I saw him yesterday.'

mærakara yaŋan^Y-nene
yesterday I/her -see NF
'I saw her yesterday.'

There are normally two forms for each relationship expressed - for example ŋan- '*I/them*' (NF), but ŋat- '*I/them*' (F). The non-future form is often characterised by a final -n, while the future form normally takes -t. Exceptions have been noted, however, which will not allow one to be absolutely categorical. The Wadyiginy dialect will obviously repay further study, for the portmanteau morpheme feature has raised several problems unresolved during the limited time available in the field to the present writer. For example, the table of forms just presented contains several homophonous forms; thus: n^Yen- expresses the relationship '*I/you pl.*' and '*you sg./me*'. The same applies to ŋan-, which expressed '*I/them*', and '*he/me*'. For a further discussion of homophonous forms, see Tryon (1974:217). Suffice it to say that homophonous forms are used, in a number of cases, to indicate reciprocal relationships, but that not all reciprocal relationships are so indicated.

One further comment should be made, at this point, namely that all verbs expressing direct object are conjugated in the same manner. In other words, the numerous verb classes of the Pungupungu dialect become one single class which covers all transitives with direct object.

4.3. TRANSITIVES WITH INDIRECT OBJECT

With Wadyiginy verbs which are 'basically intransitive', but may take an indirect object, such as '*to say, tell, call out*', a separate set of object pronouns is used. These are as follows:

'me'	-ŋarka
'you'	-wiŋ
'him'	-nuŋ
'her'	-ŋet ^Y eŋ
'us inc.'	-ŋararaŋ
'us exc.'	-ŋaraŋ
'you pl.'	-nawaraŋ
'them'	-pæraŋ
'us dl. inc.'	-ŋaŋkuŋ
'us dl. exc.'	-ŋaraŋkaŋ ^Y i
'you dl.'	-nawaraŋkaŋ ^Y i
'them dl.'	-pæraŋkaŋ ^Y i

These forms are identical to those already described for Pungupungu and as with Pungupungu occur suffixed to the intransitive affix unit.

Examples:

ke-me-ŋarka

he-say-me

'He told me.' (He said to me.)

ke-me-wiŋ

he-say-you

'He told you.'

ke-me-nuŋ

he-say-him

'He told him.'

ŋe-me-nuŋ

I-say-him

'I told him.'

With Pungupungu all verbs both 'transitive' and 'intransitive' follow the above system, while as has been shown it is restricted to verbs which are basically intransitive in Wadyiginy. Indirect objects with 'transitive' verbs in Wadyiginy are treated simply as direct objects, as for example in a sentence like '*I gave the money to him*', which is maŋ yaŋawene, literally '*money I/him give*'.

5. CONCLUSIONS

The major difference between Wadyiginy and Pungupungu, then, lies in the dramatically different manner in which pronominal objects are marked with transitive verbs. The existence of a prefixed portmanteau morpheme in the one dialect, and a simple suffixed pronoun object in the other raises certain problems, not the least of which is the question of the mutual intelligibility of the two dialects (Batyamal is considered identical with Wadyiginy for present purposes).

Answers to the questions raised are not likely to be forthcoming, since the last Pungupungu speaker died two years ago. However, previous to this time, Pungupungu speakers assured the present writer that they considered Wadyiginy quite separate and difficult, although speaking it well enough for communication. Tradition has it that Pungupungu, so close to Wadyiginy in all other respects except the area of transitive verbs, was once used as a *lingua franca* within the Daly area. Possibly it too once had the same transitive/intransitive distinction described for Wadyiginy, the distinction becoming eroded by the exigencies of being a *lingua franca* in an area in which no other language, at least

not one belonging to the Daly Family, observes the same type of distinction.

It is difficult to test such a hypothesis, since most of the Daly Family languages have long been on the decline. Even if one had been able to assess the number of speakers of Pungupungu as a second, third or fourth language, the problems of attempting to go beyond the hypothetical are well nigh insuperable.

The relationship of Pungupungu and Wadyiginy, then, is certainly problematic in terms of language classification, with the bulk of the evidence favouring their classification as dialects of the same language, while the key nature of the differences between the two militates against such a classification.

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ANTHROPOLOGY AND BOTANY: TURNING OVER A NEW LEAF

A.K. Chase and J.R. von Sturmer

With the rise of cognitive anthropology and a general movement towards understanding cultures from within, we have seen a growing interest in ethnoclassification. Developments have largely been in the direction of establishing a rough parallelism between existing branches of the physical sciences and supposedly isolable domains within the culture studied. Within this perspective, botany has become ethnobotany; zoology has become ethnozoology; biology has become ethnobiology; and so on. An examination of Conklin's *Folk Classification* (1972) will reveal the extent of this phenomenon, and we find among his section headings: Ethnozoology, Ethnobotany, Ethnomedicine and Ethnogeography.

This transference of the finite domains of Western Science to the study of supposed similar domains within other cultures will presumably continue, despite criticism from anthropologists who see serious methodological problems in the overzealous acceptance of the ethno-science model as the new direction in anthropology (see Keesing 1972, 1974 and Haviland 1975 for such criticisms).

However, like most critics of the brave new world of ethnoscience, we do accept that cognitive models of the environment do provide a valuable data source for those anthropologists interested in ecological studies. Such cognitive models, besides being part of the data which has to be accounted for, are useful in providing an additional (and convenient) methodological grid through which man-environment systems can be understood. In addition, they provide a productive meeting ground for anthropologists, linguists and biophysical scientists. This latter point has already been stressed by researchers who see benefit in working from a multi-disciplinary base (e.g. Godelier 1974).

In this paper we propose that ethnobotanical studies should comprise

part of a wider appreciation of 'ethnoenvironmental' classifications, as well as providing rigorous scientific descriptions of the botanical universe from which this or that society draws the raw material for its own botany. To pursue this idea further, we suppose that the investigator has a responsibility to establish how closely in fact the divisions of science parallel the divisions which the ethnos, the society being studied, itself employs. In the spirit of Bulmer's (1967) paper, "Why is the Cassowary not a Bird?", we may well find a case, for example, of "Why is the ti-tree not a plant?". Although Bulmer posits the question initially as a problem of zoological taxonomy, he concludes that, to see it simply in these terms, "... could be to miss the point" (Bulmer 1967:19). He continues: "... 'special taxonomic status' is a function of something broader, a special status in culture, or cosmology at large." Our attempt is to arrive at tentative guidelines for establishing this "something broader".

The preceding discussion implies an enormously wide spectrum of interests on the part of the researcher. Even for an anthropologist trained in the full range of scientific disciplines, to treat all of them adequately in the field would be a tremendous task. However, few of us are lucky enough to be well-rounded natural scientists in our own right. The fact is that most of us turn to these wider interests from a specialist anthropological or linguistic perspective which, originally narrow, is ineluctably widened in the search for understanding.

The suggestion is that we are seeing, in some ways, a return to the nineteenth century idea of the encyclopaedic natural scientist, the anthropologist who can "find his way around" in practical terms in the total physical environment. The pressures provoking a movement in this direction are made more intense by the awareness that in some cases we shall be the last researchers able to collect information about particular traditional man-environment relationships.

We list three main methodological issues which would profit from preliminary discussions:

1. The acquisition by the field researcher of skills in carrying out basic descriptive mapping, specimen collection and field identification in the areas of botany, physical geography and zoology.
2. Given a focus on ethnobotany, the concomitant gathering of data in wider 'ethno-categories' - what we might term 'ethnoenvironmental studies' - and in parallel sub-areas such as ethnozoology, and - we raise it because of its potential interest - ethnopharmacology.
3. The development of wider strategies: (a) in the use of informants, and (b) in the use of researchers.

We shall return to these issues shortly, after considering two of

their implications. They imply, firstly, a long-term commitment by a researcher or a group of researchers to a particular area and to its people. Secondly, they place an emphasis on understanding the total ecological relationship rather than the isolation of a single aspect of the environment, i.e. on an 'ethnoecology' rather than on particular ethnosciences. We believe that in the Australian situation, at least, there has been insufficient attention paid to in-depth studies of particular regions as total ecosystems. Rather than mapping a particular ideational structure such as ethnobotany, it would be our hope that in the future we shall see information collected systematically across as many dimensions of man-environment interaction as possible. We might be less inclined to adopt the narrow perspective habitually brought to studies of man-plant interaction in different societies if we were to conduct an investigation into cultivation and into plant use in our own European-Australian society.

In summary, we would see a rigorous ethnobotanical study as comprising at least the following components:

- (1) **Ethnoclassification** - to discover the principles underlying the assignation of particular items to named (overt) or unnamed (covert) categories within particular semantic domains. The question is then raised of whether there is in fact an isolable 'botanical' domain, and what the nature of its relationships with other domains might be. An important task would involve determining folk classifications relating plant communities to the physical environment.
- (2) **Western scientific description** of the plants, the plant communities and details of the physical environment.
- (3) **Techno-environmental or adaptational studies** of behaviours associated with plant use.
- (4) **Epistemological studies** - examining the position of plants within conceptual systems, including belief systems, totemism (especially as 'Systems of sentiment') and cosmology. In this connexion it might be worth noting Haviland's comments in his review of *Principles of Tzeltal Plant Classification* (Berlin, Breedlove and Raven 1974):

There is more to the cultural significance of plants than the fact that some are cultivated, others protected, others merely used. Plants are also revered, treated with respect, fear, caution ... Tzeltal speakers know about plants, but they also feel about them.

(Haviland 1975:45)

- (5) **Analysis of social contexts:** There is a tendency in formal ethnoscientific studies to treat the 'external domain' as having a life of its own, with a fixed place within the culture of this or that society, independent of the people who comprise the society. One of

the problems of this approach is that it does not allow us to understand how people within the society either acquire or transmit knowledge. Knowledge about plants, for example, does not exist as a simple unitary body of knowledge; rather it is possessed by people in differential ways and in varying degrees. Within Aboriginal societies, age and sex are two among many important variables governing the bodies of knowledge possessed by particular individuals.

(6) The systematic change through time in both the socio-cultural and biophysical environments.

More generally, Burling (1964) and others have stressed that alternative solutions are logically possible in the formal semantic analysis of any domain. To check whether the analysis 'fits' the society or whether it might, in fact, coincide with some deep underlying cognitive structure, has raised the question of 'psychological reality' (see among others, Romney and D'Andrade 1964; Wallace 1965). There has also been a suggestion that in order to discover the analysis which fits from the perspective of the society being studied, it may be important to establish the progressive stages whereby children come to knowledge of the various semantic domains. We make the additional point that no ethnoscientific study can lay claim to being adequate unless it establishes the social categories which represent particular cultural interests or specialised patterns of interaction with the natural environment. Without evidence to the contrary, it is as unwise to assume there is only one way of 'seeing' plants in an Aboriginal society, as it is to argue that gardeners and farmers and botanists 'see' plants in the same way in our own society. Knowledge is at least in part a function of interest.

Spells of fieldwork at Edward River, Aurukun, Hope Vale and Lockhart indicate that children in Cape York Peninsula communities can properly label 'bush fruit', and, in fact, are well aware of the location of individual trees, while often they remain totally ignorant of other plants, or they have failed to acquire the appropriate lexical items. This is a clear example of the relationship between knowledge and interest. Moving to another example more concerned with use than with naming: we could safely hypothesise that men would be more knowledgeable about techniques for splitting timber for spear shafts or woomeras than women, and correspondingly, that women would show greater knowledge than men of techniques which related to women's activities.

Other, more complex, contextual constraints would include customary restrictions applied to the distribution or consumption of certain foodstuffs. These restrictions might apply in certain kin-based relationships, during periods of mourning, on ceremonial occasions, to

certain 'estates' (following Maddock's 1974 usage) and so on. At the level of naming, restrictions applying to foods and other items can occasionally lead to a double naming system, one set of lexical items used in one set of inter-personal relationships, another set for the other set of relationships (see, for example, Thomson 1972:20).

We return now to the three methodological issues listed earlier. The focus is on ethnobotanical studies.

Acquisition of field skills

Our first suggestion related to the mapping of botanical communities and of the general physical environment. For most of us without specialist training there has been little to guide us. With reference to botanical communities, Specht's classifications (1970) have been found to be very broad where detailed descriptions are needed; and particular systems such as Jones' method (1971) of field identification of mangroves leave too much latitude for subjective interpretation. An encouraging recent development is a structural typology checklist of forests (Webb, Tracey and Williams 1976). Similar developments for abiotic environmental mapping (i.e. of soils, geology and physical geography) would be welcomed. Together with formal checklist approaches of the type indicated there is a need for basic handbooks on the collection and preservation of specimens, and clear guidelines on, and assistance in, identification.

Consideration might also be given to including instruction in basic collecting and identification techniques within general anthropological courses as part of fieldwork methodology.

Concomitant collection of information in wider 'ethno-categories'

We have stressed the need to relate narrowly ethnobotanical studies to wider and other systems of classification. The most pertinent are those systems which treat the naming and the identification of zones of vegetation, and of associated topographic features. In our experience we have found a naming system with terms for open and closed wetlands, dry and wet sclerophyll, rain-forests, heaths and coastal scrubs.

Also, we suggest that marine environments and vegetation ought not to be neglected. For example, seaweeds and seagrasses commonly form part of systems of classification, and their ecological relationships with marine animals are well known. A common feature of Aboriginal systems of classification is the high degree of continuity between terrestrial and marine systems (see Sutton 1976).

A further refinement might be to consider what we shall call

tentatively 'cross-domain classifications'. With respect to Aboriginal societies these might well consist of what have been characterised as terms for human body parts, used in a metaphoric way to describe, not only 'equivalent' animal body parts, but plant parts as well (for examples, see Schebeck 1974). To give an example from English usage: *spine* is used to describe 'the backbone' (in animals) and 'thorns' or 'prickles' in plants. It is difficult, at face value, to determine the common components of meaning in these varying usages; they date back long into the past (Latin *spina* 'thorn, backbone'). It is less difficult to relate the first usage (referring to 'backbone') to the usage where it describes what the dictionary clumsily defines as "the part of a book's cover or jacket visible when it is in place on a shelf". (We are not yet convinced that the terms used in Aboriginal languages are primarily human body part terms any more than we are convinced that *spine* in English is primarily a body part term.).

The development of wider strategies

The growing appreciation in anthropology of environmental factors has as one of its outcomes, we believe, the development of limited team research. Long term fieldwork is difficult. Most experienced researchers have heavy teaching commitments. In addition, seasonal factors and, in some situations, the disappearance of informants with personal experience of bush living pose additional problems. Taken together, they point to the need for fieldwork to be as productive as possible. This last requirement will not be achieved without systematic ethnographic recording across the optimal number of dimensions. In most instances it will call for the combined skills of a number of researchers, for example, a linguist, a botanist and a social anthropologist. Even then, they ought not to rely simply on the haphazard, but accumulated, data which their field techniques are liable to gather. Rather, they should determine their strategies of data collection and their analytical framework well in advance.

The use of integrated teams of researchers is one strategy. However, we could point to other strategies which do not seem to have been explored. We should stress here that most studies do not, unfortunately, provide details of how the data were obtained. We presume that they are the results of formal elicitation from physical specimens collected by the researcher. The role of informants in this type of research is essentially passive. Their co-operation rather than their initiative is sought. To the best of our knowledge there does not seem to have been any attempt to engage informants more actively in research, for example, by leaving them to structure the ordering and the nature of field collections, or by requesting them to collect all specimens from what they might classify as a single environment, e.g. Cape York Aboriginal English

skrab '*scrub*'. Such an approach seems to offer greater theoretical rigour. Further, it lends itself admirably to the task of eliciting information on the techno-environmental and epistemological levels.

To exemplify some of the issues raised we conclude by presenting, in very much a preliminary and unsystematic way, some of the data gathered during recent fieldwork in Cape York Peninsula (November 1975-February 1976). The focus of the field trip was the mapping of sites. Research of this kind has the great advantage that it allows research across a wide range of dimensions, yet pins the data down to accurately recorded localities. This procedure would allow, for example, the selection of interesting sites for follow-up work and, over the years, the accumulation of a vast quantity of site-specific information.

We present the data under a number of headings:

(1) **PLACE NAMES:** Preliminary analysis suggests that approximately 30% of the actual place names in the Eastern Cape York (Umpila-speaking section of the field exercise) relate to plant species.

Examples:

puy?a puŋkan	-	puy?a, Aboriginal English: d ^Y ana 'tree', Bot. unidentified.
puy?alu	-	see above.
tuypa	-	Bot. Neiosperma poweri (?).
tikipinta	-	tiki 'tree suitable for firestick', Bot. unidentified.
kapakay ^Y iŋunuma	-	kapakay, Bot. Dillenia alata.
yin ^Y t ^Y an ^Y uku	-	yin ^Y t ^Y an ^Y u 'tree from which gum obtained', Bot. unidentified.
ku:ŋtuŋunu	-	ku:ŋtu, Bot. Flagellaria indica.
yinŋipinta	-	yinŋi, Bot. Vigna marina.
ya:talu	-	ya:ta, Bot. unidentified; 'tree good for firewood'.

The various suffixes have not yet been properly analysed. However, a number of different principles seem to be involved in the assignation of names:

- a single exemplar of a particular species in a prominent position, e.g. as the most seawards of a clump of trees on the beachfront;
- a dominant species, e.g. puy?a in the examples given above;
- a food source habitually associated with a site;
- a food source habitually associated with a site, a precise feature of which, e.g. a rock, or a hollow in the ground, serves as the symbol of the species and often as the focus of so-called 'increase activities'. (Of the last principle, perhaps more examples are to be found on Western Cape York than on Eastern Cape York. In Kugu Nan^Yt^Yara, for example, the names of such sites usually include the postposed element awu.)

(2) ENVIRONMENTS: Thomson, who entered anthropology from ornithology, made an early attempt to establish a broad system of environmental zonation for the whole of Cape York Peninsula. Its function is clearly stated: "... It is essential to a study of the distribution of animal life, to classify this country into natural association areas, since each of these floral associations has its appropriate and characteristic animal forms" (Thomson 1935:13). Thomson carried over this sensitivity to ecological issues into his study of Aboriginal populations. Writing of the Wik-speaking groups of Western Cape York (especially the Wik Munkan) in a pioneering article, "The Seasonal Factor in Human Culture ...", he (Thomson 1939:212) notes:

... ark is a camp or a place; it is used also for 'season', and is applied further to concepts of time, to non-material and tangible matters. Ark, used alone, signifies a camp or a place, but it is also employed, again as a prefix, to the name given to each type of country, to each distinctive botanical or floral association - which is recognized quite as definitely by these people as by botanists and ecologists.

The people themselves recognise such associations as:

<u>ark pikkaput</u>	savannah woodland and savannah forest
<u>ark itta</u>	jungle association
<u>ark pilliti</u>	mangrove zone
<u>ark pamp</u>	swamp, swamp place
<u>ark loi</u>	characteristic botanical association fringing rivers, and many others.

In a footnote to the above passage, Thomson (1939:212) adds the further comment that:

It should be stressed that there is nothing artificial about this classification which is entirely that of the Wik Monkan natives themselves; this list could be much extended. In each case the natives gave me spontaneously, the names of trees, shrubs and herbaceous plants, which are characteristic of the type of association.

It is a pity that Thomson did not, in fact, choose to extend the list.

That task is beyond the scope of the present paper. Here we intend simply to take up one or two examples for Western Cape York Peninsula to suggest what naming principles may be involved, and to look to the east coast for additional examples.

ark itta (more properly, a:k i:ɿ) is a term applied to any rain scrub. may i:ɿ (may, roughly glossed, means 'vegetable food') is the term for the 'bush fruit', *Eugenia carissoides*, often (though, we suspect, not invariably) found in these scrubs. The tree itself is called yuk i:ɿ.

At first glance the evidence indicates that the lexeme, i:ɿ, has a primary meaning which refers to the plant (or to its fruit) and an extended meaning which refers to an environment that we might define as the only environment in which the plant can be expected to occur.

Equally one could invert the relationship and argue that the environment gives its name to the plant associated with it. No doubt the direction of the association can be confirmed by further fieldwork. The important point to note here is that a named environment and a named plant stand in some sort of relationship to each other. It is further worth noting that the plant is far from being the dominant species in the environment where it is found. On this score, the naming principle involved seems to relate to principle a. elucidated under *Place Names*.

A quick survey of Umpila (Eastern Cape York) environmental terms provides us with a ready example of where the plant species stands in a relationship of eponymy with the environment which it dominates, viz.

piṭal - 'mangrove sp.; also used as a cover term for all mangroves'

piṭalpiṭala - 'a mangrove-dominated environment'.

Different are those terms which do not by themselves posit a direct relationship between an environment and a plant species - either the dominant or a secondary species - habitually found within it. Thomson's *ark pamp* [a:k pe:mp] provides a clear case. pe:mp refers to any enclosed body of water; hence Thomson's gloss: 'swamp, swampy place'. However, we share Thomson's experience that informants can, and will, readily associate plants and animals with such habitats. Such information should be pursued systematically.

On another level, it remains to be determined whether those terms which appear to have a primarily botanical referent.

(3) CROSS-DOMAIN TERMINOLOGY (including body part):

Umpila

- ṅi:yi - 'nose, end (of leaf), sand spit'
 ṅaṅṅa - 'bone, nut'
 ṅalpay - 'groin (of man), fork (of tree)'
 ya:ki - 'tendon, vein (of leaf)'
 wuympa - 'egg, fruit, seed'
 maṅka - 'river, base (of tree, of spine)'

Wik Muṅkan

- puṅṅ - 'arm, wing (of bird, aeroplane), pectoral fin (of fish), branch (of tree)'
 ak - 'skin, bark'
 puṅk - 'knee, tyre (of vehicle), any round protuberance (on body, tree, etc.)'

(4) 'MATE' RELATIONSHIPS: Informants commonly refer to one set of phenomena as being 'mate' to another set of phenomena. In Umpila, this

relationship can be expressed by a special suffix - mulu: e.g.
taway 'moon'.

tawaymulu 'i meit lo mu:n' ('mate for moon')

= (i) 'floating tree gum (stated to be dried by the moon)';

(ii) 'fungi, toadstools'.

The relationship can also be expressed in kin terms, e.g. in Wik Muṅkan, yuk pi:pr (unidentified) is said to be 'cousin' to yuk wuyṅut (Casuarina equisetifolia). 'Cousin' is rendered as mu:y ^{ṅuṅṅ}
MBC, FZC, etc; 3rd.pers.sing.poss.

The more usual Aboriginal English translation would be 'mate', or ban^y_d^yi.

Similar use if kinship terms are found in Umpila. Note, for example, mi:mikun^y_t^yi (mi:mi 'MM').

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LINGUISTIC ASPECTS OF ETHNOBOTANICAL RESEARCH

Peter Sutton

1. LANGUAGE AS AN ESSENTIAL PART OF ETHNOBOTANY (NOT JUST A TOOL)

Ethnobotany, as I understand it, starts from three kinds of physical evidence (the choice of which, in any case, is constrained by some sorts of prior assumptions about knowledge):

the plants;

observations of plant use, non-use, selection, recognition etc.; and records of mediation of botanical (etc.) knowledge and belief through spoken (and sung) language, ceremony, gesture and other conventionalised systems.

This paper discusses only one part of the evidence - records of language - and rests on rather minimal direct experience.¹

My own view is that linguistics has its primary place in a more comprehensive discipline such as anthropology. One of the practical consequences of adopting this view is that people with primarily linguistic interests may well be prepared to look on investigation of the plant domain as important to their own work and be willing to co-operate with other specialists to explore it. They do not necessarily see themselves simply as technical assistants at the level of transcriber/interpreters, in interdisciplinary work.

A sophisticated ethnobotany depends heavily on the availability of a sophisticated linguistics. It is not enough just to have that kind of linguistics available as an analytical tool. One also needs people available with a good practising knowledge of particular languages and Aboriginal regional subcultures. There are only a handful of trained linguists in Australia with the ability to discuss something like plants in an Aboriginal language at a level of real sophistication. But this is the optimum kind of semantic exploration that can lead to an analysis

linking the so-called botanical domain to all the other domains, while exposing general and specific principles of cognitive organisation. Actually, a lot of those principles can be exposed without native-like command of local languages, but it still means knowing a great deal about them and having at least some spoken command.

Languages are symbolic and pragmatic SYSTEMS, full of cross-references and multiple reverberations of meaning, so that while individual elements of two different languages may be in some sense 'translation-equivalents' (e.g. 'tree' and yuku), they play non-equivalent roles in their respective semantic systems and are thus not happily transposable. By using a semantic metalanguage, one can presumably describe the different meanings of particular languages, and when 'translations' of particular words or sentences are placed against the background of such descriptions they can be understood (even though it is clear that many or most can never be commutable with their 'translation-equivalents' in radically different languages). Since cultural and grammatical descriptions are always partial, we probably have to accept the fact that all translations are at best partial.

My ideal of the way to begin an ethnobotanical study, based on a certain amount of experience in recent field work in the Cape Keerweer region, Cape York Peninsula, is to start learning the language and wait for botanical subjects to arise naturally and note what people say. At a later stage I ask what I have earlier observed to be the culturally relevant questions one can ask about plants, and also make it known that I would appreciate help in collecting and learning to recognise and name plants.

If you fail to show an increasing grasp of their language, people soon get tired of telling you things; conversely, if you show you can absorb such knowledge, they will blossom as teachers of great initiative. Aboriginal people generally show a lot of interest in plants and will discuss them freely, except perhaps where there are certain good Aboriginal reasons for not doing so. There can be a lot of enthusiasm for finding and identifying species, and an infallible memory for what species have already been collected. These tendencies can make field ethnobotany a pleasure for everyone concerned. The way these Aboriginal interests are expressed and structured is all part of the essential data. By suppressing the desire to immediately ask his own list of preconceived questions, and by patiently observing, the ethnobotanist has a good chance of getting the salient cognitive structures and processes handed to him on a plate. These observations can form the basis of future questions. I consider it axiomatic that one does not really know what are the right questions to ask until the

culture has taught you what they are. That is why it is important to know about kinship, animals and mythology (etc.), as well as plants, in order to do ethnobotany.

Sections 3-5 of this paper list questions that can be asked about the data once obtained, so in that sense they suggest subjects which could be investigated with Aboriginal instructors. However, such a list cannot be used as an 'elicitation sheet' for work in the field. Field techniques vary greatly between investigators, but I would like to make a couple of suggestions from a linguist's point of view:

Use a tape-recorder, especially in the early stages. Far too much 'information' gathered in the field actually consists solely of field workers' interpretation of the meaning of things said by Aborigines. Without some objective record of conversations, there is no check on the degeneracy of this 'information'. An objective record enables investigators to subsequently correct and refine interpretations, and also find valuable information they had not bothered to write down in the first place. Obviously the native-language materials should be tape-recorded, especially where the investigator is not trained in linguistics.

Early investigations should be as wide and unstructured (by the investigator) as possible, to allow people the freedom to structure things out for themselves. The way people select species for collection, and the order in which they deal with names, attributions, classifications, environmental associations etc. are not random; nor are their side-comments or their disputes among themselves over the proper name or classification of a specimen. My own experience with Aboriginal people shows that anything can ultimately turn out to be relevant if it is said during the discussion of a topic, no matter how much it seems to be a change of subject or a false lead.

2. PLANT NAMING, DESCRIPTION AND CLASSIFICATION AS ASPECTS OF SPEECH ACTS

The bulk of this paper deals with three subjects, names, attributions and classifications. Naming and attributing are speech acts, and a look at many plant names will immediately reveal that they are often derived from attributions and still sometimes have attributive force in addition to acting as nomenclature - so the distinction I make is a bit artificial, if useful. By 'names' I mean the tags given to all taxa, not just those on the lowest or most specific level. Thus there are specific and generic names, but actually these two only differ by degree,

since plants are always named in classes, never normally as individuals. So plant names are not names in the same sense as those of individual people or their pets. Attributions are also class-based, in a sense, as they at least contain reverberations from the class of things one has heard them used of before, and generate their own classes. Naming and attribution as speech acts reveal intersecting but distinguishable total domain classifications which may never be made explicit within a particular culture. These classifications may not always be reducible to rigid, unambiguous taxonomic (or other) arrangements.

Both particular speech acts and the speech events they comprise have structure. There is interplay between these structures and the wider cognitive domains that form the contexts of speech events (not to mention physiography of the environment etc.; but such physical realities are a further step removed again and do not come into a linguistic/cognitive discussion at this level). A sophisticated ethnobotany should appreciate the finer points of (in this case) Aboriginal botanical discourse.

Botanically-related speech acts can be divided up along subject lines, but often with difficulty, since, in real contexts, people wander from naming to describing physiology to stating plant use to discussing environmental characteristics, etc. However, we can assume that this behaviour is not random and is worth investigating. People I have worked with in eastern Cape York Peninsula have resorted to the following kinds of salient categories in both elicited and unelicited comments about plants. (Note that the order of the categories as listed here is based on my recollection of typical tendencies, and should not itself be taken too seriously.)

2.1. NOMENCLATURE

Name/alternate names/got no name/no special name, just an X/big name, small name/that's a tree/shrub/vine/grass/weed/epiphyte/seaweed/fungus etc.

2.2. EDIBILITY

We eat it (best food/good food/hard-time food/rubbish food)/only kids eat it/too small/only for big people/old people used to eat/no good/poisonous/not allowed to eat it/(+/- only) pigs/emus/possums, etc. eat it. big food/little food//restricted/unrestricted. sweet/strong/bitter/cheeky/scratches your throat/makes you vomit. eat it raw/scratch it/smash it up/soak in water/cook in ashes, etc.

2.3. PHYSICAL ATTRIBUTES²

Got fruit/no fruit//got long yam/round yam. got flower (colour of flower)//bees nest in it. got prickles/wild one/pretty leaf. big tree/small tree//big-leaf variety/small-leaf variety.

2.4. NON-PHYSICAL ATTRIBUTES

That one belongs (totemically) to so-and-so (or the family designation). that one is a story-yam. strong/weak//safe/dangerous (etc.).

2.5. USE

Food (see EDIBILITY). technology (for woomeras, wet season firewood, insect repellent etc.). good medicine, rub/drink/inhale smoke from it etc. sex magic, for man/for woman. fish poison. good for blankets/beads/toys etc. no good for anything.

2.6. ENVIRONMENT AND LOCATION

Some/plenty around/here//none here/plenty at X/X proper shot with them. you find them anywhere there is an X (extra-class association). belongs inside (inland)/on littoral/scrub-edge/scarp/seafront. belongs to mainland/islands/reefs. belongs to impenetrable scrubs/thick scrubs/forest/open country. belongs to hills/steep places/flat plains/river-banks/swamps/sandridges. belongs to soft/sandy/hard/stony/wet etc. places.

2.7. INTER/INTRA-CLASS RELATIONS (see also NOMENCLATURE)

Main one/proper one/real one. only one kind/X kinds/another kind of Y/this X is a Y. X is mate for Y/those three are mates/close or distant mates³. same as X/similar to X/different from X.

2.8. SEASONALITY

You find it at turtle mating time, etc.

The above list is only partial, but still certain important facts emerge: for example, there are traditional repertoires of verbal strategy in such a domain, in addition to the normal inventive powers of the language (for example: 'X is "mate" of Y', 'it's got X', 'it's good for X', 'it belongs to X', probably rate as rough translations of such strategies). Another point is that it is important to record these locutions as accurately as possible, even though it is tempting to

translate them into one's own notebook English and to précis them down to a word or two.

So in addition to the simply referential aspects of botanical utterances there are important lessons to be learned from their formal structures (this is dealt with in more detail below), as well as from their pragmatic role in social behaviour, especially non-referential communication (for example, obscene vs. polite vs. secret/sacred names for the same plant are alternatives selected according to non-referential norms), and as elements of discourse.

3. MORPHOLOGY AND SEMANTICS OF NAMES

In this and the following two sections, I put the topics in the form of questions about recorded data. Some of these questions were suggested by my reading of Berlin, Breedlove and Raven (1974).

In the generic and specific naming of plants, what methods of compounding, reduplication, derivational affixing, metaphoric extension etc. are used? What proportion of plant-naming stems utilise these devices, and what proportion are morphologically 'unanalysable'?

Where taxa are covert, in the sense of lacking a name, what are the formal devices of grammar which reveal them (e.g. noun classes as revealed by prefixes, pronominal cross-referencing or free markers)?

What kinds of attributional choices have been made in those cases where plant names are semantically analysable or their noun class membership criteria non-arbitrary?

What do explicit definitions or analyses of plant names or their conventional attributions tell you about the relative cognitive salience of physiological characteristics, environmental associations, technological uses, socio-religious significance etc. within the botanical domain?

Is there a linguistic register other than the everyday 'unmarked' language which throws light on the semantics of plant terminology - for example, a typically hyponymous kin avoidance-register like Dyrbal's Dyalnguy, or an antonymous initiation register like Walbiri's tjiliwiri? What semantic or other principles are employed (hyponymy, antonymy, dialect-switching, etc.)?

Are plant names different in songs, ritual contexts, etc. compared with ordinary speech?

Is there a developed gestural system, and what botanical terms does it possess? Do they typically subsume large sets of spoken-language terms?

4. ATTRIBUTIONS

4.1. PHYSIOLOGICAL ATTRIBUTIONS

What are the recognised stages of growth (development of shoot, stem, flower, fruit, seed etc.), as well as of death and decay (e.g. dead but green, half-cured, cured, half-rotten, rotten)?

What are the plant part names? (In Australian languages there tend to be a set of non-metaphoric simple terms covering parts such as shoot, leaf, root, flower, burr, fork, twig, plus a set of more or less metaphorical or very general terms which can be applied in turn to any plant part where appropriate (e.g. the 'nose' of a leaf/twig/root, 'belly' of a leaf/stem/trunk).).

What attributives are used of plants, covering e.g. colour (basic terms, sub-classifiable secondary or metaphoric terms, nonce-descriptions), size, texture (bumpy, grooved, hairy, smooth, rough, loose, spiny, shrivelled, sticky, etc.) shape (long yam/round yam, etc.), taste, edibility, moisture content, smell, strength, pliancy, etc.?

4.2. NON-PHYSIOLOGICAL ATTRIBUTIONS

Are plants associated with different moieties, clans, cult lodges etc? Are there cover-terms for such associated species?

Which are the plants mentioned in or related to particular narratives, songs, rituals, etc.? Is there an overt way of describing this relationship?

Are plants described in terms of safety/danger, relative toxicity, etc. in a way that is essentially indistinguishable from their physical properties?

What kinds of environments are conventionally characterised by a reference to a plant type or class typically associated with them (e.g. rain scrubs, box ridges, mangrove swamps, mulga copses)? What does that tell you about the cognitive salience of those plants when you compare the chosen species with its relative frequency in that type of environment (e.g. which of the mangroves is selected as a cover-term for mangrove complexes)?

Which plant names occur in place-names, personal and dog names etc., and what is the explicable connection between them (if any)?

5. CLASSIFICATIONS

5.1. TAXONOMIES (*Hyponymic or Dominance Relations between Terms*)

Are there explicit terms or formal grammatical devices which provide unique beginners⁴ (i.e. such as plants/animals/human beings/abstract

entities), and what is the range of these categories (e.g. are lichens '*plants*', or outside any such categories, or ambiguous with respect to them?)?

What are the basic life-form taxa dominated by a unique beginner such as '*plants*' (i.e. such as trees/shrubs/vines/grasses/fungi/seaweeds/residue)? Are there generics (see next level below) which are not fitted into - or are ambiguous with respect to - these basic life-form taxa? What percentage of generics are thus unaffiliated or ambiguous?

What percentage of generic taxa are monotypic⁵ and what percentage polytypic? Of those that are polytypic, how many recognised (named or un-named) specific classes are subsumed by each?

How many and what specific classes are un-named but conventionally recognised and classified? How are they typically distinguished? Are these distinguishing criteria at all general and conventionalised in descriptions of recognised un-named specific classes?

What are the classificatory criteria implied by the structure of the taxonomy, and by the observed application of the taxonomy in different cases of recognition and classification by informants? By what linguistic means, and with how much uniformity, can people make these taxonomic criteria explicit?

Are there multiple levels of generic taxa? Which terms appear at different levels in the taxonomy in the same form but with different functions?

5.2. NON-TAXONOMIC CLASSIFICATION

The way plant names take their place in a taxonomy commonly rests on the logically prior application of classificatory criteria which normally remain implicit, at least to a degree. The criteria for the inclusion of some items in a particular taxonomic box may not be explicable (one assumes they must have been once); frequently this is because some mythico-religious association has lost its currency. On the other hand, the grammar and lexicon of attributions (and also analysable names) provide exposed criteria which generate sets of implicit paradigms for the plant domain. It should be highly interesting to compare the paradigms you can set up by sorting plants into salient attributional classes with the taxonomies set up by the sorting of plants into taxa at the various levels. Clearly, people have a range of alternate classifications of the same things which they can use when it suits them, and we should not just chase Aboriginal taxonomies because we think that sort of structure is important. A taxonomic arrangement may simply be a weak grid superimposed on a far more prominent set of classes.

It is possible, for example, to present a taxonomy which includes only single classificatory dimensions each multiply applied on some rows, while other rows consist of nodes where each classificatory dimension is uniquely applied. But whether the taxonomy is mixed, as just described, or consists purely of either uniquely or non-uniquely applied dimensions, it is still an abstraction which, in its entirety, may be of no particular importance in the culture. Maybe there is no one 'taxonomy for all seasons' for that culture. Taxa rest on the principle of minimal distinctness and the terminological (or covert) hyponymy which that implies. Entities can be minimally distinct in one context and non-minimally distinct in another. This particularly applies to the morphological, sociological and environmental dimensions, which may use quite radically different criteria for classification. Entities are not only found in different classes on different occasions, but also may be ambiguous with respect to hierarchically-related classes in the same tree, or may belong to un-segmentable gradients, or may be unaffiliated at one or more levels in a hierarchy. One of the basic human skills of manipulating the environment, it seems to me, is just this ability to manipulate the intermeshing of different classificatory and grading modes, taxonomic and otherwise. The 'syntax' of how these different related modes are manipulated is surely the most interesting aspect of ethnobotany as a cognitive domain. Native botanical competence consists of positive abilities and acts rather than static arrays of classificatory knowledge of a given universe.

It is relevant here to quote part of Hale's report (1971) on tjiliwiri, which is basically a linguistic tradition connected with advanced initiation rituals of Walbiri men, and whose basic principle is antonymy (turning ordinary language 'upside down'). (Please note that there are severe restrictions on the discussion of this knowledge (Hale 1971:472)). Wherever possible, the antonymy principle produces polar opposites (e.g. instead of 'Give me water' one says 'I am withholding fire from him'; for 'I am short', one says 'You are tall'). Lexical items whose semantic interrelationships are 'typically taxonomic' are unsuitable for generating polar opposites. Instead, "members of a given class of objects are opposed to other members of the same immediate class - a large macropod is opposed to another large macropod (kangaroo/euro), a eucalypt is opposed to another eucalypt (red gum/ghost gum), and so on. A great deal of variability can be observed in lexical domains whose structure is taxonomic, since considerable latitude is permitted in the hierarchical arrangement of oppositions within well defined classes. Accordingly, on a given occasion, a tjiliwiri speaker may oppose macropods according to habitat, leaving size and other

attributes constant insofar as it is possible to do so; on another occasion, he may oppose them on the basis of size, leaving constant the other attributes. In general, however, an effort is made to oppose entities which are minimally distinct".

As a technique for exploring the semantics of botanical lexicon, the antonymy principle appears to be very productive, at least in this case. So long as one kept it entirely as a secular game and used it in areas far from Walbiri contact, I believe this principle could be taught to people and used for ethnobotanical and other cognitive studies, without it being linked to secret ritual. Note that Dixon used a similar technique in semantic studies with the Dyrbalngan (Dixon 1968:376). It is just this kind of active manipulation of different classificatory (and grading) abilities that is most readily analysable through language, and which also is of basic anthropological interest.

N O T E S

1. I was involved in ethnobotanical work with David Harris and Jet Harris for a few days in the Flinders Islands area (Cape York Peninsula, Queensland) in 1974, and for two months with Chase, von Sturmer, Rigsby and Thompson in the Lockhart Reserve (also C.Y.P.) during the 1975-76 wet season. In both cases it was peripheral to the other field work. This paper is specifically aimed at others engaged in ethnobotanical work in the Australian Aboriginal field.
2. The distinction here between 'physical' and 'non-physical' attributes may not be relevant to a particular culture, or may have to be carefully established.
3. Note that where 'X is mate of Y', they are often minimally distinct plant species, but in some cases one is a plant while the other belongs to another life-form, is an environmental feature etc., with a close non-botanical connection to the named plant. (I am indebted to Athol Chase for this observation.)
4. Unique beginners are taxa not classified at a more inclusive level.
5. Monotypic generics subsume single recognised specific classes; polytypic generics subsume more than one.

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