

SOME PROTO-PAMA-NYUNGAN PARADIGMS: A VERB IN THE HAND IS WORTH TWO IN THE PHYLUM

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Introduction

This paper provides comparative evidence for certain inflected verb forms in Proto-Pama-Nyungan. The methodology used is the comparison of entire verb stems in construction with inflectional endings in modern Pama-Nyungan languages. These endings mark tense, aspect, and mood, or a combination of these. They are referred to below as *tense-mood* endings, or simply as *tense* endings. The comparative methodology proceeds from a heuristic assumption that sound-change is regular and phonologically conditioned. While this assumption cannot, at the present state of knowledge, be shown to hold true in all details of the facts considered below, neither can it be demonstrated to be exhaustively true of all known developments in any language yet investigated (cf. Bloomfield's remarks on English, 1933:356-357). Its heuristic value is nonetheless crucial (as will be seen below, and as has long been recognised; cf. Bloomfield 1933:364). Australian Aboriginal languages are not different from other languages in this regard. The comparative process here shifts focus back and forth among small-scale subgroup comparisons, comparison on the scale of Pama-Nyungan, and comparison on the scale of the Australian continent itself – the Australian language phylum. The resulting reconstructions provide support for the claim that Pama-Nyungan is a true genetic family.

This comparative effort stems in part from the author's frustration in trying to reconstruct verb paradigms within small subgroups – the languages of southwestern Cape York, and the Pama-Maric group which contains them – and in so doing provide evidence for hypotheses about the genetic subgrouping of these languages. This strategy of working from the small towards the large seems sensible, but it is not in fact the path followed in the early years of Indo-European scholarship, the usual paradigm case of linguistic historical comparison. The reconstruction of Proto-Indo-European proceeded from the evidence in one or two languages of each subgroup – Germanic, Slavic, Indic, and so on. This work did not wait for the reconstruction of Proto-Germanic, Proto-Slavic and the rest, but rather by its results influenced these efforts, and the two levels of effort continue to cross-fertilise. Nor did the original effort at reconstruction in Indo-European depend in any fundamental way on decisions about subgrouping, and contemporary scholars are still arguing about the existence of Italo-Celtic and Balto-Slavic.

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In the Australian field, why Pama-Nyungan? Because the contemporary attestations do indeed show enough similarity to permit reconstruction, and because published linguistic research on Australian Aboriginal languages has in these days accumulated to the point where researchers are able to make extensive comparisons of points of grammar. A contingent but most important reason for the scope of the present study, moreover, is that the author's efforts to understand the historical roots and typological background of ablaut phenomena in Yir-Yoront, as in *pay+l bites* vs. *puy bit* (Alpher 1986) led inevitably towards a broad comparison of languages which, like Yir-Yoront, attest Proto-Pama-Nyungan **patja bite*.

The reconstructions below are based on paradigmatic forms in the modern languages which resemble each other in sound and meaning; numerous forms from the same paradigms in the various languages are cast out as non-cognate. The results are programmatic as to the number of paradigms reconstructed and tentative as to the number and nature of inflectional categories within each paradigm. These results include a couple of very well-attested paradigms (those of **patja bite* and **ya go* and verbs like them), the inflectional pattern of which appears to be limited to Pama-Nyungan. A few other paradigms reported here (**nga eat*, **pu hit*, **nyaa see*, and **nyiina sit*) find much more sporadic and equivocal attestation in Pama-Nyungan languages for which information is available, and their reconstructions here are little more than summaries of the data. A few of these latter (notably *hit* and *see*) do, however, find echoes in the paradigms of non-Pama-Nyungan languages, and a refinement of the reconstructions of these paradigms might well proceed with an eye to the non-Pama-Nyungan evidence.

Attestation and reconstruction

***patja bite:** The wide attestation and availability of evidence on the verb *to bite* is, it seems likely, due in part to the ease of elicitation of sentences like *the dog bit me*, *the dog might bite you*, etc. Whatever the reason, however, various tense-forms of *to bite* are routinely illustrated in the grammatical sketches in the O'Grady *et al* (1966) survey. In other cases, the existence of a reflex of **patja* is reported, its conjugation membership stated, and the paradigm for that conjugation given; the comparison below (for this and other verbs, where appropriate) proceeds by putting the verb together according to the instructions, as if the particular tense-form in question were actually attested in print. The phonological shape of the modern attestations is, unless otherwise mentioned, in accord with what is known about developments in these languages, as for example with regard to loss of final vowels and position of laminal stops.

***patjala:** A reading of Imperative is suggested.

Western Desert (Warburton Ranges and Pintupi):	patjala	<i>bite+IMPERATIVE</i>
Watjarri:	patja(r)la	<i>bite+FUTURE</i>
Uw-Oykangand:	athal	<i>bite+IMPERATIVE</i>
Kok-Kaper:	pvthel	<i>bite+IMPERATIVE</i>
Umpila:	pathala	<i>bite+IMPERATIVE</i>

The Kok-Kaper (Koko-Bera) form *pal [pvl] bite+IMPERATIVE* attests the same suffix with a truncated reflex of **patja* that is the basis for some tense-mood forms in the languages of this part of Cape York. Other Cape York languages attest the same suffix with similar but less widespread

verb stems, as in Guugu-Yimidhirr gadhala *tie*+*IMPERATIVE*. Note that widespread attestations in North-east Australian languages of imperatives in zero, like Yidiny badja, Margany-Gunya badha *bite*, find no cognates in the languages of the West and are in any event suitable candidates for independent innovation (as Dixon 1980:414 also observes).

***patjarnV:** A reading of Past Perfective is suggested; see the remarks about *patjanma below. The retroflex/alveolar distinction implicit in the *rn is here assumed to be Proto-Pama-Nyungan in age, although nothing regarding the general shape of tense-mood distinctions hinges on the presence or absence of this distinction. The colour of the final vowel, as between a or u, is not clear at this stage of investigation. Although Dixon's (1980:382) suggestion that it was *u is plausible, it remains as unaccounted-for residue in phonological terms.

Ngarluma:	patjarna	<i>bite</i> + <i>PAST</i>
Thalandji:	patjarna	<i>bite</i> + <i>PAST</i>
Walmatjarri-Djaru:	patjani	<i>bite</i> + <i>PAST</i>
Western Desert (Warburton Ranges and Pintupi):	patjarnu	<i>bite</i> + <i>PAST</i>
Warlpiri:	patjarnu	<i>taste</i> + <i>PAST</i>
Dyirbal:	badjan	<i>bite</i> + <i>NONFUTURE</i>
Aghu-Laya (Kuku-Thaypan):	then	<i>bite</i> + <i>NONFUTURE</i>
Mpakwithi:	thana	<i>bite</i> + <i>PAST</i>
Linngithigh:	than	<i>bite</i> + <i>PAST</i>
Uradhi:	wathan	<i>bite</i> + <i>PAST</i>
Umpila:	pathana	<i>bite</i> + <i>PAST</i>

***patjanma:** A reading of Past Imperfective, in contrast to the Past Perfective of *patjarnV, is possible; but in view of the Imperative and Future attestations mentioned below, a more general Imperfective or Continuous reading may be correct. The suggestion made in Alpher (1972:79-80) that *-nm is an innovation in certain Cape York languages is evidently in error.

Western Desert (Pintupi):	patjanma	<i>bite</i> + <i>P IMPF</i> , <i>bite</i> + <i>IMP IMPF</i>
(Warburton Ranges):	patjanma	<i>bite</i> + <i>IMP IMPF</i> , <i>bite</i> + <i>FUT IMPF</i>
Uw-Oykangand:	athanm	<i>bite</i> + <i>P IMPF</i>
Kuuk-Thaayorre (possibly):	pathm	<i>bite</i> + <i>P IMPF</i>

It is likely that the Watjarri IMPERFECTIVE IMPERATIVE patjanma also continues PPN *patjanma, and this likelihood suggests that the Ngarluma IMPERATIVE patjanma, which participates in no Perfective/Imperfective contrast, also continues this form.

***patjalku:** A Purposive or Future reading is suggested. The form *patjalku itself is open to suspicion of independent innovation in separate areas, due to the widespread attestation of Datives in *-ku. The question bears on the hypothesis of the existence of a separate non-past *patjal, which see below.

Watjarri:	patjalku	<i>bite+PURPOSIVE</i>
Ngarluma:	patjalku	<i>bite+PRESENT</i>
Western Desert (Warburton Ranges and Pintupi):	patjalku	<i>bite+FUTURE</i>
Bidjara-Gungabula:	badhalgu	<i>bite+PURPOSIVE</i>
Warungu:	badjalgu	<i>bite+PURPOSIVE</i>
Kuk-Narr:	payilk	<i>bite+PURPOSIVE</i>
Ogo-Nyjan:	athalg	<i>might bite</i>

***patjal:** Attested, generally with a Non-past reading, only in Cape York, this form may (as suggested above) underlie Futures and Purposives of the form **patjalku* and be Proto-Pama-Nyungan in age.

Yidiny:	badjal	<i>bite+NON-PAST</i>
Yir-Yoront:	payl	<i>bite+NON-PAST</i>
Kuuk-Thaayorre:	pathr	<i>bite+NON-PAST</i>
Uradhi:	wathal	<i>bite+PRESENT</i>

Note that Guugu-Yimidhirr continues this ending in *gadhal tie+NON-PAST*, and that the Guugu-Yimidhirr *-l* suffix is phonologically distinct from the IMPERATIVE suffix *-la*. The occurrence in Central Australia of *-l* (FUTURE) in Warumungu *pakil spear* (see below) strengthens the claim that tense-forms of the type **patjal* are Proto-Pama-Nyungan in age.

Numerous other reconstructible verbs pattern like this. For some, their attestation is slightly less equally widespread in the languages which have contributed forms to the **patja* reconstruction; their conjugational pattern is nonetheless clear. One such is **paka*, as in Warlpiri *pakarnu hit+PAST*, Bidjara-Gungabula *bagalgu dig/scratch+PURPOSIVE*, Warumungu *pakala* and *pakil spear* (IMPERATIVE and FUTURE, Guugu-Yimidhirr *bagala*, *bagal dig* (IMPERATIVE and NON-PAST), and so on. Together with **patja*, such proto-verbs, from the standpoint of their inflectional paradigm, will be said to comprise the **L* conjugation.

Given that **patja bite* and **paka dig, hit (etc.)* were inflected according to the same paradigm, comparisons are possible that suggest tense-forms not among those reconstructed above. There is a widespread eastern suffix **-ya*, attested in Mpakwithi *thaya bite+FUTURE* (with *tha-* < **patja*), Pitta-Pitta, *patjaya bite+PRESENT*, and Ngiyambaa *bagayaa dig+IMPERATIVE* and *bagaya* (or *bagara*) *dig+PRESENT*. It is possible that this continues a tense-form distinct from both the original Imperative and Purposive; it is possible on the other hand that this **-ya* is extended analogically in these languages from the Imperative in the paradigm of a verb like **nyaa see* or **wantV fall* (see below).

Although the best attestation for verbs with this paradigm consists of transitive verbs, and they were doubtless numerically preponderant from the beginning, it is likely that some intransitive verbs also were inflected this way. Such is **waka*, attested as *wa(+l) go(+IMPERATIVE)* in Yir-Yoront, as *go up* in Warlmanpa *waka-* (with the same paradigm as Warlmanpa *paka- strike*), in Warungu, Gunya, Bidjara, and Gugu-Badhun *waga-*, and in Ngarluma *waka- go*. (Note that in Gugu-Badhun and Ngarluma it does not share the paradigm of *patja- bite*).

Certain languages whose affiliation with Pama-Nyungan is questionable attest a verb whose general form resembles **patja* but attest none of the paradigmatic forms reconstructed above.

Among these are the Gunwinyguan languages Gungarakany (N. Evans, p.c.), in which *bite* has the tense-mood-forms *peyi* Imperative, *peyang* PAST PUNCTILIAR, and *patjin* NON-PAST, and Warray (M. Harvey p.c.) with *pi* IMPERATIVE, *piny* PAST PUNCTILIAR, *pe* NON-PAST. So also with Proto-Tangkic (N. Evans, p.c.), where the reconstructed paradigm of *bite* contains **paatja* IMPERATIVE and **paatja* NONFUTURE and lacks any other forms that even come close to the Proto-Pama-Nyungan paradigm. All things being equal, these facts constitute evidence that these languages are not Pama-Nyungan.

***ya go:** As Dixon (1980:415-419) pointed out, this verb has frequently been restructured as a disyllable; hence attestations of its monosyllabic form are less common than might be hoped for. Note that the historical basis for vowel length in Kuuk-Thaayorre is not at present well understood.

***yarra:** A reading of Imperative is suggested.

Western Desert (Pintupi):	yarra	<i>go+IMP (PERF)</i>
Nyangumarta:	yarra	<i>go+IMP</i>
Watjarri (possibly):	yarran	<i>go+IMP(PERF)</i>
Yir-Yoront:	yarr (~ yaw)	<i>go+IMP</i>
Kuuk-Thaayorre:	yaarr	<i>go+IMP</i>

***yanV:** A reading of Past is suggested. See the discussion of **patjarnV* above for remarks pertaining to the colour of the vowel.

Watjarri:	yana	<i>go+PAST</i>
Western Desert (Pintupi):	yanu	<i>go+PAST</i>
Nyangumarta:	yana	<i>go+PAST</i>
Walmartjarri:	yani	<i>go+PAST</i>
Nyawaygi:	yani	<i>go+PAST (PERF)</i>
Dyirbal:	yanu	<i>go+NONFUTURE</i>

***yanma:** Reading of tense-mood as for **patjanma* (above). Very imperfectly attested and tentatively put forward.

Watjarri:	yanma	<i>go+IMP (IMPF)</i>
Nyawaygi:	yanma	<i>go+PAST(RECENT)</i>

***yanku:** Reading of Purposive or Future suggested.

Western Desert (Pintupi):	yanku	<i>go+FUTURE</i>
Nyangumarta:	yanku	<i>go+OPTATIVE</i>
Walmartjarri:	yanku	<i>go+FUTURE</i>
Warlpiri:	yanku	<i>go+IMMED FUT</i>
Gumbaynggir:	yaanku	<i>go+PURPOSIVE</i>

***yani:** Reading of Non-past suggested; other considerations as for *patjal (above). Very imperfectly attested and tentatively put forward.

Warlpiri:	yani	go+NON-PAST
Nyangumarta:	yani.nyi	go+PRESENT
Kuuk-Thaayorre:	yan	go+NON-PAST

Two other verbs appear to have patterned like *ya. They are *tju and *ma(a). Together, these proto-verbs, from the standpoint of their pattern of inflection, will be said to constitute the *N conjugation. The first, *tju, is attested in Western Desert (Warburton Ranges) as tju- *put*, with tense-mood-forms tjurra IMPERATIVE, tjunu PAST, tjunku FUTURE/POTENTIAL. It is cognate with the North-east Arnhem Land (Yuulngu) verb formative -dhu- (with alternants -dju-, -yu-, and others). This is attested in Ritharnngu -(j)urru FUTURE, -(j)un PRESENT, and -(j)una PAST; in Dhuwal (Djapu) -(dh)urr POTENTIAL (including imperative), -(dh)un UNMARKED (including non-past and some imperatives), and -(dh)unan PERFECT; and in Dhuwala (Gupapuyngu) -(dh)urru SECONDARY (including commands) and -(dh)un PRIMARY (including present and same-day future). The cognation of these forms with the Western Desert forms of *put* (which also forms compounds, like kumpi-tju- *hide it*) is one of the arguments for the inclusion of the North-east Arnhem Land languages in the Pama-Nyungan family.

The other verb that appears to have patterned like *ya *go* is one of the *ma verb formatives (there are at least two; Dixon 1980:405 reconstructs this one as *maa, with the vowel length based on Guugu-Yimidhirr evidence, but notes that it occurs in Guugu-Yimidhirr also as the verb formative -ma-, with short vowel). In Western Desert (Warburton Ranges) this is present in verbs like ngaalyma- *breathe* and conjugates like tju- *put*; its IMPERATIVE is -marra. With this compare Guugu-Yimidhirr maa- *take* (maarra IMPERATIVE, maanaa NON-PAST, and maani PAST) and Proto-Ngayarda *ma-, as attested in Ngarla ma- *take it, pick it up* (the Proto-Ngayarda reconstructed paradigm is *marna PAST, *manku PRESENT). The similarity in conjugation of *ya *go* and *ma(a) *take (etc.)* suggests that the similarity of inflection between Kuuk-Thaayorre yat *go+PAST* (with -t unattested as a PAST suffix elsewhere in the language) and Nhanda mati *get, take+PAST* may not be a coincidence – but speculation at this point of the investigation will yield little return.

The *-rra (or *-rru) Imperatives in this conjugation find an echo in the paradigm of the disyllable *kaalkV *fall* (see below).

*ya *go* has long been known as one of truly pan-Australian forms, a suitable candidate for Proto-Australian. But the attestation of its paradigm outside the putative Pama-Nyungan languages does not resemble the above. The paradigm of *go* in Mangarayi is yag PRESENT, yaj PAST PUNCTILIAR, yinyi PAST CONTINUOUS, and yag IMPERATIVE. The defective paradigm of *ya go* in Nunggubuyu contains yanggi PAST 2, yanggan EVITATIVE, and yaarrii NON-PAST 2. This last, when combined with a person-number prefix of the "A" series, can have a continuous imperative or continuous future sense (Heath 1984:337-344). But Heath (1984:415) tentatively suggests that the rr can be assigned historically (not synchronically) to an augment *-rra-, attested elsewhere in Nunggubuyu verb inflection and presumably not relatable to the *rra of the Proto-Pama-Nyungan Imperative.

***nga eat:**

*ngala (Imperative) is attested in Nyangumarta ngala *eat+IMPERATIVE* and possibly Watjarri ngala *eat+IMPERATIVE*; its attribution to Proto-Pama-Nyungan is based on parallelism to the paradigm of *patja *bite* rather than wide attestation.

***nga(r)nV (Past):**

Watjarri:	ngarna	<i>eat+PAST</i>
Walmatjarri:	ngarni	<i>eat+PAST</i>
Nyangumarta:	ngarna	<i>eat+PAST</i>
Warlpiri:	ngarnu	<i>eat+PAST</i>
Kurrtjar:	ɪn	<i>eat+PERFECTIVE</i>

***ngalku (Purposive):**

Nyangumarta:	ngalku	<i>eat+OPTATIVE</i>
Warlpiri:	ngalku	<i>eat+IMMED FUT</i>
Kurrtjar:	ɪk	<i>eat+POTENTIAL</i>
Kuk-Narr:	ngalk	<i>eat+PURPOSIVE</i>

*pu *hit*: Certain languages attest themes in *puwV, but there is not enough attestation in corresponding tenses to attempt reconstruction here.

***puma (Imperative):**

Djapu:	buma	<i>hit (UNMARKED; used as Imp.)</i>
Ritharrngu:	buma	<i>hit+PRESENT (not Imp.)</i>
Nyawaygi:	buma	<i>hit (POS IMP)</i>
Gumbainggir:	buma	<i>hit+IMPERATIVE</i>

***punyV (Past):**

Warumungu:	wal-punyu	<i>hit+AORIST</i>
Walmatjarri:	punya	<i>hit+PAST</i>
Djaru:	bunya	<i>hit+PAST</i>
Nyawaygi:	bunya	<i>hit (UNMARKED)</i>
Djapu:	bunha	<i>hit (PAST NON-INDICATIVE)</i>

Djaru and Watjarri also attest pinya in this usage.

***pungu (Past):** Among Pama-Nyungan languages, only Warlpiri and Western Desert attest this, as the Past tense-form *pungu*. But it finds echoes in the non-Pama-Nyungan languages: Nunggubuyu *Bang* (P1 tense; "B" here represents a w that alternates with b, Heath's "w2") and Dalabon *bong* (PAST PERFECTIVE; the cognate verb in other Gunwinyguan languages suggests Past Perfective **bom* for this group, however).

***pungku (Purposive):**

Walmartjarri:	<i>pungku</i>	<i>hit+FUTURE</i>
Djaru:	<i>bunggu</i>	<i>hit+PURPOSIVE</i>
Western Desert:	<i>pungku</i>	<i>hit+FUTURE</i>
Warlpiri:	<i>pungku</i>	<i>hit+IMM FUT</i>

Lack of attestation in eastern languages makes **pungku* a highly tentative reconstruction.

***nyaa see:** The widespread attestation of paradigmatic forms built on **nyaatji*, **nyaaka*, and **nyaawa* makes this verb very problematic; some Cape York languages, like Guugu-Yimidhirr, Gugu-Yalanji, Kuuk-Thaayorre, and Kok-Kaper, build different tense-forms of the same paradigm on different ones of these themes. On the theme **nyaatji*, for example, Kok-Kaper builds its FUTURE-PURPOSIVE *nhatjink* but not its PRESENT *nham* or PAST *nhakal*, Guugu-Yimidhirr creates its PAST *nhaadhi* but not its NON-PAST *nhaamaa*, and Gugu-Yalanji builds both its COMPLETIVE aspect *nyadjin* and its NONCOMPLETIVE aspect *nyatjil* but not its IMPERATIVE *nyaka*. While Uw-Oykangand builds all its tense-forms on **nyaawa* (PAST *ewal* etc.), Linngithigh builds exclusively on **nyaatji* (*tjiy* IMPERATIVE, etc.). Because certain non-Pama-Nyungan languages, like Mara and Ngandi, contain forms of the type *+nadj-* in their paradigms for *see*, it is likely that a comprehensive reconstruction of this verb for Pama-Nyungan will have to take account of the forms in **-tji*, etc.

Other stumbling blocks in the material reported below are the apparent doublets and triplets, as with the putative Imperatives, Pasts, and Non-pasts; these may indicate a greater number of tense-forms than have been postulated here. There is also the questionable cognation of such forms as the Kalkatungu ones built on *rnu-* and *rna-* and the Ngiyambaa ones built on *ngaa-*. For all these reasons, the reconstructions below are highly tentative.

***nyaaya (Imperative reading suggested, but see comments below on **nyaawa* and on **-ya* in other paradigms):**

Warumungu:	<i>nyaya</i>	<i>see+IMPERATIVE</i>
Kok-Kaper:	<i>nhay</i>	<i>see+IMPERATIVE</i>
Guugu-Yimidhirr:	<i>nhaaya</i>	<i>see + might</i>

Note also the Warumungu FUTURE *nyayi*.

***nyaawa** (Imperative; see also ***nyaaya** above):

Western Desert:	nyawa	<i>see+IMPERATIVE</i>
Guugu-Yimidhirr:	nhaawa	<i>see+IMPERATIVE</i>

***nyaangu** (Purposive; lack of attestation in eastern languages makes this reconstruction highly tentative):

Walmartjarri:	nyangu	<i>see+FUTURE</i>
Djaru:	nyangu	<i>see+PURPOSIVE</i>
Western Desert:	nyangu	<i>see+FUTURE</i>
Warlpiri:	nyangu	<i>see+IMM FUT</i>

***nyaanya** (Past):

Watjarri:	nyanya (~ nyinya)	<i>see+PAST</i>
Walmartjarri and Djaru:	nyanya	<i>see+PAST</i>
Warumungu:	nyanyi	<i>see+AORIST</i>
Kurrtjar:	any	<i>see+PAST (IMPF)</i>
Kuk-Narr:	nhany	<i>see+PAST IMPF</i>
Kok-Kaper:	nhany	<i>see+PAST IMPF</i>
Ritharrngu:	nhaanha	<i>see+PAST</i>
Kalkatungu:	rnanya (?)	<i>see+PAST</i>
Ngiyambaa:	ngaaNH (?)	<i>see+PAST</i>

Note also the PAST1 tense form *nany saw* in the non-Pama-Nyungan Nunggubuyu.

***nyaangu** (Past):

Western Desert:	nyangu	<i>see+PAST</i>
Warlpiri:	nyangu	<i>see+PAST</i>
Kuk-Narr:	nhing	<i>see+PAST</i>

Note also the PAST PERFECTIVE forms *nang saw* in the non-Pama-Nyungan Gunwinyguan languages Kunwinjku and Dalabon.

***nyaawany** or ***nyaawang** (Past):

Uw-Oykangand:	ewanh	<i>see+PAST IMPF</i>
Kok-Kaper:	nhawiny	<i>see+PAST IMPF</i>
Yaygir:	nyaawang	<i>see+PAST</i>
Gumbainggir:	nyaawang	<i>see+PAST</i>

***nyaama** (Non-past):

Djapu:	nhaama	<i>see (UNMARKED)</i>
Ritharrngu:	nhaama	<i>see+PRESENT</i>
Kuk-Narr:	nham	<i>see+PRESENT</i>
Kok-Kaper:	nham	<i>see+NON-PAST</i>
Guugu-Yimidhirr:	nhaamaa	<i>see+NON-PAST</i>

***nyaanyi** (Non-past):

Warlpiri:	nyanyi	<i>see+NON-PAST</i>
Margany:	nhaanhi	<i>see+PRESENT</i>
Kalkatungu:	rnanyi (?)	<i>see+PRESENT</i>
Ngiyambaa:	ngaaNH (?)	<i>see+PRESENT</i>

***nyiina sit:** Here there are widely attested forms that lack the *na. It is problematic whether it is the *nyiina forms or the *nyii forms which are the result of reanalysis; the reconstructions below are based on the assumption that the latter is the case. Of the two reconstructible Imperatives, *nyiinaka and *nyiinaya, it is the latter that is the more likely to be the product of analogy in the daughter languages. The Imperative ending *-ya has possible analogical sources in the paradigms of verbs like *nyaa *see* and *wantV *fall*, whereas the *-ka Imperative of *sit* is (as suggested below) a putative source for the Imperatives of Warlpiri verbs of the paka *hit* class.

***nyiinaka** (Imperative):

Warlpiri:	nyinaka	<i>sit+IMPERATIVE</i>
Mpalitjan-Luthigh:	inaw	<i>sit+IMPERATIVE</i>
Uradhi:	inaghu	<i>sit+IMPERATIVE</i>

***nyiinaya** (Imperative):

Bayungu:	nyinaya	<i>sit+IMPERATIVE</i>
Thalandji:	nyinaya	<i>sit+IMPERATIVE</i>
Burduna:	nyinaya	<i>sit+IMPERATIVE</i>
Uw-Oykangand:	inay	<i>sit+IMPERATIVE</i>
Kok-Kaper:	yi'ney	<i>sit+IMPERATIVE</i>

***nyiinanya** (Past):

Watjarri:	nyiinanya	<i>sit+PAST</i>
Kurrtjar:	nanh	<i>sit+PAST (IMPF)</i>
	~ nany	
Uw-Oykangand:	inanh	<i>sit+PAST IMPF</i>
Yir-Yoront:	nhinnh	<i>sit+PAST IMPF</i>

Djapu:	nhinanha	<i>sit+PAST</i> <i>NON-INDICATIVE</i>
Ritharrngu:	nhiinanha	<i>sit+PAST</i>
Kuk-Narr:	ngininh (?)	<i>sit+PAST IMPF</i>
Yidiny:	nyinaany	<i>sit+PAST</i>
Umpila:	nhiinanha	<i>sit+PAST</i>

nyiinami (Non-past):

Warlpiri:	nyinami	<i>sit+NONPAST</i>
Kok-Kaper:	nyi'nem ~ 'nyinvm	<i>sit+NONPAST</i>
Kok-Narr:	nginim (?)	<i>sit+PRESENT</i>

Possibly the Watjarri and Western Desert CONTINUOUS IMPERATIVE forms, both *nyinama*, belong with these. The Watjarri and Umpila PRESENTs, respectively *nyinamanya* and *nhiinamanha*, strongly suggest **nyiinamanya*. While susceptible of separate invention, this form may represent a distinct tense-mode category.

*nyiinaku (Purposive):

Watjarri:	nyinaku ~ nyinawu	<i>sit+PURPOSIVE</i>
Djaru:	nyinawu	<i>sit+PURPOSIVE</i>
Kurrtjar:	nok	<i>sit+PURPOSIVE</i>
Uw-Oykangand:	inagh ~ inaw	<i>sit+PURPOSIVE</i>

Other conjugations, like that of **tjana to stand*, **wuna* and **nguna lie* **wu give*, **ka carry*, **nhuu(ma)- smell (Tr)*, **tu cry*, etc., are doubtless reconstructible for Proto-Pama-Nyungan either directly or by assimilation to one or another of the paradigms reconstructed above. While these are not attempted here, two others, **wantV fall* and **kaalkV fall*, both have relevance for this discussion.

The first, **wantV*, is a possible analogical source for Imperatives in **-ya* (see the discussions of **nyaaya* and **nyinaya* above): it is possible to surmise Imperative **wantVya* on the basis of Warlpiri *wantiya* and Kok-Kaper *wan'ta(y)*, both IMPERATIVE. It is also likely that the Western Desert FUTURE *wantiku* and the Walmatjarri-Djaru FUTURE/PURPOSIVE *wantiwu* continue an original Future/Purposive **wantVku*, and that Walmatjarri *wantinyi*, Djaru *wantinya*, and Tjaapukay *wantany* continue an original Past **wantVnyV*.

The second, **kaalkV fall*, is a possible confirmation of Imperatives in **-rrV* (see **ya- go*): Djapu *gaalkirr* (UNMARKED; used as Imperative), Ritharrngu *galkirri* (FUTURE, used as Imperative), and Uradhi *algharri* (IMPERATIVE) suggest an Imperative **kaalkVrri* (and Djapu *gaalkin(a)* (PERFECT), Ritharrngu *galkina* (PAST), and Uradhi *alghan* (PAST) suggest a Past **kaalkVna*).

It must be observed, however, that various of the modern languages have undoubtedly constructed new inflectional paradigms for verbs, and the presence in a given language of a verbal paradigm with, say, a recurrent *-rr-*, does not in and of itself permit the identification of that

paradigm with a paradigm in another language with recurrent *-rr* or the supposition that both continue a single proto-paradigm. Even – to give an actual example – in the case of the Yir-Yoront RR conjugation and the RR conjugation of its close relative Koko-Bera (see Alpher 1972:76), it is difficult to identify one with the other in terms of actual cognate inflected forms. And there is no question (with presently available evidence) of identifying either with the RR conjugation of Guugu-Yimidhirr, let alone with anything outside Cape York.

Discussion

Scope

To what group of languages are these reconstructions referable? The questions of subgrouping and of selection of languages to reconstruct from are obviously related in a very intricate way. Numerous tense-forms in the languages which have contributed to the reconstructions above have been discarded. Examples include the imperatives of *bite* with zero marking mentioned above, forms which like Yir-Yoront *yaw go+PAST* are built on reanalysed stems, and forms with suffixes evidently acquired analogically, like Pitta-Pitta *patjaka bite+PAST*. There are also entire languages which appear on other grounds to be Pama-Nyungan but which contribute nothing to this reconstruction.

Geographically Pitta-Pitta is squarely in the centre of the area from which these comparisons are drawn. But as the investigation moves further from this core area, other putative Pama-Nyungan languages pose more serious problems. Languages of Victoria and New South Wales for the most part lack the relevant verb stems for comparison. Where they attest them, it is with uniformly reanalysed stems (as in Wangkumara *yanhtha- go, walk*). Does what is reconstructed above apply to these languages, or do these languages constitute one or more separate subgroups, or do the data from these languages invalidate these reconstructions? Because the reconstructions above are grounded in languages spoken as far apart as the tip of Cape York and the West of Western Australia, they carry weight, and the divergent data from Victoria and New South Wales would appear to require some sort of separate account – a detailed explication of why it is said that they are indeed Pama-Nyungan and an account of changes in the verb lexicon and inflectional paradigm. The former has been begun (Evans 1986, Blake 1988), with encouraging results, based on pronoun paradigms, the form of case-suffixes and evidence of other sorts; the latter remains as a task for the future.

These reconstructions support the findings of Evans (1986) and Blake (1988) that Pama-Nyungan languages comprise a genetic subgroup within the larger Australian phylum. It is expectable, of course, that some Proto-Pama-Nyungan verbs continue some of their tense-forms from earlier prototypes attested outside as well as inside this subgroup. Such might well be certain of the tense-forms of see and hit, as suggested above. But there is a large weight of forms attested exclusively in Pama-Nyungan.

Given these reconstructions in the area for which they have indisputable validity, it is possible to make instant judgments about what is innovative and what is conservative in a part of the territory. Past tense endings in Pama-Maric in **-rr* and **-nt*, for example, would seem clearly to be innovations. With suitable precautions about the possibility of borrowing (see Merlan 1982, where it is claimed that Mangarayi paradigms are borrowed from Gunwinyguan), it is possible to

draw tentative conclusions about subgrouping from the distribution of such suffixes (see Alpher 1972 and Alpher and Nash 1987).

Conclusion: methodological and theoretical observations

Reconstructing from full tense-forms, however artificially generated in certain instances, is not just a formal nicety. Reconstructing endings alone, disembodied from stems, gives no confidence that the result is in fact a proto-paradigm. Where verb stems are less widely attested than *patja bite, recourse will have to be made to the assembling of partially reconstructed paradigms into larger pictures. But this will be best done with entire verb forms.

The reconstructions above differ, sometimes radically, from those proposed in Dixon (1980:378-421). The differences are a consequence of several different historical, methodological, and theoretical assumptions. Historically, Dixon's decision to reject 'Proto-Pama-Nyungan' out of hand as against 'Proto-Australian' would be expected to lead naturally to the rejection of features limited to Pama-Nyungan languages. In fact, his discussion is almost exclusively limited to putative Pama-Nyungan languages. His reconstructions, criticised below, are thus based on the same group of languages as those presented above and are directly comparable with them.

Dixon's assumptions and procedures differ from those used above in a number of points (his examples are here retranscribed in a 'ptk' orthography to facilitate comparison):

- (1) The postulation as Proto-Australian (1980:381) of the suffixes *-ku Purposive, *-ka Imperative, and *-NHu Past not only on the basis of wide geographical distribution but also on the basis of recurrence in different paradigms in individual languages.
- (2) The assumption that every Proto-Australian verb inflected for one of these tense-mood categories contained the relevant one of these elements as all or part of the suffix.
- (3) The assumption that conjugation markers (of which the *l of *patjalku and the *n of *yanku are examples) were invariably present in every inflectional category of the relevant verbs, and the suggestion (1980:409) that these conjugation markers were originally part of their respective roots.
- (4) The comparison of disembodied suffixes.
- (5) The identification of a specific conjugation in one language with a specific conjugation in another (1980:398) primarily according to the form of the affixes, secondarily according to the preponderance of transitive versus intransitive roots, and lastly (as a subsidiary criterion, and almost exclusively in the case of monosyllabic roots like *ngu- eat, *ya- go, etc.) according to the actual verbs which are inflected according to the relevant paradigm).
- (6) The treatment of 'the conjugation', evidently conceived of as an ensemble of suffixes, as the entity that is reconstructed and the entity that has reflexes in the attested languages (1980:396).

Every one of these assumptions and procedures is questionable. They go together with (indeed require, in order to produce the conclusions stated) two theoretical assumptions. The first is an extreme position on the nonregularity of phonological change, which is held to be conditioned by the semantic nature of inflections (1980:412) and by the presence of inflectional morpheme boundaries. This is a position that is at variance not only with the neogrammarian theory of sound

change but also with certain important and very commonsense varieties of generativist theory (see Kiparsky 1973:75), and it is a position that as will be seen licenses all kinds of mischief.

The second of these theoretical assumptions concerns the degree to which borrowing can be held responsible for lexical replacement in Australian Aboriginal languages. Dixon holds that this degree is extreme (see Alpher and Nash 1987 for an extensive critique of this position), making the supposition of borrowing ubiquitously available to account for anomalies of phonological correspondence.

The following examples from Dixon's treatment exemplify the interaction of these principles and the elaborate justifications which become necessary in order to bring the facts into line with any claim that sound change is regular:

(1a) The Pintupi IMPERATIVE of *go*, *yarra*, is held to originate (1980:390) from **ya+n+ka* via the series of changes **nk* > **nt* > **t* > *rr*. But this is done in the face of the existence in Pintupi of forms in *nk* like (i) *wanka* *alive, raw, unripe* (attested in the same phonological form and with similar meaning in Warlpiri, the Ngayarda languages, the Kanyara languages, and the Mantharda languages), (ii) *kankarra* *above* (Warlpiri *kanka+rlarra* etc., Proto-Kanyara and Proto-Mantharda **kankara*, and Proto-Ngayarda **kanka*, all *up, above*; in view of Cape York forms for *up, above* in *kani*, these *kanka* forms must contain an archaic morpheme boundary between the *n* and the *k*), and (iii) *nyanka* *nape* (Proto-Ngayarda **nhanka nape*). The only escape from the dilemma is special pleading on the postulated sound-changes or an appeal to massive borrowing.

(1b) The Warlpiri IMPERATIVE of *go*, *yanta*, must be held to originate from **ya+n+ka* in the face of the existence in Warlpiri of *wanka* *raw, uncooked*. The wide distribution and presumed age of the latter form and the difficulties it makes for the argument are documented under (1a) above.

(1c) The Nyawaygi IMPERATIVE of *go*, *yana*, is held to originate (1980:399) from **ya+n+ka* via the loss of **k*, in the face of the existence in Nyawaygi of *kunka* *raw, green, unripe, alive*. The distribution of this latter right across the Pama-Nyungan languages (cf. Yir-Yoront *kun' alive, unripe, raw*, Aghu-Laya *n.gwo raw, dead*, Margany *gurn.ga raw*, Dyirbal *gun.ga alive, raw*, Pintupi *kurnka not cooked, not ripe, raw*, Nyangumarta *kunka raw, uncooked*) suggests the reconstruction PPN **ku(r)nka*. It makes difficulties for the postulated **nk* > *n* sound-change similar to those discussed in (1a) above.

(2a) The Guugu-Yimidhirr IMPERATIVE of *dig* (here retranscribed in 'ptk'), *pakala*, is held to originate (1980:394) from **paka+l+ka*, in the face of the existence in Guugu-Yimidhirr of *kalka* *spear*, whose cognates, widely distributed in Cape York, permit the reconstruction **kalka*. The difficulties are as described in (1a).

(2b) The Western Desert IMPERATIVE of *bite*, *patjala*, is held (1980:389) to originate from **patja+l+ka*, in the face of the existence in Western Desert of the future tense-form *patjalku* (< **patjalku*), of *tjilka* *thorn* (cf. Warlpiri *tjilkarla spine, sticker*) and of trisyllables in *lk* of the form *tukulku* *steady, well-supported*.

In each of cases (1a-2b) and many more like them, resort has to be made to ad-hoc postulation of sound changes and/or postulation of borrowings of a recurrent sort. There are similar exceptions in a number of discrete languages, for which no principled generalisation seems appropriate (there does not seem, for example, to be a particular intonation pattern associated with

the Imperative that would condition these effects). Reconstructing as in this paper, on the other hand (while it still leaves many phonological mysteries), works comfortably with what is at hand. Take the case of imperatives as examined above, for example. There is no need to suppose that imperatives of the form *patjala or *yarra ever contained an element *ka. Partially related forms, like the Warlpiri IMPERATIVE patjaka *taste it*, can be seen to have acquired -ka analogically from other paradigms, in this case very probably the paradigm of the Warlpiri stance verbs like nyina *sit*, IMPERATIVE nyinaka.

What is surrendered thereby is firstly the claim that verb inflection in the protolanguage was conjugationally invariant and secondly the hope that by reconstructing these inflectional endings what is being reached is Proto-Australian rather than Proto-Pama-Nyungan. What must also be abandoned is the claim that the conjugation markers have uniformly originated as the final consonants of verb roots; the evidence on *ya-*go* from non-Pama-Nyungan languages (see above), for example, shows no trace of the conjugation-marker in *-n. As for the conjugation markers, the position voiced by Merlan (1979:40) seems correct, that these, in view of their strong correlation with transitivity or intransitivity in the contemporary languages, have an origin as grammatically significant morphemes and cannot be accounted for as the relics of root-final phonemes. Moreover, the conjugation markers show up for the most part only in the Purposives, of those forms reconstructed here. But in many modern Pama-Nyungan languages, the conjugation-markers recur in more than one of the tense-suffixes of individual verbs, and for most inflectional categories the conjugation-marker that is appropriate to a verb's conjugation membership comprises part of the suffix. What emerges in reconstruction is a system that lacks the conjugational symmetry that many of the modern languages possess.

It might be urged against the solution proposed here that it fails to give an account of allomorphic differences like that between the *-la and *-rra imperatives or that between Pasts in *-(r)nu and those in *-nyu (whether or not these bear a relation to conjugation markers). To that, it can only be replied that further comparative study of Pama-Nyungan coupled with comparison at greater time-depth may yet present clues, but the origin may well be lost in time. Note also that characterising such differences as 'allomorphic' prejudices issues concerning the nature and number of inflectional contrasts.

Any supposition that the Aboriginal languages of Australia are somehow special in regard to regularity of sound change or frequency of borrowing would appear in cases like these to work against a sound heuristic procedure – in fact, to open the way for confusion. Whatever the contribution of methodology, however, it is the final formulation which must be judged on standards of plausibility, internal coherence, and the ability to account with maximal simplicity for the facts observed. The solution outlined above, it is hoped, has these qualities in sufficient measure to constitute a solid beginning.

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The first of these is the fact that the climate system is a complex system with many interacting components. The second is that the climate system is a dynamic system, meaning that it can change over time. The third is that the climate system is a non-linear system, meaning that small changes can have large effects. The fourth is that the climate system is a chaotic system, meaning that small differences in initial conditions can lead to large differences in the future.

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