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THE LANGUAGE SITUATION IN THE PILBARA - PAST AND PRESENT

C. G. VON BRANDENSTEIN

Since the subject of this paper is largely of a geographical nature its presentation might be supported most suitably by several maps.¹

The area concerned is situated roughly between the 20th and 26th degree southern latitude and the 113th and 121st degree eastern longitude. Expressed in territorial terms this means the North West Division of Western Australia, bounded north by the De Grey and Oakover Rivers, south by the Wooramel River, west by the Indian Ocean and east by the Great Northern Highway.

To avoid a lengthy title, and for want of a better, deservedly Aboriginal name, I have used the term 'Pilbara' to cover this region, although it should be noted that this name is more generally applied to the mining district between the De Grey, Oakover and Fortescue Rivers.

The history of linguistic exploration in the Pilbara begins with the Ngarluma vocabulary of 78 words collected by P. Walcott. He was a member of the expedition under Gregory which opened up the northern Pilbara for squatters in 1861. Since then the language situation there, being substantially part of the tribal situation, has aroused only sporadic interest. Until not too long ago none of the observers whose names and works are listed in historical order in the Bibliography to this paper, was a linguist. Radcliffe-Brown, at that time the only trained anthropologist to work in the area, published the first useful map (No.1) in 1912. A later one (No.2), by Connelly (1932), is not as complete as the corresponding section of Tindale's tribal map (No.3) of 1940. The tribal boundaries which Tindale introduced for the first time were of necessity a matter of conjecture.

During the first phase of exploration in the Pilbara, the linguistic approach was characterised, as elsewhere in Australia, by the collection of vocabularies, occasionally supplemented by a few phrases. Allowing for the limited

value of the methods employed we must admit that much more was done for the Pilbara languages in the 50 years between 1860 and 1910 than in the subsequent period between 1910 and the late 1950s. If this fact is not well known it is only because the main source - Daisy Bates' great collection² of "Native Vocabularies" - lies forgotten in the Battye Library in Perth, Western Australia - untouched for the last 60 years. Comprising about 380 folio pages, and including some questionnaires and grammatical notes, these documents deal with 12 of the Pilbara languages in 19 vocabularies, only two of which have been published. When compared with the results of more recent research the older sources may prove quite valuable, particularly with regard to the movements of languages and possible changes in their vocabulary. After the First World War, no linguistic research was carried out until a new era began with Capell's "New Approach" (1956) and the field work undertaken by Hale and O'Grady.³

Supported by a grant from the Australian Institute of Aboriginal Studies I started field work in the Pilbara in 1964 and have continued my research there during the winter seasons. The work has been carried out at 3 levels simultaneously. Whilst "survey" was followed by "study", wherever the opportunity arose I concentrated on planned "depth study" of Ngarluma, Jindjiparndi and Njijapali which is spoken by the Paljgu. I singled out these 3 languages because Ngarluma and Jindjiparndi not only provided an ideal combination for

proved representative of the whole coastal group. Njijapali, on the other hand, is interesting as the westernmost member of the large Western Desert group. The map (No.6) showing the 3 levels of study-intensity may give an idea of how much more needs to be done in the Pilbara.

Altogether there are 52 Aboriginal names, representing 40 languages and some sub-groups, which are localised on the maps No.4 to No.6. Of these, 32 names belong to the "survey" - 10 to the "study"- and 9 to the "depth-study"-level.⁴ I mention in passing that the distribution of all these names reveals a density pattern which is proportional to the density of watercourses on the map. Similar patterns are met with in northern Victoria.

As far as the meaning of the tribal or language names is concerned I found only a few still intelligible to the Aboriginals themselves. Paljgu, for instance, means the 'Pleasant' or 'Gentle' ones, in accordance with their ancestral heroes, the two Tamiarra or 'Gentlemen'. Not so flattering are the names Ngarluma, which has to do with the root

ngarlu-ma- for 'to poison', and Kariera, containing the adjective kari 'bitter, sour, sharp'. Others refer to geographical features: the Marduthnira are the 'Flat- or River-landers' showing mardu 'flat, low' which occurs in a similar compound as Marduiddja⁴, the name for the lowlands of the upper Fortescue River. The Tjururu are also 'Lowlanders' in contrast to their neighbours, the Kurama or 'Highlanders'. Likewise a sub-

(Montanyingu), correspond to the French 'montagnard', both derived from homophonic stems monta- for 'mount, stone'. Another group takes the points of the compass as names. We find them mainly in Wadjarri country: Wardal 'east', Pidungu 'west', and Jaburru 'north'. There is also Jaburrara for the 'Northern' Ngarluma. Another group again consists of names indicating the usage of one peculiar word in this tribe, e.g. Pinikurra from pini- 'to go' or Njijapali from njija 'this'.⁵ The warnnga-names⁶ belong here also: Ngaala-warnnga and Ngaja-warnnga denote a speech in which the pronouns ngaala and ngaja are used, and Pundju-warnnga is the Njamal 'heavy-speech'. The Ju'unna, also a Njamal sub-group, are the people who say ju'u for 'yes'. Wadjarri may be a derivative of wadji 'not', the two representing the well-known group in Australia of negative or affirmative names. A certain pride is expressed in the name Iirra-Wadjarri, which means the 'mouth' or 'genuine' Wadjarri in contrast to the rest of the large group. Jardira is a collective name for the Kuarindjarri, the 'Westerners' and the Kurama, the 'Highlanders', because they live both 'on the (one) side', as seen from the Marduthunira. But let us leave the analysis of names and turn to the classification of the languages in the Pilbara.

Two basic types are represented there which stand out also by their regional distribution. To give a clearer picture of their nature I must digress and leave the Australian scene for a while.

Many typological divisions can and have been made in order to classify the languages of the world. The one I wish to introduce here is not yet so well known in its universal application, and its terminology still needs further clarification. Nevertheless more attention should be paid to it, because it seems to hold clues to the evolution of certain grammatical cases in the Indo-European languages, semantically as well as phonemically.

If I call the two opposed terms relating to 'transitive action' of verbs, *PVC* and *AVC*, which stand for 'Passive Verbal Concept' and 'Active Verbal Concept', to name the

older one first, it should be emphasised that the two well worn classical terms 'Passive' and 'Active' have been retained mainly so they may not lose their polarity potential in any comparative study. Strictly speaking, the real contrast would be between an older 'Neutral Verbal Concept' and a younger 'Active-Passive Verbal Concept'. The term 'passive verb' is certainly not valid for some non-Indo-European languages. But most substitutes so far offered, like 'verbal noun', 'nominal verb', or 'transitive and intransitive' cling again to the same tradition and do not offer a better set of opposites to operate with in comparative studies. The dilemma has been realised for a long time.⁷ In my opinion methods and terminology will of necessity continue to suit the 'active' linguist and not the 'passive' language type under analysis as long as linguistics is dominated by European background and tradition.

The following definition is summary and rather simplified. In *PVC* our term 'action' is presented as a happening, being related or equated to somebody or something. The focus is on the person or thing 'related' to the happening as its grammatical and literal 'subject'. The person who caused the happening is of less importance and stays instrumental or lateral.⁸ Needless to say that there can be no passive voice in *PVC* as there is no active voice. If the voice has to be named it should be called 'neutral' as already pointed out above.

In *AVC* the focus is on the acting person, playing the dominant role in the action. The former 'related' person or thing is removed from his or its equational impartiality and is raised to the actor's level of involvement by becoming the 'direct object'.⁹ In this concept a passive voice can logically be expected and is often found.

AVC, the 'Active Verbal Concept', is younger and seems to be the result of a 'transformation' from *PVC*. This has been concluded from the existence of a nominative and accusative case in a number of Indo-European languages for non-neuter nouns, based on the rudimentary phonemes -s and -n. Prior to the transformation, these endings had represented the agentive *-s and essive *-n(a) case in the equating *PVC* constructions.¹⁰ This historical transformation must have ultimately taken place as the result of a change to more individualistic thinking. Accordingly languages without such change might have to be regarded as residual or reflecting a persistingly impersonal society. It is not difficult to infer also that growing interest in or actual

trend back to *PVC* could be a lingopsychic indicator of a looming social reversion.

To round off the general picture of the *PVC:AVC* partition, seen as a *PVC* to *AVC* transformation, I may enumerate the main members of the *PVC* language family.

Their number is by no means small. In Europe the sole survivor is Basque. In Asia one centre is situated in the Caucasus, where Churrian and Biainian¹¹ formed the oldest *PVC* group known. It flourished from the 19th to the 8th century B.C. in a wide circle from the Zagros mountains to the Syrian coast. The tribes or bands speaking Churrian vanished linguistically after they had helped in the conquest of Egypt and India. The Biainians became a victim in turn of the Assyrians, Persians and Armenians. Today the only *PVC* language of a similar type is the North-Caucasian Dagestan language Avaric with about 170,000 speakers, whilst Georgian, of the South-Caucasian group, stands more apart. If we look further east it is interesting to note in connection with the fate of the *PVC* allies of the conquerors of India, that a *PVC* substratum, apparently dormant until the 13th century (A.D.), has eventually reproduced *PVC* features in modern offspring like Hindi, Benghali, Nepali, etc. Going south-east we come across traces of *PVC* on Timor¹⁹ and - returning for a moment to Australia - we find *PVC* prevailing over a large part of the Suffixing Languages of the interior, perhaps the best known being the Western Desert group. Leaving aside an ambiguous brand of *PVC* in Indonesia and the Philippines⁷ we have, further east, the widespread Polynesian group, well illustrated by its eastern branch Maori. Finally we reach South America and close our list with Kechua in Peru and neighbouring states.

I have mentioned only the better known members of this group. There are some more, but we cannot enter into details here. Also the interesting question of what other traits *PVC* languages have in common and whether there are any historical links, cannot be followed up. We must return to the Australian scene, because there, and specifically in our Pilbara region, we meet a unique situation which the more time-ruled rest of the world cannot offer anywhere: the synchronous side-by-side existence of the two opposed types, *PVC* and *AVC*, neatly arranged on the map within conceivable boundaries and evidently used by the same stock of population, and using the same Common Australian stock of words.

This situation is indicated on map (No.5) by different shadings. You see 3 belts of languages: coastal, inland, and intermediate.

The unshaded coastal belt, reaching from the Ngarla in the north to the Malgana in the south, covers pure *AVC* languages. It contrasts with the fully shaded inland belt which shows the beginning of the pure *PVC* languages. Their territories extend inland, large and wide. On this map only the Njangumarda, Njijapali, Purditharra and Wardal can be seen.

In between the two belts I have inserted, in half shade, the intermediate belt, representing the Njamal, Pandjima, Tjururu and Wadjarri. Here different degrees of mutual intrusions from either of the contrast belts are noticeable. We may say that in Njamal, for instance, *AVC* intrusions on a now predominantly *PVC* type occur, whilst in the neighbouring Pandjima, *PVC* intrusions on a predominantly *AVC* type can be observed. There is no doubt, however, that the movement on the *PVC:AVC* front is one-way only, following the general trend of the tribal push towards the coast which always was and still is - increasingly so under contact conditions - dictated by the search for easier and better living. But this tendency does not hold for the vocabulary in the Pilbara. Although eastern words have moved westward with the spread of circumcision and subincision rites, and indeed do belong mainly to this ritual sphere, a countermove of western words is now more prominent. A number of terms for the coastal landscape, flora and fauna, and technical terms introduced through contact with the Whites in the coastal towns, have spread inland.

Of the *PVC* group the western-most Njijapali is interesting, because it has taken on the western *AVC* incorporated object marker *l/r/n* limited to the non-compound transitive verb group. The object marker thereby becomes a subject marker.¹²

It is sometimes wrong to assume longer periods for assimilation processes of this kind in intermediate areas. With regard to Njijapali we know that the *AVC* influence has been induced by White contact. A considerable number of Paljgu people had been enticed away from their home grounds around Nullagine to replenish the dwindling coastal tribes, working more or less as forced labour in the early pearling industry. Such measures have also helped the advance of circumcision to the coastal towns.

The so-called Circumcision Line, marked on nearly all maps of the Pilbara to show how far the circumcision practising tribes had moved west. was established at the time when Radcliffe-Brown worked there and has been repeated

ever since. It indicates the position in 1910. In the meantime the old tribal life on the former grounds has ceased to exist, but the tendencies of tribal movement towards the coast are still felt and circumcision has reached all coastal towns. Although the fluctuation within the new station-, town- and Reserve communities, dictated or tolerated by our social system, is considerable, and often difficult to observe, two movements are at present discernable: a shift from inland station to coastal town or Reserve and, in the same search for easier living, a steady stream of individuals from the desert regions in the north-east towards urban civilisation, expressed mainly in Njangumarda and Wanman infiltration to the tin-mining district of Marble Bar. The only other inland place attractive to eastern desert roamers now is Jigalong which has become the new centre of Aboriginal spiritual activity, exerting considerable influence as far as the coast, in the Pilbara and further south, and this in spite of being a mission station.

Looking again at map No.6 we notice that the Circumcision Line of 1910 is almost identical with the boundary line between the coastal *AVC* and the intermediate belt. I suggest that at some earlier time the Circumcision Line corresponded to the more easterly boundary running between the intermediate and *PVC* belts, and I further suggest that the intermediate tribes belonged fully to the *AVC* group at that time. The process of linguistic type change from *AVC* to *PVC* would naturally take much longer than any cultural superimpositions, as e.g. circumcision over arm-tying. Evidently the loss of tribal coherence has put an end to the process of amalgamation, or rather, conversion from *AVC* to *PVC* in the intermediate belt. It will be interesting in the future, to watch the chances of *AVC* versus *PVC* within the new linguistic pattern in the polyglot urban communities of the Pilbara. The most important factor there will be the outcome of the struggle between the 'gaining' and the 'losing' languages. So far 3 *linguae francae* have emerged out of it: Njangumarda (*PVC*) in the north, with Port Hedland and Marble Bar as centres, Jindjiparndi (*AVC*) together with Pandjima (Intermediate) in Roebourne and Onslow, and the Wadjarri (Intermediate group) in the south, with Mullewa as main centre. Provided the rapid growth of the Aboriginal population continues and there is no slackening of migration from the north-east, we can forecast *PVC* as the ultimate winner in future typological development in the Pilbara. Considering the historical relation of *PVC* to *AVC* as the younger group, the visualised win of *PVC* in the North West

must be regarded as unnatural and contact-induced. In precontact-times the coastal tribes were always powerful enough to hold their own against pressure from the interior 'spinifex blacks' or 'lizard-eaters'. The question then remains: How did the *AVC* languages become established on the coast in the first instance? Is there an indigenous law of centrifugal development from interior *PVC* to exterior *AVC*, a possibility which could only be considered on the strength of a continent-wide occurrence? Or was the north-west coast of Australia, with the De Grey River forming a conspicuous boundary, once invaded by a southward spreading *AVC*-possessing people? These and related questions, although directly concerning the language situation in the Pilbara, are too complex to be discussed or answered within the framework of this paper.

We can say more about the effect which the new social order of urban contact life has had in working towards a common vocabulary in the Pilbara. It is particularly evident in the poetical language. Although not everyone is a *njiniri*, a musician-composer who can 'pull' a corroboree, nearly every initiated man is able to produce 'Taabi' songs, individual poems sung to popular tunes borrowed from the more gifted *njiniris*, and accompanied by scraping a wooden *mir mba* or fork, rhythmically across a row of notches cut into the spearthrower for the occasion. These songs deal with anything non-ceremonial, from dreams and desires to admiration of technical feats, or important events. Skill and elegance in the composition of these songs is displayed by the poet's versatility not only in the use of his tribal kennings, but also of those from other dialects. Some songs produced by influential half-castes in Port Hedland contain kennings of all the languages known to them. Such contributions are helping to create a type of universal Pilbara poetical language which is widely enjoyed because of its use of a minimum of disturbing grammar and a maximum of polyglot kennings or epithets.

The tendency to borrow foreign words, however, is not new. It is noticeable also in the different *padupadu* languages of the Pilbara. *padupadu*, a word common to all Pilbara languages, is the secret name for the 'in-law' speech which I was fortunate to extract from my hesitant informants. Until very recently the secrecy surrounding *padupadu* had increased with the decrease of tribal law. But now the elders seem more communi-
padupadu was once a powerful cultural feature in the whole of the Pilbara, with the exception of *Njangumarda*.¹⁴

padupadu is used wherever a potential in-law relation is recognised or anticipated, and is accordingly extended to the relation between circumcisor and circumcised. It is a language in its own right, apart from the ordinary speech, and differs from it in vocabulary but not in grammar. The following are affected: family names of the other moiety, all nouns classifiable as totemic, the majority of verbs (which tend to become compounds), and the demonstrative pronouns (which appear grossly inflated). As the avoidance of personal references in the address is typical *padupadu* style, some of these demonstratives are used instead of the second personal pronoun.

The origin of the word material for *padupadu* is interesting from the linguistic point of view. As in the case of the recent poetical language development, so in the case of *padupadu* - but here perhaps over a longer period - 'big' words were taken over from other parts of the country in order to make the creation of respectful expressions easier, as well as to give them status. Some *padupadu* words, e.g. *tjirdamarra*, perhaps 'ray-maker'(?), for 'eye', are identical all over the Pilbara, others appear to be taken mainly from almost extinct coastal ordinary languages like Ngarla and West Ngarluma. Some of these words may be of great age, others, I found, were quite ordinary only 100 years ago.¹⁵

My attempt to condense into this short paper information on a number of diverse and complex linguistic phenomena, must also include a few words on type relation or differences within each of the main groups *PVC* and *AVC*. The *PVC* part may be omitted here because already quite an extensive literature exists on its representative, the Western Desert group. But the little known coastal *AVC* group deserves attention here, however brief.

As a result of my comparative studies two linguistic relation types within the *AVC* coastal belt came to light, which might have originated from geographical position and intermarriage. The contrast here is between 'Language Couples' and 'Language Brothers'.

The 'Couple' consists of one coastal tribal language ruling the marine sphere of phenomena, and a direct hinterland neighbour which is pretender to this position, whilst the 'Language Brothers' are neighbours along the coast or along the hinterland. The linguistic differences between co-ordinated 'Brothers' are either too insignificant for comparative treatment or too substantial for it, whilst the differences between the subordinated partners of a 'Couple' seem to express themselves in 'breakdown'¹⁶ by lenition¹⁷ or

in 'alteration by bias¹⁸' of the hinterlander's sound system, whilst the coastal partner retains the same system unaltered. The 'Couple' hereby becomes an ideal object for etymological study. I suggest that there are more of such language relations to be found in Australia.¹⁹ In my opinion only the comparative study of such pairs will render possible the complete phonological, morphological and semantic understanding of either language, and if there is this choice, single dialect studies on the second and third intensity level should be abandoned.

I come now to the last item of my sampling of the linguistic diversities in the Pilbara, an instance of foreign influence in the vocabulary. In spite of its singularity so far, this case has in my opinion great historical significance.

Between Nichol Bay and the mouth of the De Grey River, i. e. in the Ngarluma, Kariara and Ngarla language the word for 'turtle' is *tartaruga*, sometimes *thartharuga* in the mouth of elderly people, which at once calls to mind the Italian as well as the Portuguese word for 'turtle'. The underlying original Late Greek *tartarouchos*, taken over by Late Latin as *tartarūcus*, the name for an underworld demon, is supposed to be a creation of early Christian symbolism which had applied the feminine form *tartarūca* to the turtle to express the hellish nature of the sea-monster. On the other hand, all my informants insist that *tartaruga* is an old word and not a recent acquisition as are so many others of which they are well aware. For this reason and for the lack of finding any tangible Italian influence in the colonial period in this part of the Pilbara, only the Portuguese origin of *tartaruga* can be considered.²⁰ It seems impossible for a 9-letter word to develop in Romance and Australian languages independently as an identical name for the same animal, if we know that Portuguese ships were cruising in the Timor Sea, for the special reason to obtain tortoise-shell as one of the most fashionable and precious materials traded in those days.

With the acceptance of Portuguese origin for *tartaruga* we have gained a new and better lead to establish Portuguese landings on the North-west Coast of Australia. The importance of the famous French sea charts of the 16th century from Dieppe which show Portuguese names and a fairly accurate outline of the North-west Coast, is in my opinion greatly enhanced by the new linguistic find. I draw your attention to a paper read to this society at the 22nd Congress in 1935 by Thomas Dunbabin who quite convincingly

connected the time and place of the mentioned sea charts with the death of Jean Parmentier de Dieppe who was guided by Portuguese pilots on his last voyage to Sumatra in 1529.

According to the spread of the term *tartaruga* Portuguese landfalls are indicated on the coast between Nichol Bay and the mouth of the De Grey River. I am confident that traces of Portuguese ships, landings or trade activity will one day be found somewhere along the shores of the Pilbara.

NOTES

1. For the sake of uniformity 7 maps have been designed by using *one* common base-pattern. They are all identical in size and geographical adapted from earlier sources by the superimposition of tribal names and boundaries known between 1910 and 1940. Number 4 shows the results of my own inquiries, numbers 5 and 6 differ for their shading, one to show distribution of language types, the other to indicate the degree of intensity of my studies. Numbers 1 to 6 deal with the past, number 7 with the present situation.
2. None of the vocabularies are put down by D. Bates herself, but some are re-written in her orthography.
3. The information given for a great number of W group languages in A. Capell's *Linguistic Survey of Australia*, Sydney, 1963, refers to the fieldwork undertaken by K.L. Hale and G.N. O'Grady. The results are not yet published. O'Grady 1959 makes use of them.
4. A non-tribal designation of the upper Fortescue flats between Roy Hill and Jigalong. This is often used with reference to the origin of rites and songs. For an alphabetical list of these names see Index.
5. The ending -kurra 'having' (literally 'to side') is very common in geographical names and can often be translated with 'country'; -pali is a plural suffix.
6. warŋga < *waru - ŋga, not *woŋga 'speech, language'.
7. In favour of 'verbal noun' and 'nominal verb' is A. Capell, *Verbal Systems in Philippine Languages*, The Philippine Journal of Science, vol. 93, No. 2, Manila 1964, pp. 231-249; in favour of 'transitive' and 'intransitive' G.B. Milner, *Active, Passive or Perfective in Samoan, A Fresh Appraisal of the Problem*, Symposium of Malayo-Polynesian Languages, 10th Pacific Science Congress, Honolulu, 1961; against it Holger Pedersen, *Hittitisch und die anderen indoeuropäischen Sprachen*, Det. Kgl. Danske Videnskaberne's Selskab. Historisk-filologiske Meddelelser; vol.

XXV, 2, København 1938, par.63. K.L. Hale, in a paper entitled *Case and Voice in Some Australian Languages*, also read at the 39th ANZAAS Congress, uses the terms 'accusative' and 'ergative' for AVC and PVC.

8. To illustrate this I give an example from the ambivalent Pilbara language Njamal:

ɲaɟa -lu wia - n -na -na n'una -n'a
 me -by see -it -Past-me by thou -as
 he having - seen-it by me (is) you =
 I have seen you.

9. My example is again from Njamal:

ɲad'a wia - n -na n'una -ɲu
 I see -it -Past thou -Object = I have seen you.

10. As for the Nominative this has been suggested already by Uhlenbeck, *Indogermanische Forschungen* XII, 170 sq., and Holger Pedersen, loc.cit. (Note 7) par.63 sq. As for the personal Essive my own material and studies have not yet been published.

11. A. Goetze, *The Hurrian Verbal System*, Language 16, 1940, pp.217-223. Biainian is the more suitable name and also a self-designation of the Urartians, i.e. the inhabitants of Urartu, the Ararat of the Bible.

12. For Bunak see A. Capell, *Peoples and Languages of Timor*, Oceania XIV (1943), pp.312-337, and L. Berthe, *Sur quelques distiques Buna'*, *Bijdragen tot de Taal-, Land- en Volkenkunde* 115:4, 1959, pp.336-372.

13. e.g. the AVC form, preserved in Njamal:

wia -n -na , becomes in Njijapali PVC
 wia -l -bi
 see -it-Past

14. This seems to contradict O'Grady's secret language malj of the Njangumarda (1956, see Note 2). Judging from the words given by O'Grady, a north-eastern Western Desert origin of malj is more likely than a genuine Njangumarda creation. Therefore my information that Njangumarda lacks padupadu might still hold for earlier times.

15. I found that the words for 'axe', 'barbed spear', 'emu', 'granite' and 'horse', given in the Walcott vocabulary

of 1861 as ordinary words, are now only known in padupadu Ngarluma.

16. The term used by the Jindjiparndi for this breakdown of their own language in contrast to Ngarluma, is kur'daanjarri-'short-hold-Medium' = 'to keep oneself short'.

17. So far I have avoided burdening this paper with detailed language material. But I think, I should give at least a few striking cases to illustrate this.

Two single oblique word forms will serve well as examples for Jindjiparndi and Ngarluma. I put them first in Sydney-School style transcription (Jindjiparndi):

1. gauna'lau 'with-foreskin-Obl.'
2. bu'au 'cormorant-Obl.'

It would be difficult to analyse these forms correctly without the corresponding lenition-free forms in the partner language (Ngarluma):

1. 'gabungalaragu
2. 'buraguragu

It will at once be clear from this confrontation that the transcription used is insufficient and that a more etymological type must be employed to the advantage of morpheme-boundary and vowel-length indication. We have then:

- | | | |
|-------------------|---|-----------------------|
| <i>(Ngarluma)</i> | | <i>(Jindjiparndi)</i> |
| 1. 'kabunkalaragu | > | 'kaun'a'laa'u |
| 2. 'purakuragu | > | 'pua'aa'u > pu'aaau |

displaying third-stage or zero-lenition of the medial stops (k)/g and (p)/b as well as of medial untrilled r, elision or morpheme- (but not word--)

of the resulting vowel cluster ua to aa. In normal, i.e. fast, speech only the shift of stress from the first syllable will reveal vowel length, in these cases 'aa and 'aaa. Such shrinking of the consonantal word skeleton, however, has not led to a 'Polynesianisation' of Jindjiparndi.

18. Characteristic of the bias-ruled Couple-relation between Talandji and its hinterland partner Purduna is, amongst others, the change of nC and ŋC > CC, in other words, gemination, not loss, as a result of bias against clusters with n and ŋ in first position. This peculiarity often makes Purduna sound like Talandji spoken with a heavy cold.

Example:

*(Talandji)**(Purduna)*

kangara tjirndinga = kadgara tjirddigga = 'high in the sky'.

19. K. Hale found regular changes governing aberrant systems in North Queensland. S. A. Wurm, *Aboriginal Languages. The Present State of Knowledge*, 1961 Research Conference on Australian Aboriginal Studies, Oxford University Press, 1963, p.5, expects to find such conditions in the 'marginal areas' of Arnhem Land, Cape York and Victoria.

20. Although it seems absurd to consider, even as a last possibility, the Australian origin of tartaruga and its spread to Europe during the Great Peoples' Migration by returning Roman, Greek or Teutonic seafarers, it should at least be mentioned. In this connection I have hesitantly to draw attention to a considerable number of genuine Australian word-stems which could be connected easily with Romance *resp.* Indo-European stems:

wida- > wia-	'to see'	videre
monda-	'mountain, stone'	mons
malu(r)-, madu(r)-	'middle'	mēdium
mala ~ madha	'honey'	mēl n. (Sanskrit: madhu n.)
njuba	'married, wife'	nubere

to mention only a few.

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Index of Tribal Names

<i>SYMBOLS:</i>	<i>A</i>	=	<i>AVC</i>	
	<i>I</i>	=	<i>Intermediate (AVC+PVC)</i>	<i>LANGUAGE TYPE</i>
	<i>P</i>	=	<i>PVC</i>	

	<i>x</i>	=	<i>Survey</i>	
	<i>xx</i>	=	<i>Study</i>	<i>INTENSITY</i>
	<i>xxx</i>	=	<i>Depth Study</i>	

	<i>ext.</i>	=	<i>extinct</i>	
	<i>10-</i>	=	<i>not more than 10</i>	<i>POPULATION FIGURES</i>

Inikurdira	A	x	ext.	
Inggarda	A	x	10-	
Iirra-Wadjarri	I	x	?	sub: Wadjarri
Jaburrara	A	xxx	ext.	sub: Ngarluma
Jaburru	I	x	?	
Jana	P	x	?	
Janadjina	I	x	?	
Jardira	A	x	10-	sub: Kuarindjarri & Kurama
Jau(r)nmalu	A	xxx	50-	sub: Jindjiparndi
Jindjiparndi	A	xxx	1000-	
Ju'una	I	x	10-	
Kariera	A	xx	10-	
Kuarindjarri	A	x	10-	
Kurama	A	x	50-	
Ma(a)ndi	A	x	ext.	
Maja	A	x	ext.	
Malgana	A	x	10-	
Marduiddja				ritual & landscape term
Marduthunira	A	xx	10-	
Marndanjingu	A	xxx	?	sub: Jindjiparndi
Ngaala-warngga	I	x	?	
Ngaja-warngga	P	x	?	sub: Pidungu
Ngarla	A	x	10-	
Ngarluma	A	xxx	80-	
Ngaunmardi	I	x	?	sub: Ninaanu
Ninaanu	I	x	?	sub: Ngaunmardi

Njangumarda	<i>P</i>	x	1000-	
Njamal	<i>I</i>	xx	100-	
Njijapali	<i>P</i>	xxx	50-	
Nuala	<i>A</i>	x	20-	
Pajunggu	<i>A</i>	x	10-	
Paljgu	<i>P</i>	xxx	50-	= Njijapali
Pandjima	<i>I</i>	x	100-	
Pardu	<i>P</i>	x	?	
Parndikurra	<i>P</i>	xxx	ext.	sub: Njijapali
Pidungu	<i>P</i>	x	?	
Pinikurra	<i>A</i>	xx	10-	
Purditharra	<i>P</i>	x	100-	
Purduna	<i>A</i>	xx	10-	
Purnukundi	<i>A</i>	xxx	?	sub: Jindjiparndi
Talandji	<i>A</i>	x	100-	
T(h)arlgardi	<i>A</i>	x	?	
Tedei	<i>A</i>	x	?	
Teen	<i>A</i>	x	?	sub: Tjiwarli
Tjiwarli	<i>A</i>	x	?	
Tjururu	<i>I</i>	xx	2	
Wadjarri	<i>I</i>	xx	300-	
Wadjiba	<i>P</i>	x	?	sub: Njijapali
Wardal	<i>P</i>	x	?	
Warngga-pundju	<i>I</i>	xx	?	sub: Njamal
Warrijangga	<i>I</i>	xx	10-	
Wirdakarri	<i>I</i>	xx	?	sub: Njamal

Corrigendum

In the discussion which followed the reading of this paper K.L. Hale remarked that to his knowledge the Talandji language was *PVC* and not *AVC* as I had insisted. Checking on this point in the field (August 1967) I found that Hale was right indeed and wish my above statements to be corrected accordingly.

At least Talandji and Purduna are based on *PVC* and do not seem to possess a suffix to express passive voice. Their system, however, shows anomalies by the loss of agentive endings for all First Persons (sg., d., pl.). This fact together with an inconsistent, i.e. often *AVC* usage, by my earlier polyglot informants gave rise to my above statement on their *AVC* grouping. The maps should be re-interpreted on this point.


As a consequence the existence of this bar by *PVC*, reaching the coast east of Onslow and cutting off the northern Pilbara coastal belt languages, could tip the scales, when weighing the chances of the two theories hinted above: *AVC* : *PVC* as a general Australian coast-inland development feature versus *AVC* : *PVC* as a result of local history, i.e. foreign influence, in favour of the latter.

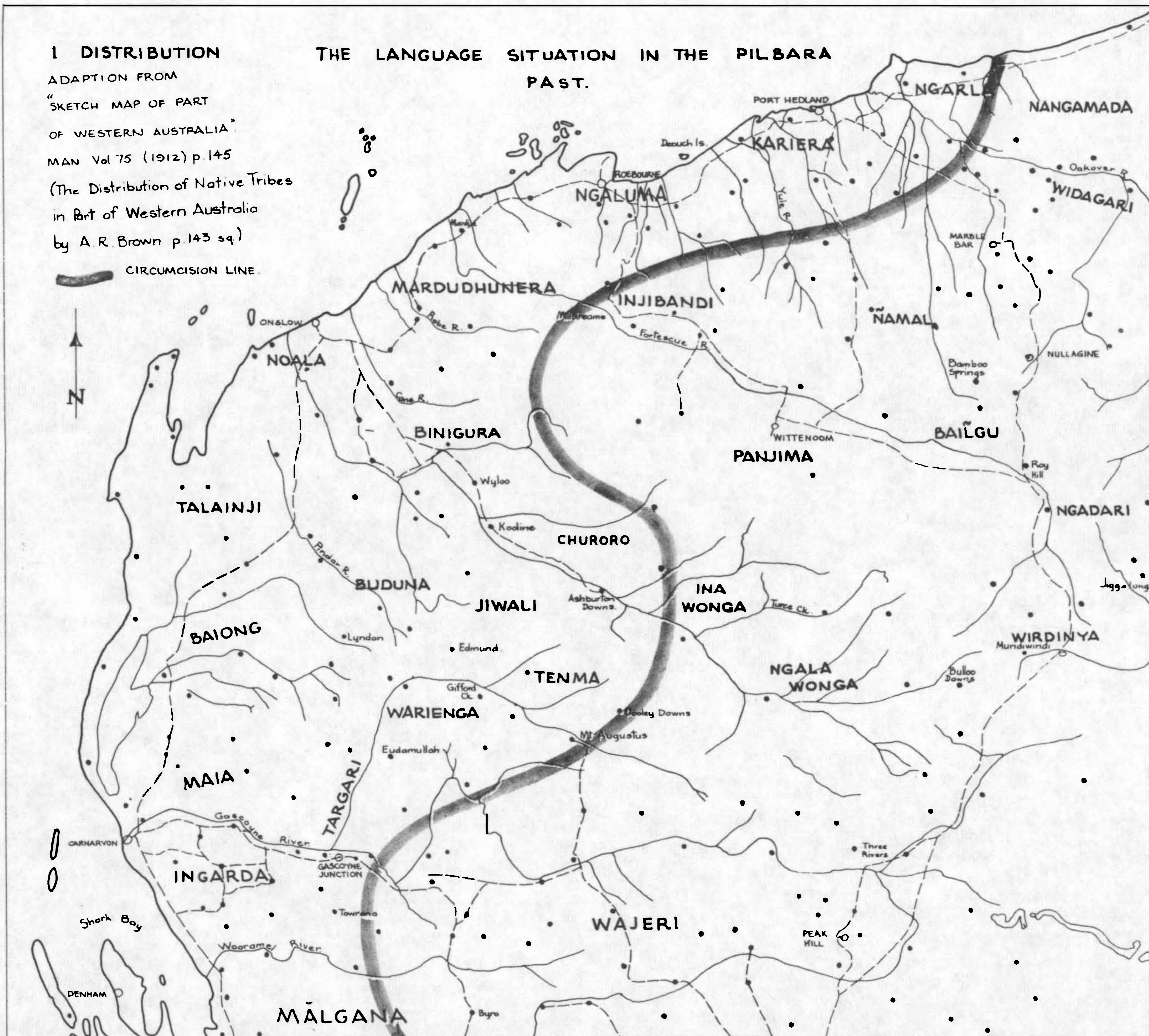
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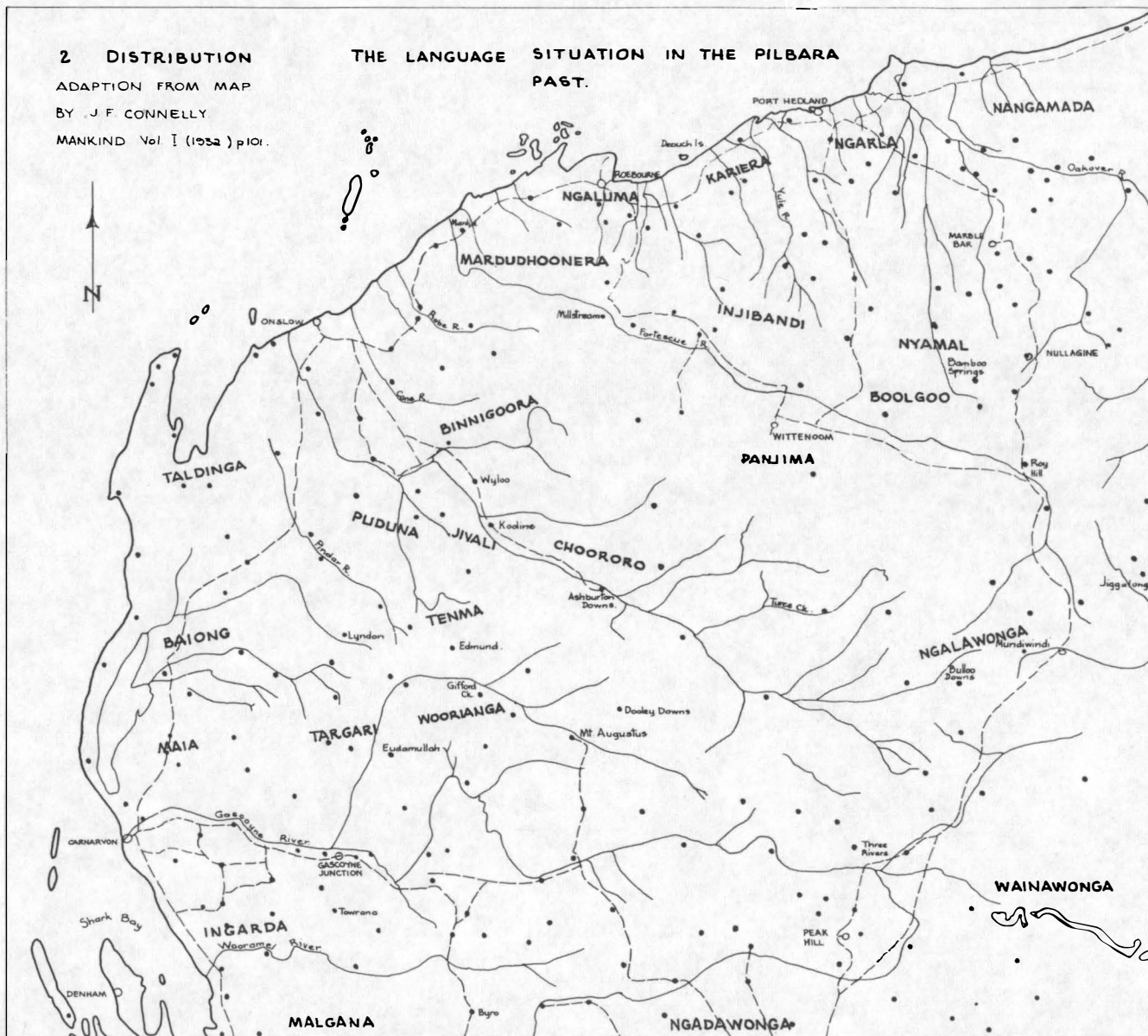
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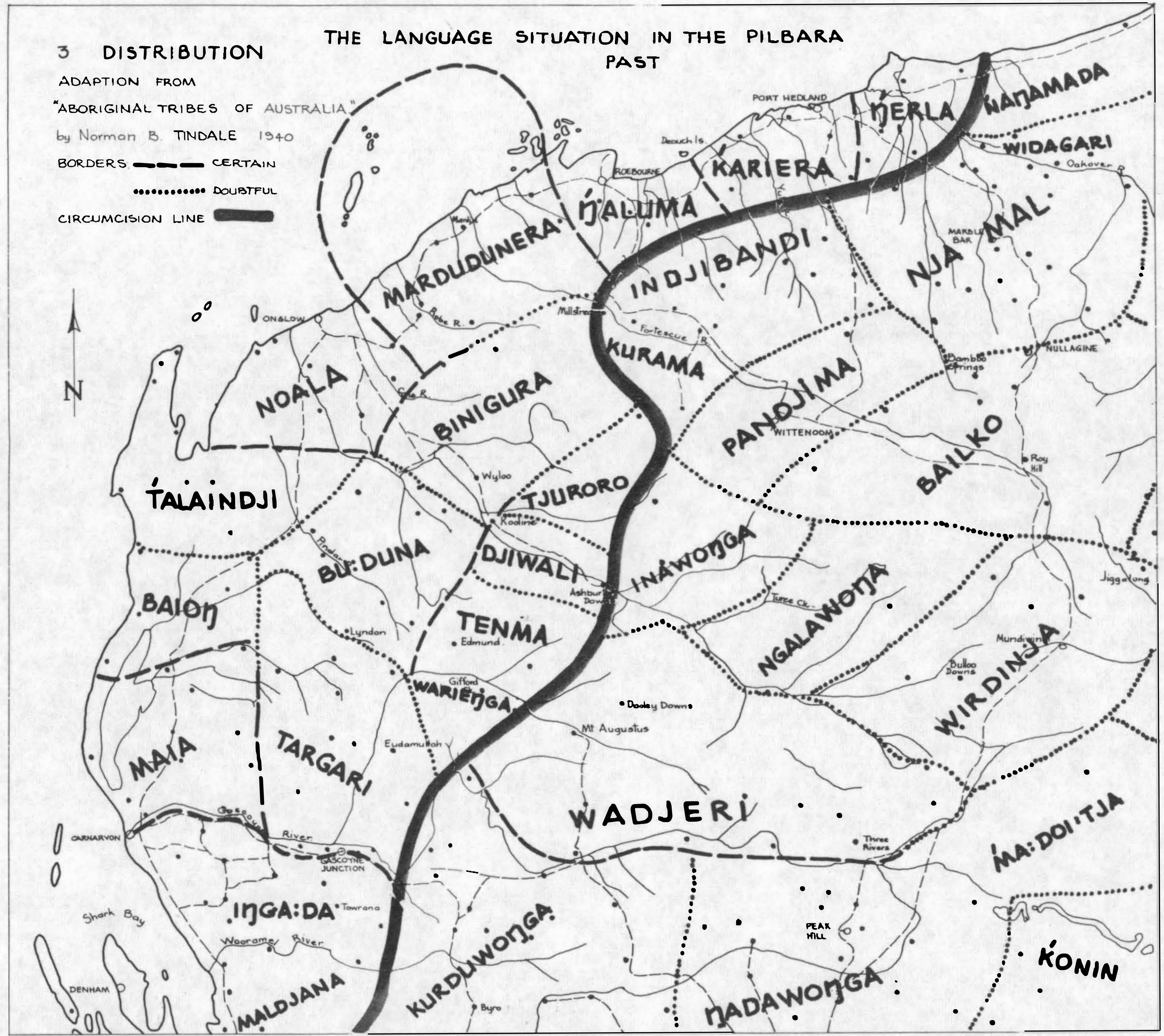


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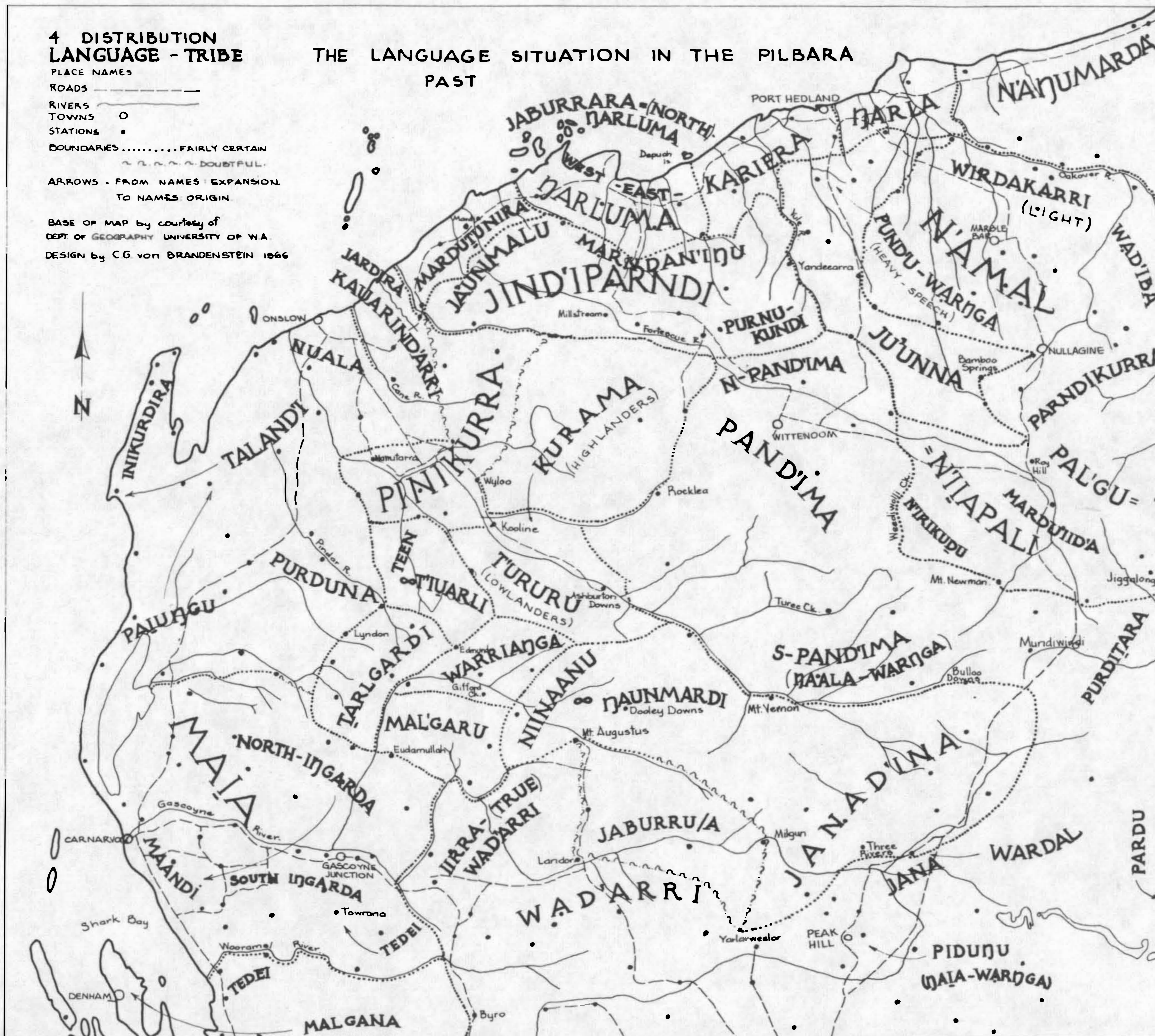
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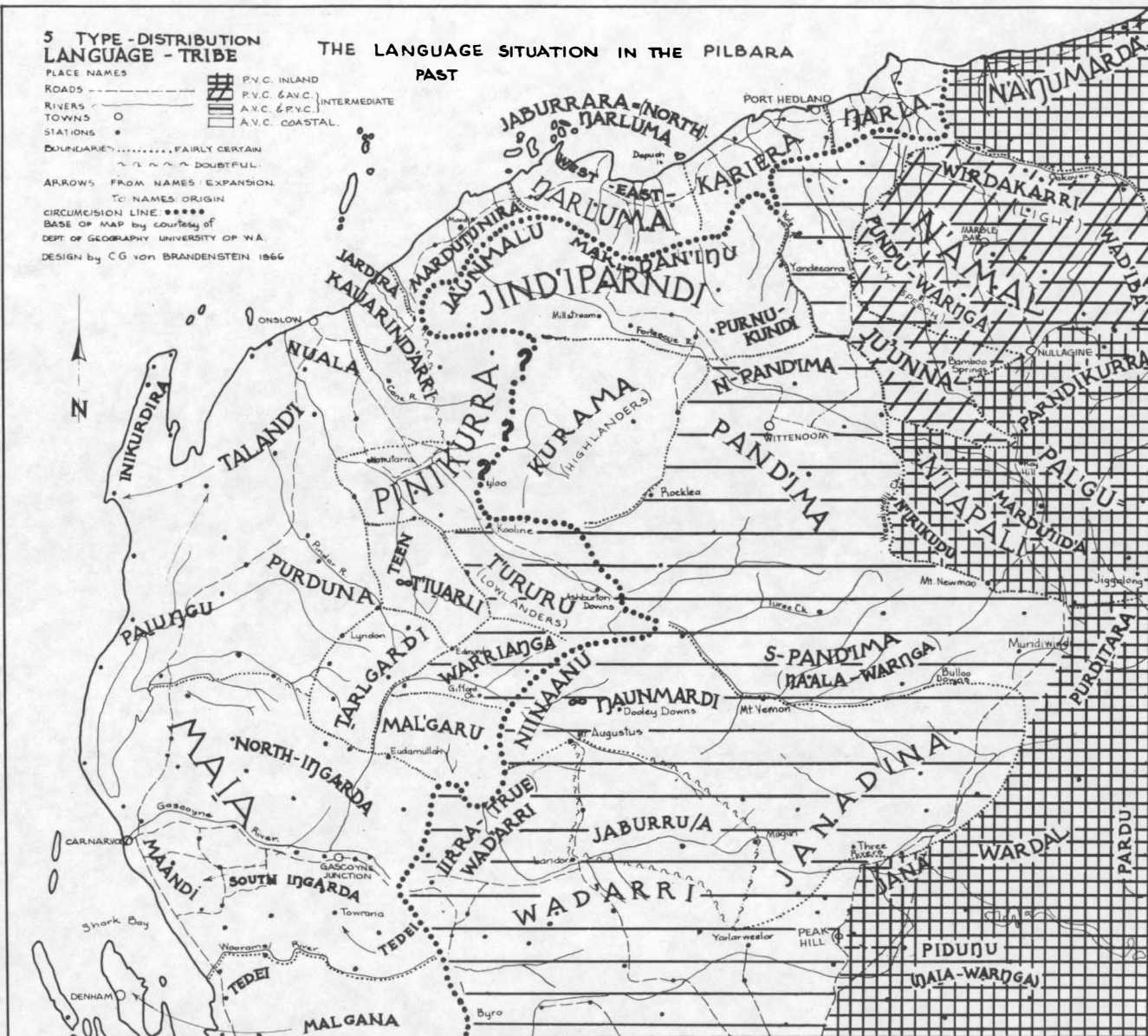
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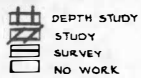
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**6 STUDY INTENSITY:
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RIVERS
TOWNS
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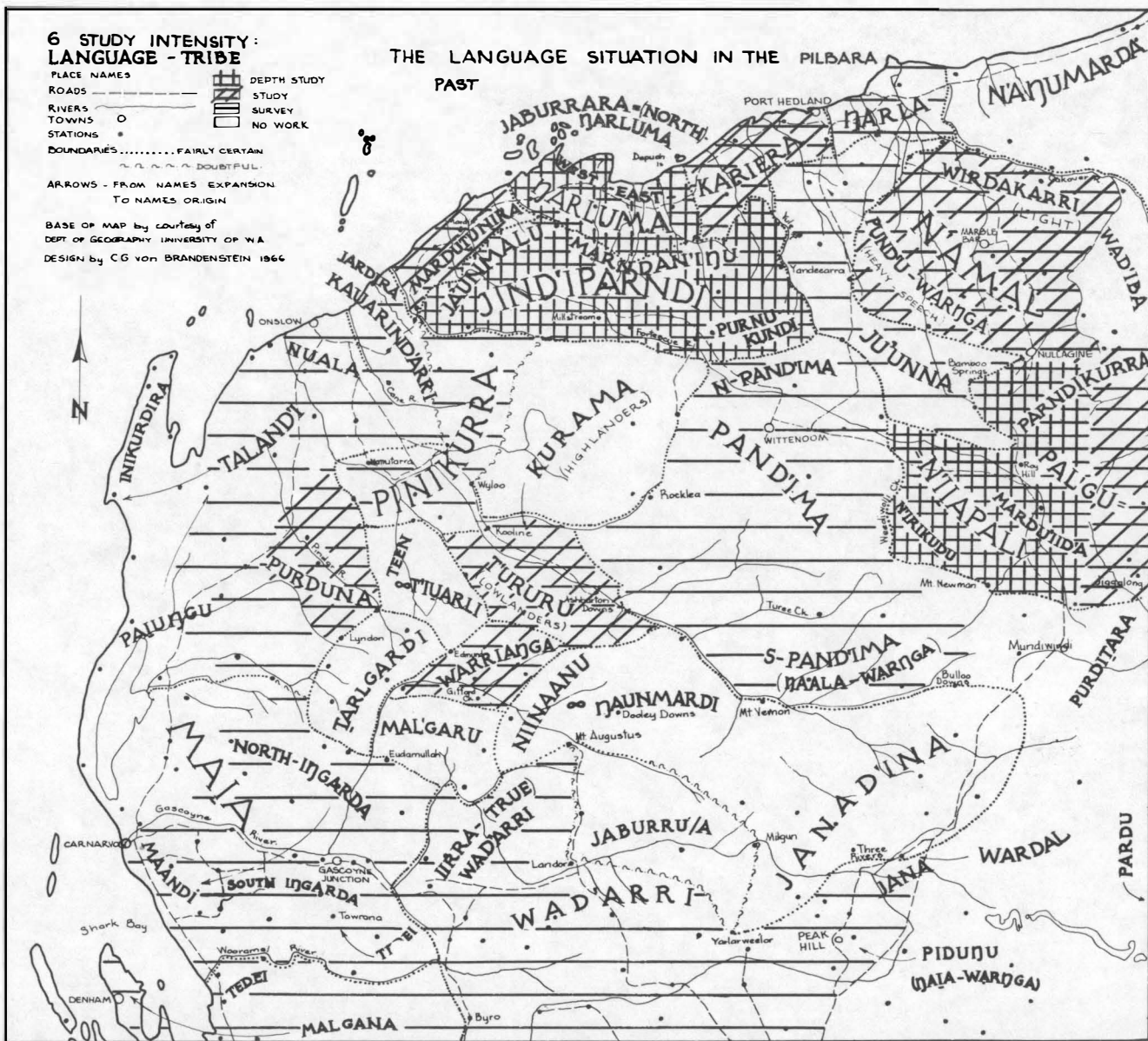


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PAST**



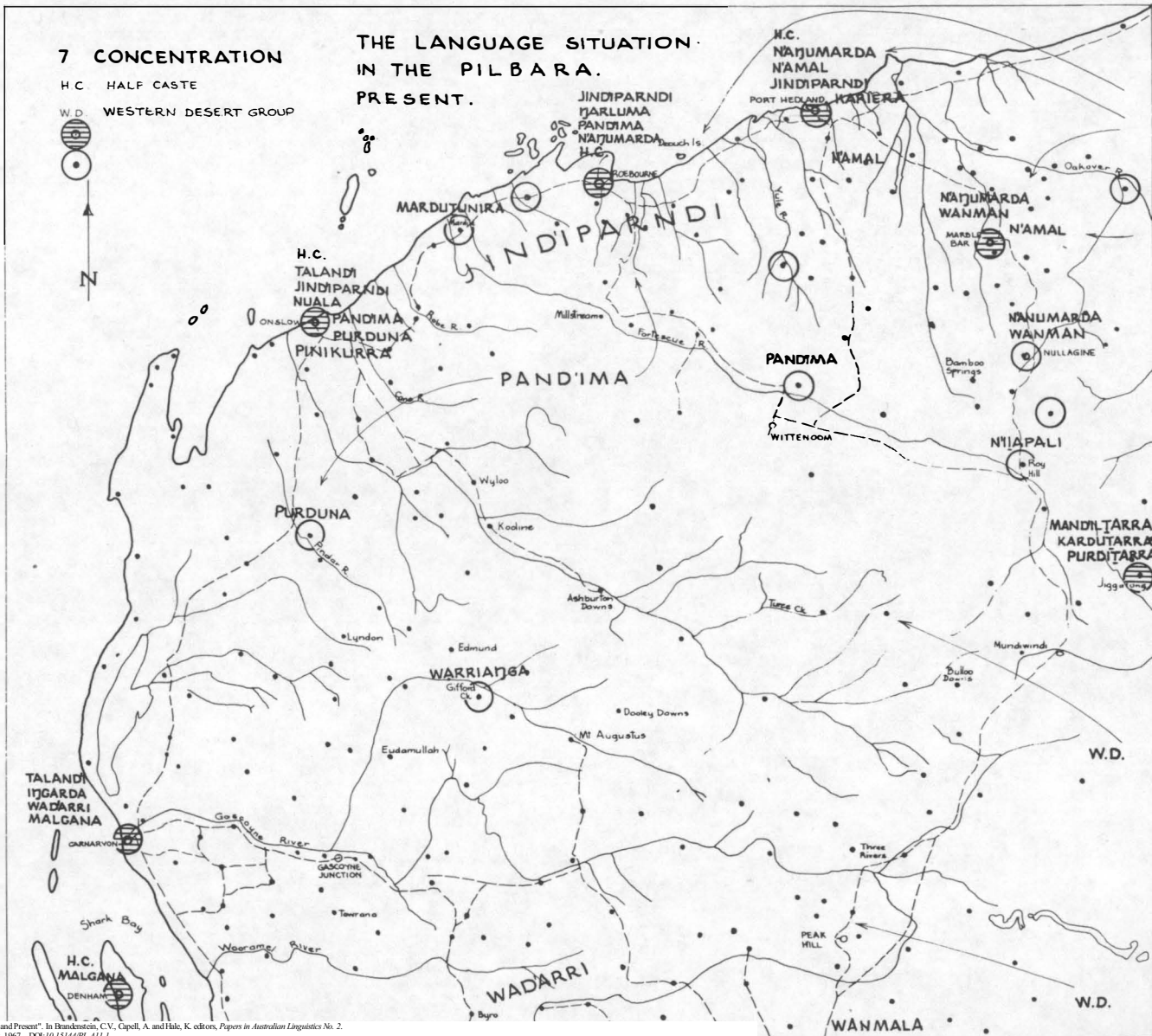
7 CONCENTRATION

H.C. HALF CASTE

W.D. WESTERN DESERT GROUP



THE LANGUAGE SITUATION IN THE PILBARA. PRESENT.



PRONOMINALISATION IN AUSTRALIAN LANGUAGES

A. CAPELL

Abbreviations:

BSOAS - *Bulletin of the School of Oriental and African Studies* (University of London); *NAAL* - *A New Approach to Australian Linguistics*, A. Capell, *Oceania Linguistic Monographs* No.1 (2nd ed.), Sydney, 1962.

INTRODUCTION

The term *pronominalisation* or *pronominalised languages* has never been used in regard to the languages of Australia. It is a term used in Indian linguistics, where it has a long history.¹ The *Linguistic Survey of India* helped in large measure to establish it as a recognised term. It has for some time seemed to the writer that the term with slight modifications in its uses might well be applied to Australian languages also, and this paper aims at showing a typological division of those languages which would result from its application.

In discussing the use of the term by Sten Konow in the *Linguistic Survey of India*, vol.5, Henderson writes:

"'Pronominalisation' has been taken to mean pronominal usage of a certain kind, particularly within the verbal complex, and has on the whole been regarded as a non-typical feature of Tibeto-Burman languages, probably to be accounted for by alien influences, and restricted within the Tibeto-Burman family, to the languages grouped together by Konow under the name 'Himalayan'."

A full list of the features included in the term 'pronominalised' is not needed in this paper, because it will be used with a somewhat different connotation here. Practically all the features mentioned by Henderson in his article on Chin can be found in various parts of Australia, but not

usually together in the one language. In other words, the term is applied in its own sense to Australian languages, and not in the sense in which it is applied to languages of India. The common idea in both cases is the specialised use of pronouns in a characteristic way in the language groups discussed.

This paper falls naturally into the following sections:

1. Languages in which no pronominalisation in any normal sense of the term can be found. Those will be called, as in the *Linguistic Survey of India*, 'non-pronominalised'.
2. Languages in which pronouns feature as independent morphemes, whether subject to inflection or not, and also as bound morphemes in the verbal complex. A link between 1. and 2. is provided by such a language as Gubabwingu in N.E. Arnhem Land.
3. Languages in which there is full development of pronominalisation. These are subdivisible in the following manner:
 - a. Pronoun abbreviated and suffixed to verb.
 - b. Involvement of subject-object complex:
 - i. Suffixed;
 - ii. Prefixed.
 - c. Mobility of suffixes:
 - i. Conditions of displacement;
 - ii. Range of occurrence of type.
 - d. Possessive suffixes.

Special mention needs to be made of Victorian structures, and some comparison with Tasmanian, so far as information on it goes, may finally be made.

The information used comes from various sources, which will be indicated in their places. In some cases the information leaves much to be desired, but so far as it goes, it is clear and certain. The N.E. Arnhem Land and Kimberley material is drawn from the author's own fieldwork.

By way of preliminaries two points are to be noted. Firstly, the system of phonemicisation used currently in Australian linguistics may be summarised as follows:

Perhaps the simplest type structurally is represented by the *Gadaŋ* (or *Kattang*) language, formerly spoken about Port Stephens, north of Newcastle, New South Wales.

This language has been recorded very briefly by W.J. Enright.² The spelling used by Enright is somewhat un-systematic, and the material has to be phonemicised in terms of the present writer's general knowledge of Australian phonetics.

The salient features of the relevant morphology of *Gadaŋ* are:

- (a) A set of personal pronouns which function as free morphemes. These may occupy subject or object slots:

nadwa guri duriala ³	nadwa bara bunjila ³
I man speared	I them struck

- (b) The cases of the pronouns are built on a root *bar-* with suffixes which are not fully illustrated by Enright, but include examples such as the following:

nuga baria baragan	nadwa baringera gadai
Give me spear	I them-with go

These forms recall those of *Awabagal*, south of Newcastle.

Possessives come under this heading, and Enright includes in his vocabulary:

bara 'they'	→	baringininda 'their'
yinuar 'you(sg.)'	→	bi:namba 'your'
nadwa 'I'	→	baraba 'my'

These forms are largely independent of the subject and object pronouns, and gender is marked only in the third person singular possessive: *nugwamba* 'his' ← *nua* 'he'; *nungamba* 'her' ('she' is not given); *yarinamba* 'our' ← *njiun* 'we'.

The root *bar-*, curiously enough, is that found in the only other language that builds its pronouns in this manner - *Wanman*, in the Western Desert, where *bara* = 'I', *bara-ngu* = 'you'. This may not be historically related to *Gadaŋ*, but may be pure coincidence.

This is a language in which very little inflexion appears; for Australia, in fact, unusually little, if Enright's account is fully correct even as far as it goes. In any case, there is definitely nothing in it to which the term 'pronominalisation' could be applied. It serves to present the picture of non-pronominalised languages.

One of the features marked by Henderson as present in some of the pronominalised languages of India is 'the

frequent occurrence of pronominal forms at the end of the sentence'. Curiously enough, this phenomenon is present sporadically in Australia also, and seems to have had very important historical effects.

The now presumably extinct Yuwinbara language of the Mackay district provides an example of comparative freedom in word order, with a preference for ending with a subject pronoun:

"Let us two go fishing": wina mana ŋali
fishing (go) we-two.

But this is not obligatory as yet: /ŋali janam/ 'we two will go'; although it is preferred in many instances: dago ŋagano indu, 'bye and bye (me) will see you.' = 'Bye and bye you will see me.' dinabiŋgara indu? 'tired you?' dinabiŋgara ŋaja wurwaja, 'tired I very.' ga:ju lulara ŋagana ŋaja, 'women two see I.' No doubt such a language represents one of the early stages of fixation: a preferred word order which is not yet obligatory. One has only to think of a coalescence (probably with abbreviation) between a verb and a following pronoun subject, as leading to the development of person-marking by suffixes which are in their origin abbreviated pronouns. Thus is brought about a method of conjugation of the verb which probably represents an early stage of development: first, a verb differentiated only by modification for tense and mood, then the addition of a free pronoun after the verb to define the subject, then the coalescence of this postposed pronoun with the verbal root, producing a form represented by $V = R + t + p$ (where V = verb; R = root; t = tense (or mood); p = person), and the beginnings of pronominalisation. This will be treated more fully below.

The incidence of languages lacking pronominalisation in the manner shown by Gadaŋ is somewhat curious. Omitting Victoria, they tend to be marginal to an interesting extent. The regions of occurrence are grouped as follows:

NEW SOUTH WALES

North Coast: Darginjaŋ, Gadaŋ, Dangiadi, Anewan, Gumbairgar, Awabagal, immediately south of Gadaŋ and related to it, holds an ambiguous position.

Inland: The Gamilaroi group.

QUEENSLAND

· Immediately across the border from N.S.W.: Gabi, Waga (Wakka), Jugumbil and languages somewhat farther north, as well as the south-western group of Badjari and Murawari, but

interrupted by Goamu. The last, however, is an exceptional dialect of the Gujari group which lacks pronominalisation.

Victorian languages do not belong to this group, but some along the Murray river do; e.g., Baraba-baraba and Yabula-yabula.

SOUTH AUSTRALIA

From Spencer's Gulf region northward along the Lakes area: Bangala, Gauņa (Kurna), Dieri and its cogeners, Arabana and Aranda.

WESTERN AUSTRALIA

Wadjung and the remainder of the south-west. Information on the west coast is deficient but those languages would seem to be of this type.

In north-eastern Arnhem Land the Wulamba language group is of this type, although these in general have more or less elaborated systems of pronoun declension. Moreover, they form a suffixing enclave amidst the prefixing languages.

Some areas of North Queensland, as far as the information to hand allows an assessment, also appear to belong to this group, including the Western Torres Straits (Mabuiag and dialects).

The languages of the Wulamba group in N.E. Arnhem Land can be regarded as providing a sort of transition typologically (though certainly not genealogically) to those of the second group. In a language such as Gubabwingu, the pronoun still occupies the subject slot before a verb which changes only for tense and for aspect. e.g., *nara*, *na:ma*, I see; *ni na:ma*, you see; *na:ji na:ma*, he sees. In the object slot they take on special forms. Sometimes these are formed by the addition of the *-na* suffix that marks the rational animate object of a noun; e.g., *ņa:ji ņa:ra-na na:ma*, 'he me sees'; sometimes they have special forms, e.g. *ņa:ra ņanja na:ma*, 'I him see'. To this extent they reflect the *Gadaŋ* type. They are also capable of assuming a number of other case suffixes, largely but not entirely those of the noun. The singular pronouns are shown in the following paradigm:

	<i>1st person</i>	<i>2nd person</i>	<i>3rd person</i>
<i>Nominative</i>	'ņa:ra	ni	ņa:ji
<i>Objective</i>	'ņa:rana	nuna	ņanja
<i>Possessive</i>	'ņa:ragu	nunu	nanju
<i>Dative</i>	'ņa:ragala	'nugala	'nanugala
<i>Ablative</i>	'ņa:raguju	'nuguju	'nanuguju

Here the whole system of declension marks the pronoun as belonging to the syntactic class of nouns, but representing a sub-group of it, with certain departures in the forms of its bound morphemes.

Possession is marked in these languages by the possessive form of the pronoun, but these possessive forms can then in turn assume further case-endings in agreement with the noun on which they depend, as though they were simple stems. This they do by means of a suffix *-lanu-* to which the same case endings are added as the noun will carry; e.g., *ŋa:ragu*, 'of me', *ŋa:ragalanuwa*, 'of my', in *bala'gu ŋa:ragalanuwa* 'of my house' (*-gu* marking possession with a noun ending in a consonant; if the noun ends in a vowel, *-wa* is added). The Syntax is exemplified in: *ŋa:ji dja:l bala'gu ŋa:ragalanuwa*, 'he wants (is-desirous-of) my house.

In these examples a development of the pronominal system may be observed. This development is related to the noun with which the pronoun is syntactically linked. The verb is not involved except so far as the object-slot may be concerned. It is the first step towards pronominalisation. On the whole, these languages may still be classed as non-pronominalised, in spite of the elaboration of case forms.

Next as a stage will come the languages previously mentioned - those in which the person of the verb is indicated by a pronominal suffix. Australian languages on the whole are agglutinating rather than amalgamating, and in the suffixing group at least, the verbal complex can, as a rule, be analysed into:

root + tense (or mood) + subject

Some have gone a stage further and involved the pronoun object as well; these will be considered later. The point of importance for the moment is that the pronoun subject, suffixed to the base (root + tense marker) is normally the same for all tenses and moods and even for the Reflexive Voice. Its formation from a postposed pronoun is then fairly obvious, except in the third person singular. In line with this, third person pronouns are mostly demonstratives; there is no common Australian root for pronouns of the third person.

A distinction which seems to have been made at an early period, must here be recognised. Very many Australian languages distinguish between the subject of an intransitive and the subject of a transitive verb. The latter has come to be part of the regular case system of Australian nouns and is called the agentive or operative case. Its marker is

basically -lu⁴ and this serves to mark either the agent of a transitive action or the instrument with which something is done. In the case of pronouns, the ending is usually -dju, but may be -lu or even -julu. Some Western Desert languages have 'ŋa-julu, 'I'; in other parts of Australia ŋaju or ŋadju (<ŋa + n + lu) will be found. At the present day, the distinction in meaning is not always retained in pronouns, though it is always retained in nouns; ŋaju or ŋadju may be the only surviving forms of the first person singular. The interesting point is that when pronoun subjects come to be transferred to the verb itself, instead of being placed after it, the first person usually (though not invariably) takes the form -dju. A very interesting example appears in the Ngeumba (phonetically 'ŋjæmba) language of Northern N.S.W., where the present tense of the verbal root bu, 'strike', conjugated with an auxiliary ma (radically 'take, hold') assumes the following forms in the singular:

- Singular* :
1. ŋa-du bu ma-ra-du
 2. ŋi-lu bu ma-ra-ndu
 3. ŋi-lu bu ma-ra-lu

Here a regular transference of the final syllable of the pronoun to the verb is obvious, but the point of importance is that it is only the case ending which is transferred and not the pronominal base at all! Person is indicated only by the particular forms of the agentive case marker, carried by the pronoun. The dual and plural pronouns do not take the agentive suffix: bu-ma-ra-li, 'you and I hit' recalls the pronoun na-li, 'you and I', which is almost universal in Australia and would undoubtedly be the Ngeumba form as well. If the pronouns are placed before the verb - as they may be for emphasis - the result is:

- Plural* :
1. incl. (ŋjani) bu ma-ra-ni
 1. excl. (ŋjanini) bu ma-ra-nina
 2. (ŋindugur) bu ma-ra-rdugal
 3. (ŋalugal) bu-ma-ra-wulugal⁵

The verb 'hit' is transitive, but the intransitive verb 'sit' takes the same agentive endings in the singular. winja-ndu, 'you sit', but in the third singular, winja-na, 'he sits', according to Mathews' MSS. papers. 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. Yaralde (near the Murray mouth, South Australia) is one case in point: *ɲadi im nag-ir*, 'I you see did'; *wi:rin ab*, 'Ill (am) I'. There are two sets of forms in this language, according to whether the person-marker precedes the verb or follows it and there are rules determining which position is assumed: *ɲabi* (intrans.), *ɲadi* (trans.) preceding, and *ab* (intrans.), *adi* (trans.) following for 'I'. These two forms have wider syntactic implications which are not germane here, but will be discussed later.

In two languages spoken about the Murray River in Western N.S.W. and Victoria, Yodayoda and Yabula-Yabula, the distinctions are much more clearly maintained. A few examples may be cited from R.H. Mathews' MSS. (not all of which were published).

PRONOUN SINGULAR NUMBER:

	<i>Intransitive</i>	<i>Transitive</i>
1.	<i>ɲa</i>	<i>ɲada</i>
2.	<i>ɲina</i>	<i>ɲjana</i>
3.	<i>da</i>	<i>da:lug</i>

Examples:

Intransitive: *galɲjir ɲa*, 'well (am) I', 'I am well'.

Transitive: *ɲada ɲunu nile:nag*, 'I to-him gave'.

The variable position of the pronoun is found in this language; it may precede the verb as in *baɲa-ɲa galɲnir*, 'quite-I-well' = 'I am quite well' or follow it, as in the first example. There is, however, presumably a rule to cover this change of position, as there is in the Western Desert languages, to be considered later (p. 33) but Mathews has not recorded it. However, his notes do contain the example *ɲa daieja*, 'I am here', so the position may still be free, if sufficient of the language remained for one to judge correctly. In Yoda-Yoda there is actually no suffixation, but the usage which would lead to the type of suffixation seen in Ngeumba is clear.

To this point, then, the probable typological stages of development seem clear:

1. The verb marks only tense, but the subject may either precede or follow it.

2. The subject following the verb, if it is a pronoun, begins to coalesce with it in abbreviated form.

3. Development of a distinction between intransitive and transitive subjects, marked in some instances by correspond-

ing parallel conjugations, but in most languages the transitive forms prevail over the intransitive.

The next stage is marked by the beginning of involvement for the object in the verbal complex, if this object is a pronoun. In some of the prefixing languages of North Australia even a noun object can be incorporated into the verbal complex, but this does not happen in the suffixing languages. Where a verbal complex of the pattern (*VtSO*) (*V* = verb; *t* = tense or mood; *S* = subject; *O* = object) is found, it presupposes an earlier syntactic pattern: *V + S + O*. This theoretical requirement raises some difficulty because it is not documented for cases where *S* is a noun, but only where *S* is a pronoun. Languages in which the verbal complex takes the *VtSo* shape are found mostly in the south-east of Australia - along the coast of N.S.W. south of Sydney and in parts of Victoria. Here the pattern of the complex is root + tense + subject + object. Victorian examples may be culled from Mathews' MSS. (not included in his published article) on Djadjala, a language of the Wimmera district of north-western Victoria. The verb *dag-* = 'to hit'; Mathews' examples have been difficult to phonemicise. The forms appear to have been:

(a) *VERB TRANSITIVE BUT WITHOUT PRONOUN OBJECT*

	<i>Present</i>	<i>Past</i>	<i>Future</i>
I	dag-an	dag-in-an	dag-inj-an
You	dag-ar	dag-in-ar	dag-ink-ar
He	dag-a	dag-in	dag-inj-a

A demonstrative particle *-min* often appears added to the third person, but this has been omitted for present purposes as it is not an element of the tenses or person.

(b) *VERB WITH OBJECTS*

Type (a) applies to utterances in which the object is a noun, e.g., *wudju-gu mindjul buj-in*, 'man(±agent) kangaroo killed'. The situation may change, however, if the object is a pronoun. In this case a suffixed pronoun is added to the verbal complex, e.g., 'he hits me', *dag-a-ninj*; 'he hits you' *dag-a-nanu*; 'he hits us', *dag-a-ninjurin*. Unfortunately, examples in this language are insufficient to present a consistent system, but in Djadja:wurung on the Avoca and Loddon Rivers, more information is available in Mathews' MSS., some of it being included in the article on the "Tyedd-yuwurung Language" in *Mitteilungen der Anthropologischen Gesellschaft in Wien*, Band 35. e.g., *bañaninj*, 'he scratched

him'. The other forms may be tabulated:

	<i>Object in</i>	<i>Dual</i>	<i>Plural</i>
1.	incl.	baḡin-ḡalen	baḡin-aḡurinḡ
1.	excl.	baḡin-ḡalaḡiḡ	baḡin-naḡinanimbḡ
2.		baḡin-waliḡ	baḡin-nodiḡ
3.		baḡin-buliḡ	baḡin-naniḡ

A few of these forms may not be phonemicised quite correctly, but they will give the general picture. They show a further development in pronominalisation, which can be traced along the Murray River from about the South Australia-Victoria border in the west to Albury (but not, it would seem, in southern Victoria). This development recurs in the south-east of New South Wales, along the coast northwards practically to Sydney, and even north of that changes only in form, the principle still being followed at least as far as Newcastle. In the Victorian section of the language, the pronominalisation is developed more highly than elsewhere in Australia among the suffixing languages. The pronouns themselves are formed, at least in the first and second persons, by the addition of personal suffixes to a base that varies from language to language but apparently means "person" or "self". The normal Australian series of personal pronouns does not occur in the Victorian section of these languages; the system of person suffixes added to a common stem (nominal by nature), is peculiar to Victoria except for one recorded occurrence in the Western Desert section of Western Australia. The same suffixes are then added to all nouns to indicate possession, and to the equivalents of such locatives as "before me", "behind me", etc. Then there is a second set of suffixes indicating person (but not tense) in verbs, and a third set indicating the pronoun object of the verb. This represents practically the height of pronominalisation in Australia, but it is not limited to Victoria. Complications of a type in some ways similar appear in the far north and north-west, and in each case they appear to be local developments which are not connected with each other.

It would thus seem that a suffixial system has developed in certain parts of Australia as a result of two linguistic facts: (a) the preference for placing a pronoun subject after its verb and (b) the coalescence of this postposed subject with a following pronoun object. The particular type of verbal complex studied in the preceding section has resulted from the interaction of these two phenomena.

In many languages, however, these pronouns have not been abbreviated to become bound morphemes, but have remained as

free forms. In such cases pronominalisation has occurred not on the morphological but on the syntactic level; in others, beginning on the syntactic level, it has developed morphological modifications which still have a degree of syntactical freedom but may appear as suffixes, sometimes in unexpected parts of the utterance. These phenomena are now to be illustrated. There are three types which may be exemplified in (1) Wiraduri of south-central New South Wales, (2) the Mudbura group about the Wave Hill district in the Northern Territory, illustrated here mostly from Ngarinwan, and (3) Yaralde or Narrinyeri of the Murray River mouth and neighbouring coast in South Australia.

1. Wiraduri pronouns show a certain variety of forms, partly due to degrees of emphasis, and partly due to the fact that certain types of sentence-opening words attract a pronoun subject to themselves, away from the verb to which it would seem logically to belong. These occurrences have already been summarised in the author's *Some Linguistic Types in Australia*, p.8, in a different connection. They are as follows:

- a. Utterance = $S + O + P$: η indu jin jala 'you him tell'. Here both pronominal forms are free, but keep close together before the verb. This mutual clinging of subject and object pronouns is very widespread in Australia. The type $U = O + S + P$ is also possible.
- b. $U = P + O + S$: bu maimalbilguan η anal η indu, 'permitted-to-be-struck me you', 'you permitted me to be struck'. The order is changed but the pronouns still keep together.
- c. Certain classes of words beginning an utterance attract to themselves abbreviated forms of pronouns of the same type as those considered in the preceding section of this paper; wargu-ndu η al dalaj bu η andira 'why-you me engage?' Here again the two pronouns tend to keep together. There are abbreviated forms of pronouns which may be attached to utterance initial words, guja-di η u η ga, 'fish-me give', also η u η ga-di guja, 'give me fish'.

Class (c) of the above examples represents a very widespread phenomenon in Australia. This is the attaching of pronominal forms to the headword of the utterance. Either subject or object pronouns or both together (in that order) may be so transferred away from the verb to which they refer, and attached to the headword to which they do not

directly refer. This arrangement is particularly developed in the languages belonging to what have come to be known (not quite accurately) as the Western Desert languages, but is appearing as information comes to light to be much more widespread than was previously thought.

Simple examples may be gathered from work done by Mrs L. Hercus in 1965 on the Wambawamba language, a member of the Victorian group formerly spoken about the central Murray region on each side of the river. She gives as examples: windjara-nda juma, 'where-I am?', 'where am I?'; giŋa-nda, 'here-I (am)'; djilega-nda wudubug, 'sick-I stomach-my', which also occurs as wudubug ja-nda djilega; winjar-ar djura 'whom-you discuss?'.
 In general there are certain word classes which thus attract the pronoun when utterance-initial. To use a chemical term, they exercise a "valence" over the pronouns, and the latter have a special "affinity" for them. Such word classes are:

- i. any noun which occupies initial position as either subject or object;
- ii. the negative particle;
- iii. interrogatives.

Certain of the Western Desert languages will illustrate these three principles briefly. Examples from Ngarinman:

1. (a) *Noun attracting pronoun:*

djia-ŋa-ŋgu baru, 'kangaroo-I-you will-shoot' =
 'I'll shoot a kangaroo for you'

(b) *Verb base attracting pronouns:*

bina-ŋgu-ŋa-ŋgu maŋari, 'give-shall-I-you food', not just because bina- is a verb but also because it is a headword. Both pronominal elements are transferred.

2. *Negative particle gula-:* gula-ŋa maŋanj, 'not-I like = I do not like it'.

3. *Interrogatives:* wandja(ga)- 'where'; wandjaga-n juwanin ŋai'inj maŋari, 'where-you put my food?'; wandja-ŋana-n jaŋani? 'where-from-you come?' waiwali, 'how': waiwali-n binari? 'how-you know?' njamba, 'what': njamba-wu-n jaŋani, 'what-for-you come?'.

In other languages various words are able as headwords to attract the pronouns: Djaru, ŋanduwa-n gawulu muluŋ,

'perhaps-you sister none' = 'perhaps you have no sisters'. If there is no such headword, the pronouns are in all cases added to the verb: Djaru, *djug mana-ngu-liwa*, 'hunt do-shall-we' = 'we shall hunt'. But the free pronominal forms may themselves as headwords attract the bound forms of the pronouns.

The languages of this group show a particular development in their treatment of the person-markers of the verb. In the southern members of the group, such as Pitjantjatjara, all tense and person markers are added directly to the verbal stem, or transferred to the headword in the manner discussed above. There are three ways in Pitjantjatjara of saying 'I am coming': 1. *ɲajulu bida-nji*, 2. *ɲajulu-na bida-nji*, and 3. *bida-nji-na*. Further, with prounoun objects there is *ku-ngugu-na-nda*, 'hit-will-I-you'; *gugu-limba-n gadi-nji?* 'meat-our-you bring?'.

In the Northern Members, the verbal stem is inflected *only* for tense: person is indicated by the addition of the suffixed pronouns to a particle appearing as *ɲa-*, *ɲu-* or *ba-* in different languages. This carries absolutely no lexical meaning, but acts simply as a 'catalyst', carrying the person-markers and leaving the verb quite uninfluenced. Thus in Malngin: *maɲari ɲu-na-ngu djei-ngu*: 'food (*catalyst*)-I-you give-will' = 'I will give you food'; *ɲu-na nja-nja gulugalu lama*, '(*catalyst*)-I-(him) see-did walk-about' = 'I saw him walking about', in which 'him' is represented by a zero morpheme as is usual in these languages. Similarly in Djaru we find: *ɲa-na jana-ni*, '(*catalyst*)-I go-did' = 'I went'; *bud ju-ɲan ɲa-na*, 'light-do (*catalyst*)-I' = 'I'll light it (the fire)'.

It was at first believed that the system of 'catalysts' was limited to this group of languages, but there is now evidence of it in some of the extinct languages of Eastern Australia. (See the author's *New Approach to Australian Linguistics*, 2nd ed., 1962, p.68ff, particularly in reference to Awabagal, formerly spoken near Newcastle, N.S.W.)

2. The final development of the 'catalysts' appears for example in Mudbura, in the Wave Hill district in Northern Territory where the 'catalyst' normally attracts both subject and object prounoun suffixes. In this language one 'catalyst' is *ba-*, and forms such as the following result: *ba-na-ngu*, '(*catalyst*)-I...you'; *ba-ɲanda-n*, '(*catalyst*)-you...us'; *ba-nguwula*, '(*catalyst*)-he...you two'; *bambula*,

'(catalyst)-you two...me'. There are also nja- and various combinations of both, especially in conditional clauses. The verb root changes only for tense, and the ba- or other compound may either precede or follow it. The conditional forms may be illustrated by ba-na-ba wandu-la nja-na-ba nja-nga-la, 'I would catch him, (if) I would see him'.

It should be added that while the southern languages of this group add all the suffixed pronouns directly to the verb or the headword, and the northern languages use a 'catalyst', the Waljbiri group in the geographically middle position add them to the verb in certain tenses and to a 'catalyst' in certain others. See the author's *Some Linguistic Types in Australia* (p.34ff), for illustrations in Waljbiri, as against Garadjari (p.79ff).

3. The Jaralde (or Narrinyeri) system has already been mentioned but is worth recalling here. It is not so complicated as the above, but the principles involved are similar. There are two agentive forms of each subject pronoun, and each one has a phrase or sentence-initial form and a non-initial form, for example: gile bedin idjan, 'he stole it', also bedin ile idjan. Insufficient analysis has been carried out on this language to determine whether the phrase-initial or non-initial position is determined by any syntactic structures or is in free variation, and the majority of existing texts are translations from English.

This variability of position of the pronominal subject-object complex would appear to have given rise to the two overall groups of languages in Australia, prefixing and suffixing. Suffixing languages would have arisen where the SO complex was 'petrified' in a post-verbal position, and the prefixing languages where it was fixed ultimately in a pre-verb position. This suggestion has been discussed by the writer in several earlier writings and need not be argued afresh here.

Mention of these two major groups in the continent does, however, bring the prefixing languages into focus. Hitherto the discussion has been concerned with suffixing languages, which cover by far the larger area. In these too, the analysis of the bound morphemes is usually easier than in the prefixing languages. In the latter, processes of phonetic change have often proceeded so far that it is almost impossible to recover the basic pronominal forms. The language in which such change has been least experienced is probably Wadaman which is spoken in an area between the Victoria and Bradshaw Rivers and Arcena Creek in the Northern

Territory. The table on page 38 shows the pronouns of this language and the resultant verbal prefixes, in a way that makes the origin of the latter remarkably clear, first as prefixed and then in combination with the root *-bu-*, 'hit' (with present tense suffix *-n*). The phonetic development of the prefixial system then becomes perfectly clear in this language.

On these basic prefixial patterns there are many variations. In one of these, Waramunga (illustrated in *Oceania*, XXIII:4 (1953), p.302), the complex functions not as a prefix, but as a free form which may either precede or follow the verb: *ani walbunda*, 'I-him hit'; *anju bunju*, 'he-you hit'; *nanj ananju*, 'saw I-you'. The verb indicates only tense or mood, not person.

In other areas of prefixing languages, especially the Northern Kimberleys, a verbal system has developed in which the great majority of the verbs no longer consist of stems to which are added prefixes and suffixes, but of uninflected nominal forms accompanied by various auxiliaries, as in Ngarinyin *marā a-ŋ-o: -n*, 'I see him', lit. 'seeing I-do-to him'. This particular auxiliary is the Ngarinyin form of the root *-bu-*, 'hit', weakened into a general sense of 'act on' an object, and phonetically weakened until it has become almost unrecognisable. The form *-o:-* is apparently *<-wu->* *<-bu-*, the intermediate forms still appearing in other Kimberley languages. Ngarinyin *a-n-o:n*, 'I act on him' is thus *a-*, '3rd person object Class I', *-n-<ŋa-<ŋe:n*, 'I', with *-o:-<-bu-* and *-n* 'present time'. This type of conjugable auxiliary represents the ultimate development of the pronominalisation of the verbal root by means of prefixes. The subject-markers are more easily recognisable when prefixed to intransitive verbs which are not subject to this process of pronominalisation with auxiliaries. Even in Ngarinyin, a few intransitive verbs remain which take the compound prefixes directly, as in Wadaman. Thus in these Northern Kimberley languages, the full Australian development of pronominalisation appears. Four sets of pronouns are found, two of which have two separate uses, one with verb stems, the other with noun stems, as indicated in the preceding paragraph. These are:

1. Independent pronouns
2. Subject prefixes to intransitive verbs
3. Subject + object incorporated prefixes to transitive verbs
4. Indirect object pronoun suffixes.

Group 3 of this series has been briefly outlined in the preceding paragraph; the others need some notice at this point. Groups 1, 2 and 4 are tabulated below, where the pronouns are arranged by persons, and the 3rd person plural appears as 3rd person Cl. 3.

		<i>Free</i>	<i>Subject Intrans.</i>	<i>Ind. Obj.</i>
<i>Person 1.</i>	Sg.	ŋe:n	ŋa- -ŋi-	-ra
	Pl. incl.	njarun	njar-	-ŋarugu
	Pl. excl.	ŋarun	ŋar-	-njarugu
<i>Person 2.</i>	Sg.	njaŋan	njin-	-nu
	Plur.	nurun	gur-	-nurugu
<i>Person 3.</i>	Cl. I	andu	a-	-naŋga
	II	njandu	nju-	-naŋga
	III	bandu	bir-	-ndu
	IV	wandu	wa-	-naŋga
	V	mandu	ma-	-naŋga

The indirect object list in the third person provides only for number, not for class. This is in keeping with the practice in all these languages that the only distinction between singular and plural is the dichotomy of rational animate as against all others. The personal pronouns may be left aside. The prefixes of column 2 have two uses: (a) they mark the subject of intransitive verbs, e.g., ŋa-ma, 'I say'; (b) they mark possession of parts of the body: ŋi-ambul, 'my eye'. Those of column 3 likewise have two uses: (a) they mark the indirect object of a verb: a-mindalu-nu, 'he brought it to you'; (b) they mark possession with kinship terms: mara-nu, 'your wife'.

The use of the intransitive subject prefixes and the indirect object suffixes to indicate possession with two different types of noun is a point of particular interest. In an earlier paper⁶ it was suggested that the prefixial series indicated inseparable ownership (body parts), as my action is something that I do and as such it can never be separated from me, while the suffixes indicate something that is done to me and points to a kind of 'indirect' ownership. 'I do not own my father, mother, sister, wife, etc. in the same way as I own my foot, hand or head'. There thus appears to be a close connection between the two uses of each of these two sets of affixes.

The term 'pronominalisation' is thus at least as applicable in Australia as it is in India, and in many ways more so. A hierarchy of developments can be seen, beginning from

TABLE I: WADAMAN TRANSITIVE PREFIXES

	<i>me</i>	<i>you (sg.)</i>	<i>him, her</i>	<i>us (incl.)</i>	<i>us (excl.)</i>	<i>you</i>	<i>them</i>
I		ŋajugu+jiŋgi ŋa- ŋaŋbun	ŋajugu+(guŋa) ŋa- ŋaŋbun		ŋaru+jinjaŋ	ŋajugu-nuru ŋa-nu- ŋanunbun	ŋajugu+wuru ŋa-wu- ŋawunbun
You	ŋanu+jinjaŋ ŋa- ŋaŋbun		jinjaŋ+(guŋa) ji- jinbun		ŋa-ni- ŋaninbun (irregularity)		wuru+jinjaŋ ?wu-ni- ?wuninbun
He, she	ŋanu+jingu ŋa- ŋanbun	? + jingu ŋanji- ŋanjinbun	? ja-na jananbun	ŋaru+jingu ŋajingu- ŋajingunbun	jiru+jingu ju-ŋgu- jungunbun	nuru+jingu nu-ŋgu- nungunbun	wuru+jingu wuŋgu- wungunbun
We (incl.)			ŋaru+(guŋa) ŋar- ŋarbun				ŋaru+wuru ŋu-ru- ŋurunbun
We (excl.)		jiru+jingi ?ju- ? junbun	jiru+(guŋa) jir- jirbun			jiru+nuru ju-nu- jununbun	jiru+wuru ju-ru- jurunbun
You (pl.)	ŋanu+nuru ŋa-ni- ŋaninbun		nuru+(guŋa) nu- nunbun		jiru+nuru- ju-nu- jununbun		wuru+nuru wu-nu- wununbun
They	ŋanu+wuru ŋanbur- ŋanburbun	jiŋgi+wuru jinbur- jinburbun	(guŋa)+wuru wur- wurbun	ŋaru+wuru ŋajingunbur- ŋajingunburbun	jiru+wuru ju-ŋgu-n- jungunburbun	nuru+wuru nu-ŋgu-n-bur- nungunburbun	wuru+wuru wu-ŋgu-n-bur- wungunburbun

languages which cannot properly be called pronominalised at all, to languages which from this aspect are more elaborate than any in India. In the first section of this paper three degrees of development were described.

1. No pronominalisation
2. Abbreviation of pronoun subjects
3. Coalescence of abbreviated subject and object forms, producing incorporated pronoun objects.

A fourth type of pronominalisation consists of the various methods of indicating possession. This type does not coincide geographically with the other three characteristics. We have seen this fourth type in its most complicated form in the Ngarinyin language of the Northern Kimberleys; the other types of possessive indication may be shown next, in descending order of complexity, from the use of suffixes (or in some case prefixes) with all types of noun, to the complete absence of specific possessive forms.

Not all the prefixing languages use both prefixed and suffixed possessives, as in the Northern Kimberleys. As a rule they employ only prefixed possessives if they use such a method of construction at all. In the Dampier Land languages, prefixed possessives are used only with names of body parts, and these prefixes are identical with the subject prefixes of the verb. This fact led Nekes to regard the verb as a noun: Nyulnyul *ŋamung*, 'I know' as 'my knowing'.⁷ While this may not prove to be historically justified, the parallels are striking. The only other part of Australia where suffixed possessives are found is in the group of languages in Victoria and southern New South Wales that Schmidt called the Yuin-Kuri group. These are the languages discussed in this paper in regard to suffixed incorporation of the pronoun object. The occurrence of such possessives stresses the extreme pronominalisation of this group of languages - which suggests a tabulation of the particular features of these, and for this purpose, the Djadjala language will provide the material used in the following example:

	<i>Subject</i>	<i>Possessive</i>	<i>Object</i>
Sg. 1.	-an	-eg	-ninj
2.	-ar	-in	-nano
3.	-a	-ag	-inj (?)
Dl. 1. incl.	-aŋul	-al	-ŋaliñj
1. excl.	-andalluŋ	-alag	-ŋalaŋinj
2.	-awul	-wula	-wulinj (?)
3.	-abulaŋ	-bulaŋ	-bulink (?)

(Continued on page 40)

Continued from page 39:

	<i>Subject</i>	<i>Possessive</i>	<i>Object</i>
Pl. 1. incl.	-anjur	-ejurag	-ɲurinj
1. excl.	-andaŋ	-andag	-ɲandinj
2.	-awad	-adag	-wadinj (?)
3.	-anag	-anag	-aninj (?)

The "possessive" series is added to (a) any noun, (b) the stem *jurw-*, 'subject pronoun', (c) the stem *njaŋ-* 'object pronoun'. There is also the incorporation of the 'object' series to the verb as in column 3: what distinction there is between *daganinj* and *njaŋeg daga* 'he hit me' Mathews does not say. The forms for second and third person dual and plural are hypothetical; they do not appear in Mathews' MSS. and in fact no incorporated forms are mentioned in his published article.

The preceding paragraphs have given the general picture of "pronominalisation" as it applies to Australian languages. There are still other modifications of this general picture that might be made. They include languages in which the pronoun in various ways reflects the tense of the verb, as in *Ladil*, *Pittapitta* and *Bargundji* (*NAAL*, pp. 57-60), but these features do not add any new principle. Enough has been said to show that "pronominalisation" is a useful concept in Australian languages, and that it can be used as a method of typology in them. It may correspond also to actual historical development, but, as has been suggested, this aspect does not enter into the present study. Introducing the pronominalisation concept does, however, raise the possibility of further lines of study, and serves to stress the need for more detailed information on individual languages.

NOTES

1. See outline in article by J.A. Henderson, "Colloquial Chin as a Pronominalised Language", *BSOAS* XX (1957), p.323ff.
2. W.J. Enright: 'The Language, Weapons and Manufactures of the Aborigines of Port Stephens, N.S.W.', *Journal of the Royal Society of New South Wales* XXXIV (1900), pp.103-118.
3. I suspect that Enright misheard /nadwa/ for /ɲadwa/ but in the absence of available speakers nowadays, I have left his form intact, as the theory of this paper does not depend on it.
4. See *NAAL* pp.64-65.
5. These forms are not fully consistent. The verb is taken from Mathews' grammar sketch of Ngeumba, in *Ethnological Notes on the Aboriginal Tribes of New South Wales and Victoria*, Sydney, 1905, p.20. The plural pronouns are not given there but are found amongst Mathews' papers in MSS. There may, therefore, be some discrepancies due to Mathews' imperfect phonemicisation. They are given here as found in the two lists without any attempt at full harmonisation. They are clear enough as they stand to make obvious the principle followed in the language.
6. A. Capell, "The Concept of Ownership in the Languages of Australia and the Pacific", *South-Western Journal of Anthropology* 5:5 (1949), pp.169-189, especially p.171.
7. H. Nekes, "The Pronoun in the Nyol-Nyol Dialect", ed. A.P. Elkin, *Studies in Australian Linguistics*, Oceania Monograph No.3 (1939), p.151.

THE ANALYSIS OF COMPLEX VERBAL FORMS

with special reference to Tiwi (Bathurst and Melville
Islands, North Australia)

A. CAPELL¹

In many Australian languages, especially those in the far north of the continent, verbal forms can become extremely complex. The basic Australian language type is agglutinative, but the degree of agglutination varies greatly from region to region. In the Tiwi language of Bathurst and Melville Islands (north-west of Darwin, Northern Territory of Australia) this type is at its maximum and develops into types of polysynthesis closely resembling some of those found in languages of North America. This paper seeks to do two things. It seeks to show an essential structural difference between the types of synthesis in North Australia and in North America, and to suggest a method of analysis of such polysynthetic compounds in each area. This it does by utilising the techniques of various present-day methods of linguistic analysis, including transformational analysis. It is only an initial approach to the subject. It is still possible to describe in greater detail the actual Tiwi system, and to pass on from that to a study of polysynthetic structures in general. Both these larger projects must await later opportunity, as they involve a degree of detail which could well be developed into book length.

Two types of the complex verb forms found in what are usually termed polysynthetic languages may be recognised. The complexes themselves may be termed *Fused Units* (abbreviated **FU**) and each type needs to be analysed differently because they are based on different conceptual analyses of the message to be delivered. The one type begins from the subject with which the message is concerned, and compounds the fused unit in the order of the events that are expected to happen, or observed to have happened. This may include any description of the object that may be involved. The other type combines the object and the event concerned in

the message and treats the object-event (O + E) combination as a sub-unit within the fused unit, to which are then added, either by prefixing or suffixing or both together, all the details involved in the message that is being encoded. The total message may be quite simple or attain any degree of complexity possible in the given language.

These two types are not equally common among the polysynthetic languages of the world. The former is less common than the latter, though perhaps more interesting to the student of human thought processes. It may be illustrated in the fullness of its involutions in Eskimo. The second type may be illustrated in many languages of Australia, as well as in New Guinea and other parts of the world. It is perhaps at its most complex in the language of Bathurst and Melville Islands, some sixty miles north-west of Darwin, in the Northern Territory of Australia, a language commonly known as Tiwi for want of a better name.² Before detailed analysis of the linguistic procedures involved is undertaken, one rather complex example in each of the two types will be analyzed in a traditional manner to make clear the basic differences between the types.

1. *Eskimo*: qasuiiysayβiysaysiññitluinaynay-puq
'one failed entirely to find a resting place'

Here the basic idea is 'resting place', and this accordingly occurs first in the compound, though even this has to be constructed, as it were, out of simpler elements, like a building made of blocks of stone, each trimmed so as to fit into its place in the whole (these "trimmings" are the morphophonemic processes), and each fitted into its proper place in the whole (these are the rules of obligatory order of elements in the compound). In the example above these building blocks, untrimmed (i.e. without morphophonemic modifications) are as follows:

- Base*: qasu-, 'to be tired'
- + 1. -iiq, 'not to be'
> qasu-iiq-, 'not to be tired'
 - + 2. -saq-, 'cause'
> qasu-iiy-saq-, 'cause not to be tired', 'cause to rest'
 - + 3. -ββik-, 'place for ...ing'
> qasu-iiy-say-ββik-, 'a resting place'
 - + 4. -si-, 'find'
> qasu-iiy-say-βiy-ṣay-si-, 'to find a resting place'

- + 5. -ññit-, 'not'
> qasu-iiy-say-βiy-say-si-ññit-, 'not to find a resting place'
- + 6. -luinaq-, 'entirely'
> qasu-iiy-say-βiy-say-si-ññit-luinaq-, 'entirely not to find a resting place'
- + 7. -naq-, 'there is a ...ing by someone'
> qasu-iiy-say-βiy-say-si-ññit-luinay-naq-, 'there is a complete failure to find a resting place'
- + 8. -puq-, 'finite verbaliser'
> qasu-iiy-say-βiy-say-si-ññit-luinay-nay-puq-, 'there is a complete failure by someone to find a resting place'.

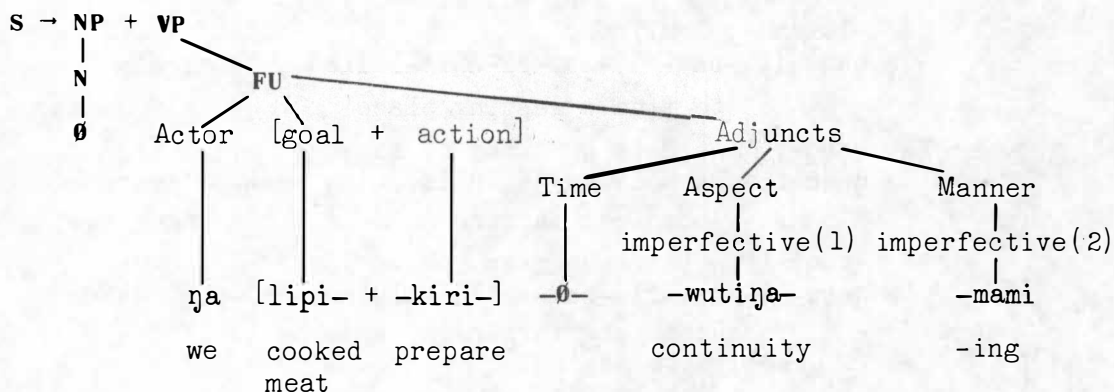
The morphophonemic rules are, of course, fulfilled from step to step; they are not under discussion here. The main concern is the change of stops into fricatives in combinations of the elements.

2. *Tiwi*: ɲawutiŋalipikirimami
'we are preparing cooked meat'

In the Eskimo example the initial element was, so to speak, the goal of the whole utterance, the 'resting place' which was not found. In the *Tiwi* example the goal of the action, the 'cooked meat' appears as -lipi-; the 'preparing' appears as -kiri-. These two elements are united in a nucleus, [-lipikiri-] about which the details of the activity are draped partly in the form of prefixes and partly in the form of suffixes: ɲa- 'we', -wutiŋa 'action in process', and finally -mami 'imperfective'. The second and final elements are almost synonymous but may appear apart from each other.

The principles behind these two methods of compounding are now to be studied and methods of analysis suggested. These methods cannot be pursued satisfactorily (in the sense of being set out with any reasonable simplicity) either by tagmemic or by transformational analysis. A type of componential analysis seems to provide a clearer and simpler approach and this is accordingly followed here. The *Tiwi* type will be taken first, because this is not only the commoner and therefore of wider interest to a larger number of students, but, unlike the Eskimo type, it can to a certain extent be dealt with in terms of either tagmemic or transformation analysis.

In terms of phrase-structure analysis the Tiwi example would appear to be best set out as follows:



A transformation process allowing the elements to be arranged is needed at this point. This comparatively simple example has here been analysed according to a combination of tagmemic and transformation analyses. The basic reasons for this procedure are:

1. NP → N → ∅ allows for the expression of a subject apart from the verbal complex, as in Tiwi *wi-wutiŋalipiki-rimami*, 'the men are in the process of preparing cooked meat'.

2. VP → FU treats verb phrase as a fused unit, the elements of which may be further analysed as follows:

VP → FU

FU → (N + V) + Adjunct

N → -lipi-

V → -kiri-

Adjunct → T + A + M

T → ∅

A → process marker -wutiŋa- 'continuous'

M → imperfective marker -mami 'imperfective'

The alternative analysis adopted above is based on tagmemics and seems to be more economical. The treatment of the polysynthetic verbal phrase in these languages as a *fused unit* supplies the key to *convenient* analysis. The problem in each language is to define what may appear in the fused unit and the obligatory order of the elements, as well as which of them are obligatory in their occurrences and which are optional. In the case of Tiwi, for instance, the goal-noun is optional, depending on the nature of the verb

and the message to be communicated; the other elements of the fused unit occur in fixed orders but need not all appear on any given occasion; in fact they cannot all appear in one and the same compound.

A rather more elaborate example in Tiwi is provided by the following utterance, actually produced for the writer by a schoolboy at Bathurst Island. The subject actually was 'dog' (masc. *wajgini*). The predicate was:

i-wini- watu- mini- ŋilim- paŋini- wiri
 he-hither - morning-to-me- sleeping- meat - bite
 i.e. 'he came and bit my meat while I was asleep this morning'. This complex may be pictured as follows:

<i>Element</i>	<i>Representation</i>
subject	i-, 'he'
directive (1)	-wini-, 'hither'
time	-watu-, 'morning action'
direction (2)	-mini-, 'movement towards speaker'
circumstances	-ŋilim-, 'actor sleeping', 'patient sleeping'
goal	-paŋini-, 'meat (raw)'
action	-wiri-, 'bite'

Here is presented a series of modifications of a basic act, of 'biting meat'; the limiting conditions are stated first. The basic act, expressed in an (N + V) fusion, comes last. Of course, such a suffix as *-mami*, 'continuity', might be added, giving the tense 'he was biting...'. The only morphophonemic change is that converting *-ŋilim-* to *ŋilim-* before *p*.

When the stage of analysing **VP** is reached, difficulties begin to arise that are not encountered when languages of European type are dealt with. In the polysynthetic languages, **VP** is the complicated unit. It consists of a varying number of bound morphemes, and in general contains none that are capable of appearing free without at least some change in form. It seems best therefore to posit next a transformation:

VP → **FU**

FU →

The transforms and rewrite rules of **FU** then become the main problem in this type of language. As stated, **FU** consists of a number of bound morphemes. It is suggested then

that **FU** be submitted to what is practically componential analysis. Although this term has been used on the phonological level³ and on the semantic level⁴, it does not seem to have been very widely used in morphological connections. The present suggestion is that this extension is a logical procedure: **FU** consists of a number of morpheme components, each of which signals a meaning, whether lexical or grammatical. A method of dealing with these will be demonstrated in detail below. Once they are isolated and assigned their function, all that remains is to arrange them in their obligatory order in the total **FU** which is the polysynthetic **VP**. This can be done by what in transformational grammars would be called morphophonemic rules, such as those governing the order of affixes in English sentences.⁵ As the units are themselves morphemes, and often undergo some phonetic changes in the process of combination, the term 'morphophonemic rule' must be kept for these formal changes; the rules governing order are arrangement rules, to be marked as **AR**, and these must be given before the morphophonemic rules, which do not come into play without them.

The sequence of components is regulated grammatically by the conceptual sequence in this Type (I) as contrasted with that shown, and to be discussed more fully below, in Type II. The general idea is given first, gradually refined as component after component is added, each covering a smaller conceptual field.

Of course it will be argued by some that this taking account of semantic elements in analysis is a falsification of linguistic principles. Perhaps, however, it is only the rejection of any semantic criteria in linguistic analysis that is at fault. Pike argued many years ago that there are grammatical prerequisites to phonemic analysis.⁶ It is quite obvious that even structurally the Eskimo type of **FU** differs from the Tiwi type; if these differences are to be explained it must be recognised that they do not rest on grammatical - linguistic in the narrow sense - principles at all, but on semantic principles. After all, the *raison d'être* of language is in the long run communication, and what a speaker wants to communicate - his message and its contents - must be allowed a place in the linguistic scheme. Certainly linguistics must be kept clear of unnecessary semanticism, but it would seem that as nobody speaks without having information to convey or to gain (except in interjectory utterances, and even they convey emotional information), linguistics should be prepared both to recognise and accommodate itself to this element of intended communication

when it influences the grammatical form of what is uttered. To analyse the Eskimo **FU** in these componential terms is not to be false to linguistic principles. It is only to recognise facts that go to shape the linguistic compound which is being analysed by purely linguistic methods. It serves to show why the particular componential analysis is necessary and what information the utterance conveys. The behaviouristic interpretation of linguistics omits vital facts and is therefore inadequate.

Type II - the Tiwi type as here used - proceeds on different principles of synthesis, and consequently of analysis. This has already been briefly indicated. If the Eskimo type is represented by such formula as

$$[A + B + C + D + \dots n]$$

the Tiwi type is represented by a formula such as

$$\pm a \pm b \dots (A + B) + c + d + \dots n$$

where (A + B) represents the (N + V) central complex, the preceding and following lower case letters represent grammatical elements of person, place, time, direction, and any other features that may be included in the **FU**.

First something may be said about the central nucleus, which in this type includes the event and the object (grammatical object; grammatical subjects do not occur in this position). In the Tiwi example above (cooked meat + prepare), was such a central unit. The form *-lipi-* expressed the object, and in accordance with the general rules of the language, it preceded the verb, *-kiri-*, 'cook'. In this central unit the whole nucleus of the message is conveyed: something is being done about cooking meat. In the Eskimo case (Type I) this nuclear unit would begin the compound; in Type II it does not. Tiwi and certain other Northern Territory languages have a peculiarity which is not shared widely outside the area. In Tiwi there is a group of some three dozen nouns which take on completely different phonetic forms when they enter into a **FU** compound. In the second Tiwi example given above, 'raw meat' is expressed by *-paṅini-*. If the question is asked 'what is this?' and the answer to be given is 'raw meat', the term is *punuṅ-kapa*, a completely different phonetic form. Such duplicates are best called *glossemes*, adopting the term suggested by Swadesh⁷, with the proviso that a Tiwi glosseme is not a modified form of the free noun, as in Eskimo, but a different morpheme altogether. In neighbouring languages which have multiple classification of nouns, the usual process is

to embody the noun minus its class prefix in the verbal complex, except in the Andilyaugwa of Groote Island, where some glossemes of the Tiwi type are found. The abbreviated forms (not glossemes) may better be referred to as 'inset nouns'.

In Tiwi there appear to be some three dozen glossemes of the Eskimo type, with the added complication already mentioned, that they need not bear any phonemic resemblance to the independent nouns. Those that have been recorded by the present writer include the following:

(a) PARTS OF THE BODY

<i>Independent form</i>	<i>Incorporated form</i>	<i>Meaning</i>
tuluwa	-mīla-	head
turua	-puṅita-	ear
jiruntamura	-puṅutama-	nose
wīnuta	-kīra-	hand
mala:mpoṛa	-mīli-	foot
impula	-pulu-	knee
iripapwata	-tipuṅa-	elbow
ṅuwana	-naṅkala-	calf of leg
jiraṅkala	-kīli-	thigh
jampurimula	-īnapanta-	buttocks
mimuta	-pālī-	back
ṅipala	-pīṛiti-	shoulder
miraka	-tantji-	throat
jirinampurpwatja	-puna-	chin
iriputara	-pālī-	mouth
pitara	-tiṅkīri-	eye, face

(b) GENERAL NOUNS

tawīla	-pa(ja)t-, -tio-, -tuṅu-	tomahawk
jo:ni, kuriripa	-kua-	knife
kwakini	-antuṅu-	flour
punuṅkapa	-paniṅö-	raw meat
köluwuka	-tinuṅu-	egg
mantaja	-kiti-	stick

mapiti	-piaintili-	fish
murkarila	-tirayamu-	spear
töraka	-ñiliontuñi-	wallaby
möwönikini	-tuñu-, -kiñi-, -rukunituñu-	vegetable food
wanatuña	-tiliñanta-	basket
wilitiña	-tiliñanta-	billycan
jukwoni	-ruku-	fire
para	-tjuñu-	canoe
wangini	-tjiñuluñu-	dog
turuwali	-kupu(wamini)-	gun
jarña	-ñilu-	red ochre, red paint

This is probably not an exhaustive list. It is interesting to observe that some items belong to the introduced European culture. It is not clear why these items particularly have been provided for, while others have not. The contrast with Eskimo glossemes is twofold, (1) Tiwi glossemes are far fewer in number than Eskimo and (2) Eskimo glossemes are usually the bare roots of the independent forms, while those of Tiwi may be phonemically quite different.

Given that there is in both types of **FU** a nucleus, even though it may be differently composed in each and differently located in the verbal complex, the next step is to define the satellite elements in a way in which they can be subject to transformational treatment. In every language such satellites have a fixed position in the **FU**. This fixed position can be utilised in the analysis.

The procedure that then suggests itself may be indicated very clearly by the presentation of the Tiwi verbal system, which is undoubtedly the most complicated in Australia.⁸ In the setting out of verb classes in English, Chomsky has given tables in which the verbs are divided into numbers of subclasses, e.g.

Vt₁ - admire, find, ...

Vt₂ - terrify, astonish, ...

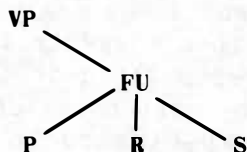
Vt₃ - find, complete, ...

and other subclasses, as many as are needed to account for English phrasal usages.⁹ A similar process may be possible in the transformational setting out of the elements within

the **FU** in such languages as Tiwi. In this language a verb may carry any number out of thirteen classes of prefix, and six classes of suffix. No verb would ever carry all of the possible satellites, as some are mutually exclusive. Most, in fact, will carry only a small number, but the examples which have been used earlier in this paper show that a considerable degree of exploitation of the language's resources may actually be made. The satellites of the Tiwi verb are in detail as follows:

<i>Prefixes</i>	<i>Suffixes</i>
Rank 1: person subject	Rank 1: directive
Rank 2: intention	Rank 2: reciprocity
Rank 3: movement hither	Rank 3: reflexivity
Rank 4: morning action	Rank 4: temporaneity
Rank 5: desiderative	Rank 5: aspect
Rank 6: continuity	Rank 6: interrogation
Rank 7: movement away	
Rank 8: night activity	
Rank 9: pronominal object	
Rank 10: coverbs	
Rank 11: glossemes	
Rank 12: conative	
Rank 13: completive	

These classes are set out here more or less as they would be set out in a tagmemic grammar. This treatment is also satisfactory, but the diagramming appears more clearly in terms of transformations. In the present paper, of course, no detailed study of the verbal complex can be made; that is the function of a Tiwi grammar. At the present moment only a method of setting out the forms in this type of language will be undertaken.

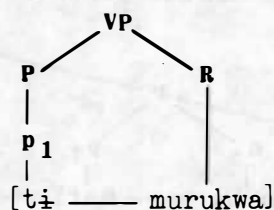


1. $VP \rightarrow FU$
2. $FU \rightarrow \pm \text{Prefix} + \text{Root} \pm \text{Suffix}$
3. $P \rightarrow p_1 \dots p_{13}$
4. $R \rightarrow \pm N + V$
5. $N + V \rightarrow \text{glosseme} + \text{verb root}$
6. $S \rightarrow s_1 \dots s_6$

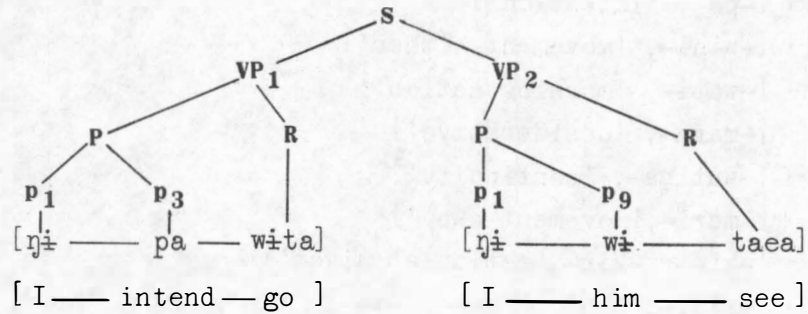
- p₁** → [ŋi, 'I', nin- ~ ti-, 'thou', etc.]
p₂ → [-pa-, 'intention']
p₃ → [-wini-, 'movement hither']
p₄ → [-wati-, 'morning action']
p₅ → [-mara-, 'desiderative']
p₆ → [-wutiŋa-, 'continuity']
p₇ → [-mari-, 'movement away']
p₈ → [-ki- ~ -kin-, 'action at night']
p₉ → [-mini-, 'me', 'thee', -wi-, 'him', -mp-, 'her', etc.]
p₁₀ → [v₁ + v₂]
v₁ → [-turu-, 'standing', -ŋilin-, 'sleeping', etc.]
v₂ → (v_{2a})(v_{2b})
v_{2a} → [-kirim-, 'make']
v_{2b} → [-ini, 'do, say'; -pala, 'stop']
p₁₁ → [one of a group of glossemes]
p₁₂ → [conative]
p₁₃ → [-paea-, 'finish']
R → [any verbal stem in lexicon except v_{2a}, v_{2b}]
s₁ → [-u:wa-, 'towards speaker'; -ila-, 'upwards', etc.]
s₂ → [-p̄iri- ~ -tiri-, 'reciprocal']
s₃ → [-mia, 'reflexive']
s₄ → [-mami-, 'imperfective']
s₅ → [-ila-, 'long continued action', -tera, 'spasmodic action', etc.]
s₆ → [-ana, 'interrogation']

A few examples of different possible combinations in the Tiwi verb complex follow. Those in which NP = Ø are used in order to secure economy of exposition in the present brief paper. Morphophonemic variations in the stems are not treated here.

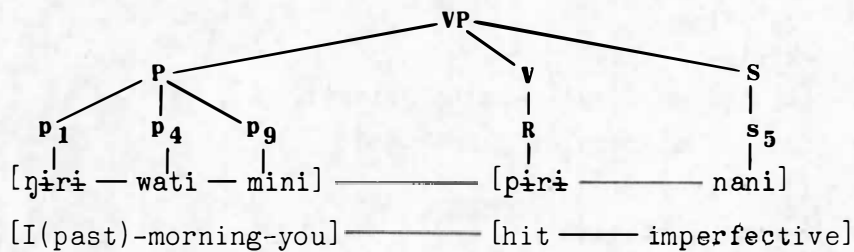
1. ~~ti-~~murukwa 'she is dead'



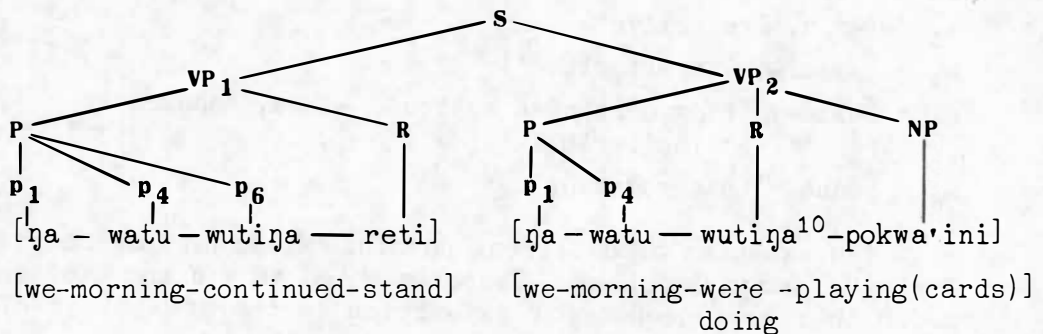
2. $\eta\dot{i}pawita \eta\dot{i}witaea$ 'I shall go and see him'



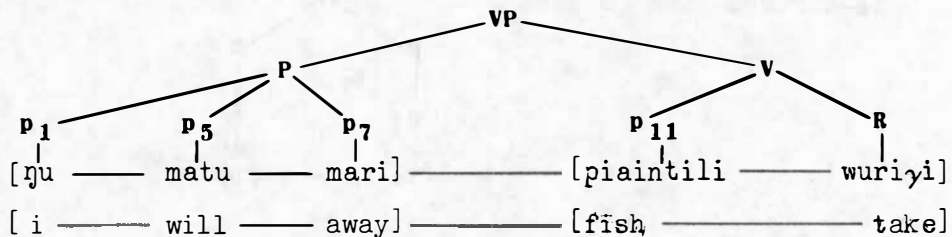
3. $\eta\dot{i}r\dot{i}watiminip\dot{i}rinani$ 'I was hitting you this morning'



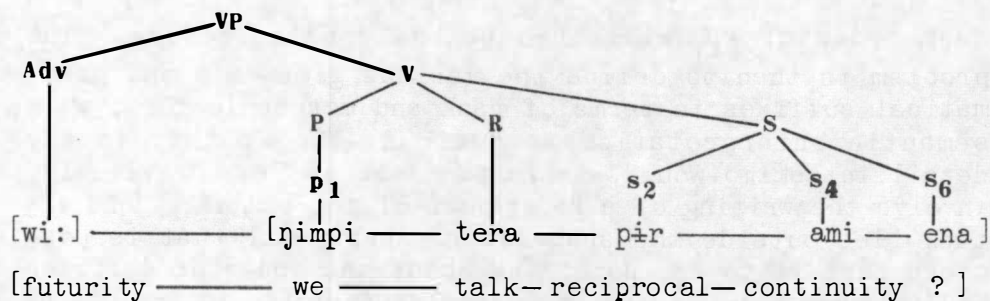
4. $\eta\dot{a}watuwuti\eta\dot{a}reti pokwa'ini \eta\dot{a}watuwuti\eta\dot{a}$ 'we stood and played cards this morning'



5. $\eta\dot{u}matumaripiaintiliwuriyi$ 'I will take the fish away'



6. wi:ɲimpiterapiramiena 'Shall we go on talking to each other?'



The above six examples serve to show the structure of FU in Tiwi and at the same time illustrate the principles suggested above for transformational exposition of such FU. The same course may equally well be applied to other languages of what has here been called the Tiwi type.

The Eskimo type can be set out similarly but the arrangement will show variations arising from two causes, (1) the absence of prefixation, and (2) the glossemic nature of the suffixes. Eskimo S will have to be divided therefore into s_{gl} = glossemic suffix and s_{gr} = grammatical suffix. Each subgroup will then be numbered in classes according to the nature of the glosseme. ($s_{gl_1} \dots s_{gl_n}$), or the grammatical morpheme ($s_{gr_1} \dots s_{gr_n}$).

An example or two will show the need in PS analysis of Eskimo to allow for the semantic factor:

1. iylu — ɣsua — liuy — puq
house - large - build - he

'He builds a large house': here only the final suffix is grammatical; the first and second are glossemic in nature.

In 2., however, the suffixes are all grammatical:

- tiɲumi — say — aluay — dloɲo
take-up - should-although-we, he, I, etc. do-to-him

Taking the two groups of suffixes then s_{gl} and s_{gr} , sentence 1. appears as:

$$\begin{aligned} VP &\rightarrow FU \\ FU &\rightarrow N + s_{gl_1} + s_{gl_2} + s_{gr_1} \end{aligned}$$

Each of these suffixes will then be analysed in the usual manner. In sentence 2:

VP → FU

FU → V + s_{gr1} + s_{gr2} + s_{gr3}

Each order of s_{gr} will then be analysed as before. The problem is then to define the various glossemic and grammatical suffixes in terms of rank and morphemic form, with semantic interpretation as desired. To do this in any detail in Eskimo would, as in the case of Tiwi previously, involve the writing of a PS grammar of the language, and the task lies outside the scope of a paper. All that is possible here is to say something about the order of suffixes and to take a few of the more complex examples to analyse as was done for Tiwi. The contrastive patterns of the two types of polysynthesis will then stand out. In what follows concerning Greenland Eskimo the paper by Morris Swadesh 'South Greenlandic Eskimo'¹¹ forms the source of information and should be consulted for details and any desired expansions.

Swadesh divides Eskimo suffixes into *subnominal* (added to noun roots or stems) and *subverbal* (added to verb roots or stems) and states that there are some 200 such glossemes. There are two main classes: *restrictive* glossemes, which form endocentric constructions and *governing* glossemes which form exocentric constructions. Governing suffixes are (1) noun-forming: (a) subnominal, such as -kamiq, 'place near to...', (b) subverbal, such as -t/si...p, 'one's ...er', as tugu-tsi-sгаа, 'his killer'; (2) verb-forming: (a) subverbal, whether neutral, transitivity or intransitivity, (b) subnominal - (i) forming copulative verbs, as -u- 'be' in urpi-u-vug, 'it is a tree', (ii) forming transitive verbs, (iii) possessive such as -qag, 'to have'. The author then states:

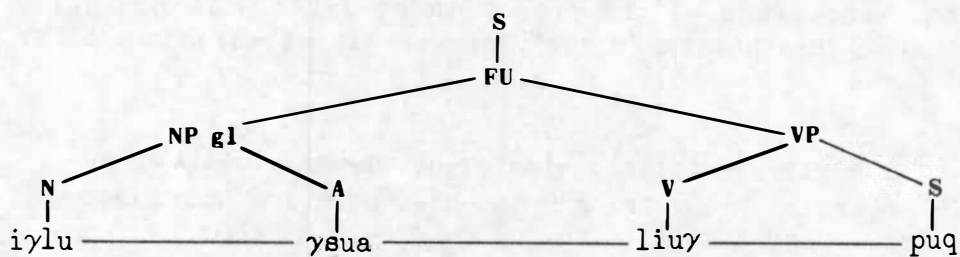
'The order in which the suffixes occur, is, on the whole, fixed with reference to a sequence of restrictive suffixes, but with governing suffixes different orders are possible with different meanings. However, in the formation of a verb, governing suffixes expressing notions of time, aspect and modality, tend to be used last. After these, a noun-forming suffix may again appear, so that they are no longer final, and further verbalising suffix may be superadded.'

Here it may be sufficient to exemplify a few varieties of these suffixes.

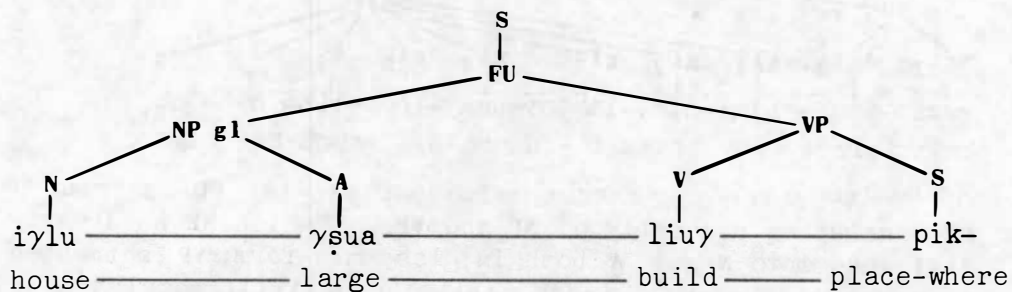
1. Verbal, person, tense and mood indicators:
niyi-zu-qa 'I eat'; niyi-zu-tik 'you two eat'
2. Objective suffixes, direct or benefactive:
niyi-siyumiñ-ayik-piñ 'I can eat for you'
3. Manner suffixes:
niyiñaiyiñiañittsugña 'I will not stop eating'

Among more complex examples the following may be cited, expressed in Structure-Tree form.

1. iylu — γsua — liuy — puq
house - large - build - he (pres.)

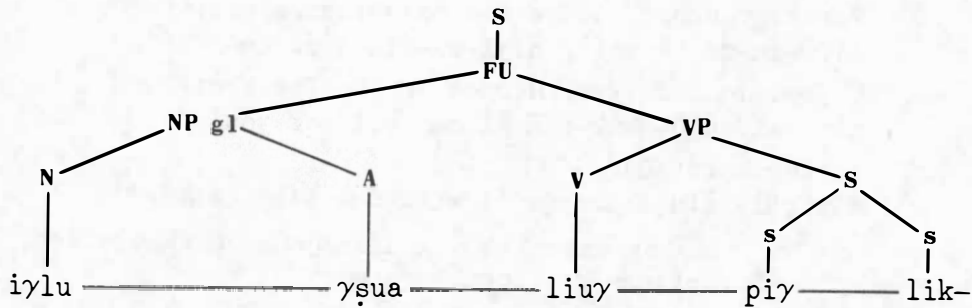


2. iylu — γsua — liuy — pik-
house - large - build - place
'a place where a large house is being built'



The form -pik- is a morphophonemic transform of -ββik- 'place where'.

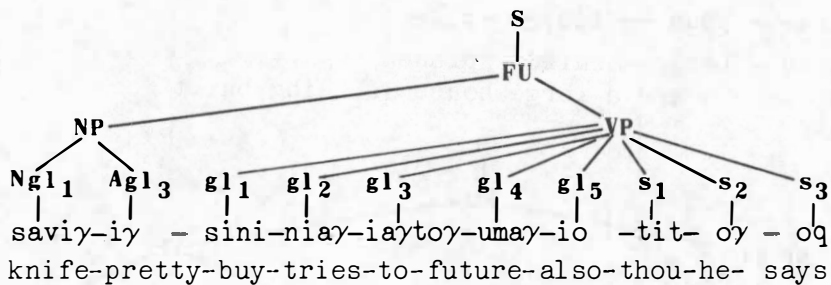
3. iylu — γsua — liuy — piy — lik-
house - large - build - place - having
'one who has a place where a large house is being built'



Example 3 is of course a complex phrase, not a sentence and still needs to be completed by units saying something about the owner of the place: these units will nominally consist of separate "words", one or all of which may be **FU** in turn.

4. saviy-iy-sini-niaγ-iaγtoγ-asuaγ-umaγ-io-tit-oγ-oq
 knife buy tries to hasten future thou he says
 pretty also

The analysis suggested is:



The type here is rather more complex; the **FU** is treated as consisting basically of **NP** and **VP**, of which **NP** is clearly divisible into **N** and **A** both in glossemic form; **VP** is treated as a set of glossems (each really being **Vgl**), completed by three ranks of suffixes. The reason for treating the last three elements as suffixes is that while **gl₁₋₅** develop the action - the "drama", to use Longacre's thought - the **s₁₋₃** increasingly define the activity in terms of the actor ('thou') and the reporter ('he says').

The general patterning is consistent in terms of the statement made at the beginning of this paper. The independent fundamental word (even if reduced to the morphemic shape of a glosseme, as in the case of *savik* < *savik* 'knife' in example 4) must be placed at the beginning of the

FU, and the suffixes are attached to expand the intended statement in the manner desired. These -

1. describe qualities of the fundamental idea (-iy-, 'pretty') or modes of the action, referring to time etc. by means of
2. inflectional endings which blend morphophonemically with each other, followed optionally by
3. syntactical suffixes (not illustrated here, but including such as -lo, 'and' or -ttācq, 'also').

Some of these elements may be attached to any word where the sense permits; others are limited in their occurrences (and co-occurrences) so that sub-groups of verbs are established as in the case of Tiwi (illustrated above) or English, and in fact most languages, such as -

V_{tx} tako- 'notice'

V_{ty} ato- 'use'

in environments such as -

tako-nay-paya- 'I notice it for the first time'

ato-γqaoγ-paya 'I use it for the first time'

respectively. The first group takes -(γ)nay-, the second -(γ)qāγ- in the sense of 'for the first time'.

It would exceed the available space in the present paper to set out a numbered arrangement of suffixes, according to syntactic order (as was done with the prefixes and suffixes of Tiwi). This would be the natural next step and must be done in any enlargement of this paper.

The above analyses have all been phrase-structure examples. They have shown the two variant types of polysynthesis clearly and established the propriety of distinguishing them. Actual transformations have not been carried out with either type, and this part of the work still remains to be done. Some of the common English and general European transformations will not occur; with so far only one or two known exceptions, Australian languages have no passive formations. In Tiwi the interrogative indicator is a final suffix, (s_6); in Eskimo it is a verbal ending. In each case it is doubtful whether a passive transformation would be possible. In the Tiwi examples above the interrogative form has actually appeared in one sentence. The whole question of kernel sentences in languages of this type still remains to be faced, and with it the number of transformations possible in a given language. Questions of

this nature will be taken up subsequently when a wider study of the application of transformation theory to polysynthetic languages is made.

NOTES

1. A paper read at the meeting of the Australian and New Zealand Association for the Advancement of Science, Hobart, 1965.
2. The word really means 'the people'; there appears to be no indigenous name for the language they speak.
3. Samuel E. Martin, *Korean Phonemics*, Lg. 27.519-33 (1951).
4. Ward H. Goodenough, *Componential analysis and the study of meaning*, Lg. 32.195-216 (1956). (With illustration via kinship terms.)
5. Noam Chomsky, *Syntactic Structures*, s'Gravenhage, 1957, e.g., pp.32-33.
6. Kenneth L. Pike, "Grammatical prerequisites to phonemic analysis", *Word* 3, 155-72 (1947). (And continuation, *Word* 8, 106-21 (1952).)
7. M. Swadesh, "South Greenland Eskimo", in *Native Linguistic Structures of North America*, ed. H. Hoiijer, 1946, p.50.
8. In point of fact, Professor A. Pilling, of Wayne State University, has written to me in a private letter that the present generation of speakers is simplifying the system considerably, dropping many of the bound morphemes in the **FU** and using adverbial adjuncts in the **VP**. This process is both interesting in itself, and for comparison with similar simplifications that are going on, for instance, in some of the Kiwai languages in Western Papua.
9. Noam Chomsky, "A Transformational Approach to Syntax", in *Third Texas Conference on Problems of Linguistic Analysis in English*, Austin, Texas, 1962, pp.139-140.
10. wutiŋa besides being p₆ can appear (homonymously) as a principal verb, verbalising the noun form pokwa'ini '(card)-playing'.

11. In *Linguistic Structures of Native America*, ed. Harry Hoijer, Viking Fund Publications in Anthropology No.6, New York 1946, pp.30-54.

SOME PRODUCTIVE RULES IN LARDIL (MORNINGTON ISLAND) SYNTAX

KENNETH HALE

The purpose of this paper is to indicate certain features of an Australian language which can be handled in a reasonable manner only by a grammar which contains, as its principal component, a set of rules called transformations, which can operate on grammatical sequences produced by a set of phrase structure expansion rules and, from these sequences, produce new grammatical sequences by means of such processes as permutation, addition, and deletion. The term "rule" is used here to refer to two different types of operations:

(1) *expansion rules* apply to general terms and expand them, i.e. they enumerate their constituent parts or submembers, as in expanding a verb word as a stem plus suffix, or in expanding the general notion "verb stem" as a list of actual stems belonging to the class of verbs;

(2) a *transformational rule* manipulates, in one way or another, the elements in strings derived by rules of the first, or expansion, type. There are also transformational rules which operate simultaneously on two such strings to combine them, either by imbedding one into another or by conjoining one to the other.

The important discovery of the necessity for including a transformational component in any reasonable, scientific grammar of a natural language is to be credited to Noam Chomsky, whose book *Syntactic Structures* (1957) has quickly and deservedly become a classic in modern linguistic writings. Chomsky, and linguists inspired by him such as Lees, Halle and Postal, have given ample demonstration of the descriptive and explanatory power of transformational grammars. Their work has, significantly, concentrated most heavily on English, a language which is well known to all of them (see, for example, Lees' *The Grammar of English Nominalizations*, 1960). However, in recent years, similar work has been done on languages other than English, including

several American Indian languages. The more recent work, on a variety of languages, has provided nothing by way of counter-examples to the claims implicit in Chomsky's original formulation. Indeed, these investigations have strongly suggested that transformational rules are a universal for all human language.

One of the points consistently and convincingly made by transformationalists is that the set of rules comprising the grammar of a natural language can be adequately formulated on paper, only by grammarians whose knowledge of the particular language is essentially that of a native speaker - either the linguist must be virtually a native speaker, or the native speaker must be trained as a linguist. For Australian languages, perhaps only T.G.H. Strehlow has the qualifications necessary here.

Nonetheless, in the context of a transformational theory of grammars, it is possible for field linguists to say significant things about any new language which they encounter in the field and for which they have systematically assembled a sufficiently large corpus.

In the discussion that follows, I will present a number of examples in Lardil of productive rules which are best regarded as involving transformations; in the course of the discussion, the nature of transformations will, I hope, become clear.

The first example I wish to present involves stylistic permutation of elements in sentences of a rather simple type. The following type-sentence consists of a noun (**N**) (the subject of the sentence), a verb, and a complement (**Comp**) (the object of the verb). The verb and the complement are each composed of a stem (**V** and **N** respectively) followed by a suffix indicating tense (**T**).

(1) *ɲata weRe-ɬu ma:ŋ-ku*

I throw-future spear-future (I will throw the spear)

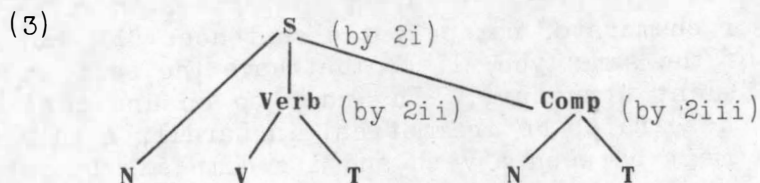
It is a simple matter to provide a finite set of expansion rules which will enumerate all sentences of exactly this structure. Each of the rules is of the type **X** ---> **Y**, i.e. rewrite **X** as **Y**, where **X** is some general, superordinate term, and **Y** is its constituent parts. In such a set, there is an initial rule which operates on the most abstract entity, sentence (**S**), and decomposes it into its immediate constituent parts; in the case of the Lardil sentence (1), these parts are: a noun, a verb, and a complement, in that order. A subsequent expansion rule operates in the same way on one of the constituents provided by the first rule, and

so on, until the maximum decomposition, into morpheme classes, is completed. The output of this subgrammar is a sentence profile, or terminal string, in which each ultimate constituent is represented by an abstraction (N for noun, V for verb, etc.) of the form class to which it belongs.

- (2) (i) **S** ---> **N + Verb + Comp**
 (ii) **Verb** ---> **V - T**
 (iii) **Comp** ---> **N - T**

(The symbol + indicates word boundary, and - indicates morpheme boundary within a word.)

The output of each expansion rule can be mapped onto a branching diagram or tree, in which the lefthand term in the expansion rule is a superordinate node dominating its constituents, the righthand terms in the expansion. If this is done for all the rules (2), the following constituent structure tree is derived.



The profile of the sentence is: **N + V - T + N - T**. The ordering of the rules and the derived branching diagram indicate the hierarchical constituent structure.

An additional component to the grammar, comprising the lexical rules (also in the form of expansions), would re-write each element in the terminal string as a list of actual morphemes.

- (4) (i) **N** --->
- ŋata I*
 - n^viŋki you, sg.*
 - niya he*
 - taŋka man*
 - pinŋen woman*
 - kant^vin wallaby*
 - tunał tree*
 - ma:ŋ spear*
 - kuRka paŋdja (swamp rush.corm)*
 - tupun pestle*
 - etc.

- (ii) $V \rightarrow$ weRe *throw*
 kuri *see*
 kele *cut*
 parke *chop*
 tuReme *pound*
 etc.
- (iii) $T \rightarrow$ -tu (with V) ~ -ku ~ -wu ~ -u ~ -R ~ -ŋku
 etc.
 (with N) *future*
 \rightarrow -kun (with V) ~ -in ~ -i ~ -n ~ -un ~ -ŋin
 etc.
 (with N) *non-future*

Together with the lexical rules, the expansion rules (2) generate, or enumerate, not only the sentences (1), but all sentences of the same type, i.e., that have the same profile and constituent structure. In order to ensure that the output of these rules be grammatical in Lardil, a rule for tense agreement between a verb and its complement must be included. Such a rule, which would precede the lexical rules, might be formulated, tentatively, as follows:

$$(5) \quad V - T_x + N - T \rightarrow V - T_x + N - T_x,$$

to be read, roughly: when a particular tense is chosen for a verb, choose the same tense for the noun which follows it. This ensures that (6i-iv) below will be included in the output of the grammar, but that (6v-viii) will be excluded.

- (6) (i) ŋata kupaRi-tu ma:ŋ-ku
 $N + V - T_{fut} + N - T_{fut}$
I will make a spear.
- (ii) ŋata kupaRi-kun ma:ŋ-i
 $N + V - T_{non-fut} + N - T_{non-fut}$
I made (or make) a spear.
- (iii) ŋiya parke-tu tunal-u
 (same profile as (i))
He will chop the tree.

- (iv) η iya parke-kun tu η al-in
 (same profile as (ii))
He chopped the tree
- (v) * η ata kupa η i-tu ma: η -i
 $N + V - T_{fut} + N - T_{non-fut}$
- (vi) * η ata kupa η i-kun ma: η -ku
 $N + V - T_{non-fut} + N - T_{fut}$
- (vii) * η iya parke-tu tu η al-in
 (same profile as (v))
- (viii) * η iya parke-kun tu η al-u
 (same profile as (v₁))

All of the sentences (6) have the same constituent structure, but only (i-iv) are grammatical. Clearly, the grammar of Lardil must be formulated to include a tense agreement rule, and this is entirely within the scope of a grammar constructed on the model of the rules (2).

In order to demonstrate the essential inadequacy of such a grammar, it is necessary to examine Lardil sentences which differ in some way from (1) and (6), but which are related to them in some systematic way.

Consider the following grammatical sentences.

- (7) (i) η ata ma: η -ku weRe-tu
 (ii) ma: η -ku η ata weRe-tu
 (iii) ma: η -ku weRe-tu η ata
 (iv) weRe-tu ma: η -ku η ata
 (v) weRe-tu η ata ma: η -ku

All of these sentences have the same meaning as (1) (*I will throw the spear*), and all are equally grammatical, although some may be regarded by Lardil speakers as being somewhat more "usual" than others. They are stylistic permutations of one another, and are, therefore, closely interrelated - they contain precisely the same constituents and exhibit the same internal agreements (in particular, the tense agreement between the verb and its object).

Since the sentences (7i-v) are all grammatical, they must be enumerated by the linguist's grammar if the latter is to

satisfy even the most fundamental requirement of observational adequacy. The sentences differ from one another and from (1) in the arrangement of the constituents **V**, **Verb**, and **Comp**. It is clear, then, that they are not included in the output of the set of rules (2), nor are they included in the output of any single set of expansion rules similar to (2).

All Lardil sentences of the type represented by (1) and (6) have potential permutations corresponding to the sentences (7i-v). It is obvious, then, that a grammar which contains only an expansion rule component is incapable of handling a rather simple feature of Lardil, since, in such a view of grammar, a separate set of expansion rules (amounting to a separate subgrammar) would be required for each of the sentences (7i-v), and the simple permutational relationship among these superficially dissimilar sentences would be entirely lost. The reality, for speakers of Lardil, of the close and obvious relationship among sentences which are permutations of one another becomes immediately apparent in field work; it is not uncommon to record all possible permutations of a string in the course of a single text, provided the occasion arises for sufficient repetition. (This phenomenon of stylistic permutation is well documented for a great many Australian languages; see e.g., Capell 1962, pp.4-8.)

It appears, therefore, that there is a productive rule in Lardil which operates at least on sentences of the type enumerated by the expansion rules (2) and produces new grammatical sentences by permuting among the elements **N**, **Verb**, and **Comp**. Such a permutation rule, clearly indicated by the study of Lardil, is one of a set which comprises the transformational component of the grammar.

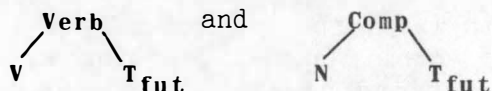
(8) Transformational rule, stylistic permutation:

N + Verb + Comp	\Rightarrow	(i) N + Comp + Verb , or
		(ii) Comp + N + Verb , or
		(iii) Comp + Verb + N , or
		(iv) Verb + Comp + N , or
		(v) Verb + N + Comp .

The relationship among the sentences which are the output of rule (8) is a formal one. These sentences are related transformationally as permutations of a single source string, the output of the set of expansion rules (2).

Transformational rules are best regarded as being defined on a domain of fully derived constituent structure trees or branching diagrams. Rule (8), defined on a tree of the type given earlier as the output of the rules (2), operates on

the branches labelled **N**, **Verb**, and **Comp**. By operating on the node labelled **Verb**, the rule keeps the constituents **V - T_x** together as a unit; similarly, by operating on the node labelled **Comp**, the rule keeps the constituents **N - T_x** together. Since transformational rules apply to fully derived trees, they apply *after* agreement rules such as (5). Since this is the case, such agreement rules need to be stated once only, and the correct agreements will be inherited by the output of any transformational rules which changes the sequential arrangement of elements between which agreement dependencies obtain. For example, if, in a given derivation, **T_{fut}** is chosen for the verb, rule (5) will select the same tense for the noun which follows. Rule (8) will then be able to move the subtrees



without disturbing the tense agreement, thereby eliminating any necessity to repeat the simple tense agreement rule for sentences in which the verb follows its object.

Surely, the principal metracriterion for the choice of one grammar over another is one of simplicity. That is, a grammar which allows for the greatest generality in the application of rules is more highly valued than a grammar which fails to do so. By recognising a transformation which permutes elements in a string after agreement rules have been stated, the agreement rules themselves are made maximally general, i.e., for a particular agreement, say tense in Lardil, a single rule can apply to all sentences containing a verb and a complement, not just to those in which the latter constituents are in a particular order. (For an excellent discussion of generality, see Chomsky, 1962.)

The phrase structure expansion rules provided earlier enumerate the members of a large set of grammatical sentences in Lardil. They are formulated in a way which makes the application of the permutation rule simple. However, there are a great many other productive rules in Lardil; many of these require modification of and addition to the expansion rules as given in order to ensure that their output include only grammatical sentences. It will be necessary in an adequate grammar of Lardil to distinguish between transitive and intransitive verbs, animate and inanimate nouns, etc.

I will briefly consider two additional types of construction which are best viewed as involving transformations:

- (1) passive sentences, and
 (2) complex nominals composed of nouns and modifiers of a particular type.

Consider the following pair of sentences.

- (9) (i) pinŋen tuReme-tu kuRka-ŋku

The woman will pound pandja.

- (ii) kuRka tuReme--tu pinŋen-ŋan

The pandja will be pounded by the woman.

The first of these sentences has the same profile and constituent structure as the sentences (1) and (6); it is therefore, included among the output sentences of the expansion rules (2). The second sentence, however, has a different profile - specifically, it contains a passivising suffix added to the verb (and actualised as lengthening of the stem-final vowel), and it contains an agent suffix attached to the second noun. It is related to the first sentence in a formal way - it contains the same major morphemes, i e, the same nouns and verbs, but these are in a new structural arrangement, what was the object of the active sentence is the subject of the passive, and the subject of the active sentence is the agent of the passive. It is true for Lardil that for all transitive sentences of the type enumerated by the expansion rules (2), there is a corresponding passive having the same structure as (9ii). There is a definite relationship between active sentences and corresponding passive sentences which would be lost if passives were regarded as being derived by a separate set of expansion rules independent of those by which actives are derived. This relationship could, however, be captured by the grammar if the latter included a transformational rule by means of which passives are derived from actives. Such a rule would require that transitive sentences be distinguished from intransitive sentences. There is, for example, no passive for sentences of the type represented by (10) below, a sentence which, on the surface, appears to be of the same structure as an active transitive sentence.

- (10) pinŋen wan^yt^yi-tu walma:n-ku

$N + (\text{intransitive}) V - T_{\text{fut}} + N - T_{\text{fut}}$

The woman will climb up.

If the phrase structure expansion rules failed to distinguish transitive verbs from intransitive verbs, the rule for forming passives would include in its output such non-sentences as the one represented by (11) below.

- (11) *walma:n wan^yt^yi--tu pinŋen-ŋan
(Up will be climbed by the woman.)

Related to sentence (9i) is a complex nominal (12).

- (12) kuRka tuReme-n pinŋen
Woman who pounds pandja

And generally, for transitive sentences, there are corresponding agentive nominals. But consider the following

- (13) kuRka tuReme--n tupun
Pestle by which pandja is pounded

The structures of (12) and (13) are superficially similar, but (13) contains a passive verb tuReme-: *be pounded*, while (12) contains an active verb tuReme *pound*. While (12) comes directly from an active sentence, (13) comes from a passive sentence of the type represented by (14).

- (14) kuRka tuReme--T_x tupun-Ag_x
Pandja (was, will be) pounded by the pestle

(Ag_x represents the agent suffix, which must also agree in tense with the verb which precedes.)

Sentence (14), in turn, comes from the active sentence (15).

- (15) tupun tuReme-T_x kuRka-T_x
The pestle (did, will) pound the pandja

It is true for Lardil that for any transitive active sentence there is a corresponding agentive nominal. It seems appropriate, therefore, to regard these complex nominals as being transformationally derived. It happens, however, that the rule for forming agentive nominals can be applied directly to active transitive sentences only where the subject of such a sentence is animate (as is *pinŋen woman*). If the subject is inanimate (as is *tupun pestle*) the sentence must first be made passive, and the rule for forming agentive nominals must apply to that passive. The phrase structure expansion rules must, therefore, distinguish animate and inanimate nouns (a classification not otherwise obviously marked in Lardil) in order to ensure that ungrammatical nominals, of the type represented by (16) below, be excluded from the output of the grammar rules.

- (16) *kuRka tuReme-n tupun

It seems clear from these examples that the notions "transitive verb", "animate noun", etc., become real in

Lardil only in relation to some one or other productive rule. This suggests strongly that the primary concern of a field worker investigating a language in the field should be that of discovering, or better, learning, the productive rules, not the morpheme classes as defined according to immediate morphological environment. The notion "morpheme class" is dependent upon the total set of productive, or transformational, rules. The correct classification of morphemes can be arrived at only when the productive rules are known - it would be virtually impossible to know that Lardil makes a formal distinction between animate and inanimate nouns without first knowing, among other things, how agentive nominals are formed.

The purpose of this paper has not been to present a fully formalised subpart of Lardil grammar, but rather to demonstrate that, were such a grammar to be formulated, it could be done most reasonably and convincingly by recognising a transformational component. Three Lardil grammatical phenomena, most reasonably handled by transformations, were considered. These constitute only a small percentage of the productive rules of the language; but they indicate, I believe, that with regard to such notions as "productive rule", Lardil is not fundamentally different from better known languages for which detailed grammars are now being written.

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