Australian Journal of Linguistics
Publication details, including instructions for authors and subscription information:
http://www.informaworld.com/smpp/title~content=t713404403

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Online Publication Date: 01 October 2007
To cite this Article: Breen, Gavan (2007) 'Reassessing Karnic', Australian Journal of Linguistics, 27:2, 175 - 199
To link to this article: DOI: 10.1080/07268600701522780
URL: http://dx.doi.org/10.1080/07268600701522780

Australian Journal of Linguistics
Vol. 27, No. 2, October 2007, pp. 175–199

Reassessing Karnic

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Previous work on the proposed Karnic subgroup, comprising languages formerly spoken in the Lake Eyre Basin, a large area of eastern-central Australia, has been reviewed and found to be wanting in several respects. Application of a modified lexicostatistic method, together with grammatical comparisons, suggests that the western branch of the proposed three-branch subgroup (the southern portion of which is excluded from the subgroup in one of the studies) may in fact not be genetically closely related to the central and eastern branches. Detailed reconstruction is still needed to confirm the genetic unity of this branch. Two languages formerly included in the eastern branch are shown to be not closely related. Recent analyses of the central branch are supported.

Keywords: Australian Languages; Pama-Nyungan; Karnic; Comparative Linguistics; Lexicostatistics

1. The Genesis of the Karnic Idea

The word *karna* 'person' was first used as the name of a group of languages by Schmidt (1919) who used the term 'die Kana-Sprachen' for a few languages of far western Queensland. Most of the languages later included under Karnic were, however, in Schmidt's Dieri–Yarrawurka–Wonkumarra–Evelyn Creek Untergruppe and his Nulla Untergruppe. A large genetic grouping of languages of the watershed of Lake Eyre under the name Karnic was first proposed, on mainly lexicostatistical grounds, by Breen (1971). This embraced O'Grady, Voegelin and Voegelin's (1966) and O'Grady, Wurm and Hale's (1966) Arabanic, Dieric, Mitakudic and Pitta-Pittic Groups,[1] and was subdivided into four subgroups, called Narla (=the former Arabanic Group, minus Wongkamala), Palku (the former Pitta-Pittic Group, plus Wangkamanha—O'Grady *et al*.'s Wongkamala), Karna (the former Karna Subgroup of Dieric, minus a small group of little-known southwest Queensland languages, plus

[1] Initial capital G and S are used for the words Group and Subgroup, respectively, when they are used to refer to named groupings in the former hierarchical system of language classification.

ISSN 0726-8602 print/ISSN 1469-2996 online/07/020175-25
DOI: 10.1080/07268600701522780

the former Mitakudic Group) and Ngura (essentially the former Ngura Subgroup of O'Grady *et al.*). The Yalyi Subgroup of the former Dieric Group was not considered because of the geographical limits of Breen's study, based on a linguistic survey of southwest Queensland. Little attention was paid to the Narla Subgroup (Arabana and Wangkangurru, henceforth AW) for the same reason. However, Hercus supported its inclusion in Karnic, and in her 1994 grammar of AW makes many references to similarities to Pitta-Pitta (especially).[2] Dixon (2002: xxxvii) does not recognize any genetic relationships in the area except in Breen's Palku subgroup and Austin's Western Karnic subgroup (see below).

The map given in Figure 1 indicates the approximate position of languages which have been considered as Karnic, along with the names of neighbouring languages. Boundaries between languages are generally approximate and tentative, and no boundaries are shown between dialects that are believed to belong to a single language. Some dialect names not mentioned in the paper are omitted.

Changes to Breen's 1971 classification have been made by Austin (1990b, as a working paper), Breen (1990, no details or argumentation given) and Bowern (1998, in a BA honours thesis). As Karnic has been used in recent years as an example in discussions of the nature of language change in Australia (e.g. Bowern 2006), a reassessment of the evidence for it is timely. I am not at this time presenting detailed comparisons and reconstructions to support the suggestions I make; this will require transcription of a fairly substantial number of tapes and acquisition of other data that I do not now have. In the next two sections I look at Austin's and Bowern's contributions. In Section 4 I introduce my modified lexicostatistics as a way of making a preliminary assessment of the relationships of languages in this area. In Section 5 I apply this to the western branch of Karnic. In Section 6 I look at the evidence for Austin's Central Karnic subgroup and in Section 7 I examine the question of whether the eastern languages Kalali and Badjidi are Karnic. Finally, I compare the eastern and western branches to Austin's proto-Karnic lexicon.

The chart given in Figure 2 shows languages that have been regarded as Karnic, with some indication of how they have been grouped. Each column represents a language.[3] I have not included the Yarli languages (see Hercus & Austin 2004) which formed the Yalyi Subgroup of O'Grady *et al.*'s (1966a, 1966b) Dieric Group, nor Pirriya and some other virtually unknown languages which were in their Karna Subgroup. These have never been specifically included in Karnic. Abbreviations and notes are:

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[2] See pp. 54, 61–62, 71, 110, 116, 120, 147, 148, 151, 154, 168, 173, 191, 196, 219, 223, 225, 226, 238, 239, 254, 256 and 258.

[3] Spelling of the language names is mine and differs from Austin's and others' in small details (and from my own earlier spelling). Note especially that for some languages I analyse the alveolar tap as an allophone of the same phoneme as the voiced alveolar stop, and I write it *d* even in those languages for which the analysis does not or may not apply. The retroflex glide, written *R* by others, is *r* in my orthography. Departures from my system are my writing of r instead of d in language names where this has been customary, such as Wangkumara, and writing Pitta-Pitta instead of Pitha-Pitha and Arabana with a b.

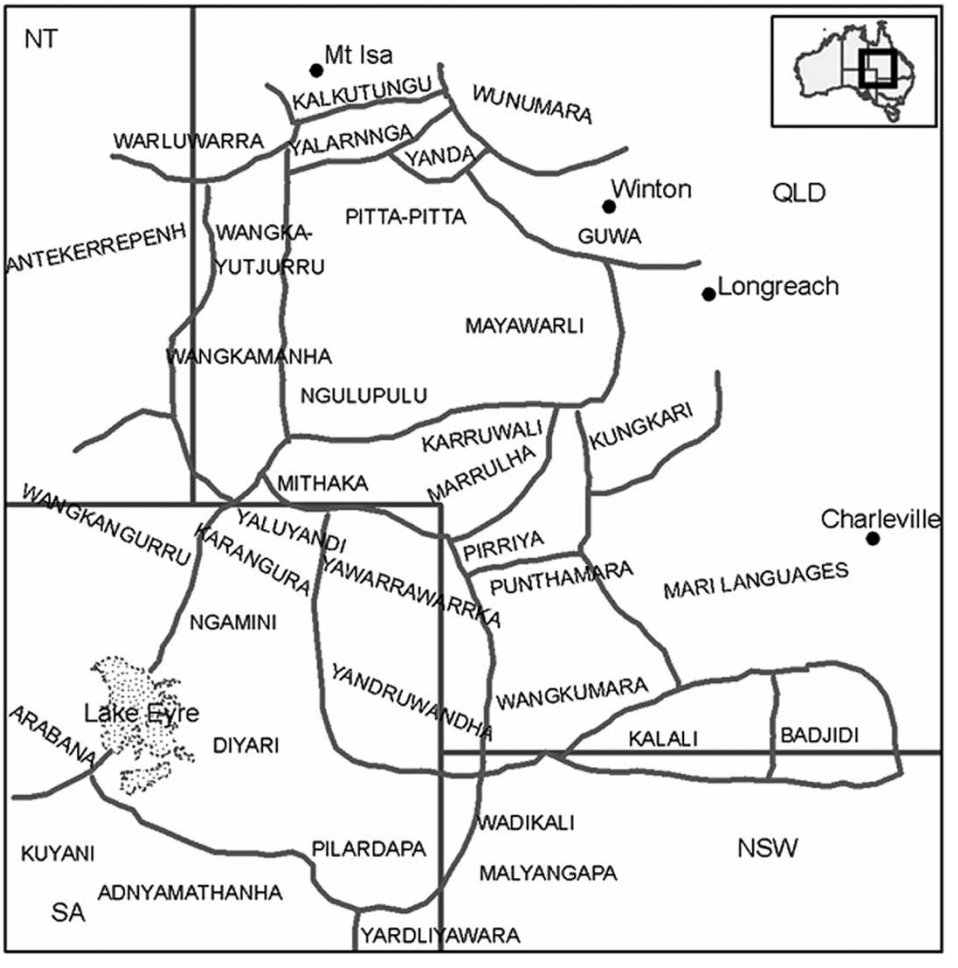

Figure 1 Map of Karnic and neighbouring languages

AW Arabana and Wangkangurru
WY Wangka-Yutjurru (includes Wangkamanha)
PP Pitta-Pitta (with Mayawarli and other dialects)
Di Diyari
Ng Ngamini
Yl Yaluyandi. These three, with Thirari and little-known dialects Karangura and Pilardapa, may form a dialect chain.
Mi Mithaka (with Marrulha)
Kw Karruwali. These two have been classed as part of the dialect chain, and as a separate language.
Yn Yandruwandha (with Yawarrawarrka, Yw)
Wm Wangkumara (with Punthamara and other dialects)
Kl Kalali
Bd Badjidi

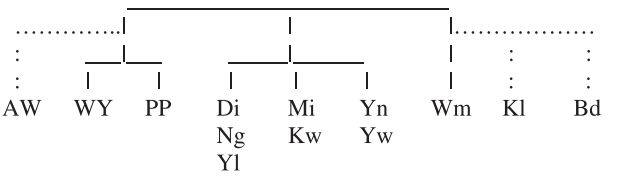

Figure 2

Dotted lines indicate languages that have not always been regarded as part of Karnic by proponents of the grouping.

Bowern (2001) gives details of the sources for these languages; a more recent addition is Breen (2004a, 2004b).

2. Austin's Karnic

Austin (1990b) briefly surveys previous classifications of the Lake Eyre languages. He claims that the following innovations are the clearest evidence of genetic affiliation of the languages:

1. **ngali* as first person dual exclusive, not inclusive, as in other Pama-Nyungan languages (see Dixon 1980);
2. development of a gender contrast in third person singular pronouns. We can reconstruct: 3sg masculine **nhawa*, 3sg feminine **nhani*;
3. in the singular second and third persons, presence of a distinctive *k* in the dative/purposive paradigm.

To these he adds a dative/purposive case form *-ngka* or *-nga* reflecting a Pama-Nyungan locative **-ngka*, and in the phonology a voicing contrast reconstructed for apicoalveolar stops in consonant clusters.

With respect to 1, it is not entirely accurate to say 'inclusive, as in other Pama-Nyungan languages'. Many languages, including those to the east of Karnic, have only a single first person dual pronoun. An inclusive phrase can be formed by combining this with the second person singular pronoun, as Gunya *ngali inda* and Yalarnnga *ngali nhawa* 'we two you'. Augmentation of *ngali* with a third person pronoun or a word denoting a third person is also possible. One might suppose that augmentation with the second person singular pronoun might be more likely to result in an augmented inclusive pronoun leaving *ngali* as an exclusive, since it would be very common and would normally use the pronoun, as opposed to the exclusive phrases which would often use a noun instead of a pronoun, and that this might be the origin of the Karnic exclusive *ngali*. However, this does not detract from the diagnostic value of this apparent innovation.

Austin postulates an initial division into three branches. These have given rise to what he calls Central Karnic (Diyari, Yandruwandha and other languages to the east and northeast of Lake Eyre), the Pitta-Pitta group (Pitta-Pitta and Wangka-Yutjurru

and their dialects; Pitta-Pitta is the only one mentioned by name) and the Wangkumara group (Wangkumara and its sister dialects). He gives (Austin 1990b: 176) 168 reconstructions of proto-Karnic lexical items based on this postulation. These include a number of doublets—pairs of ancestral forms that are both reflected in the daughter languages. Most of these comprise one item reflected in some Central Karnic languages and Pitta-Pitta and another item reflected in some Central Karnic languages and Wangkumara. In fact, the lexicon comprises items reconstructed from Central Karnic languages and one or other or both of the other two branches. There are no items reconstructed from only the other two branches. (See Section 8 for details of a search for possible such items.)

It seems to be at least equally likely, if not more so, that there was not an initial division into three branches, but a primary division into two followed by a later binary division of one of these branches. Until we can sort out the order of such divisions, or provide evidence for an initial three-way division, we can claim only items represented in all three branches as proto-Karnic. The number of these is actually 68; 44 items are based on words in Central Karnic and Wangkumara, and 56 are based on Central Karnic and Pitta-Pitta.

Of the 68 items based on all three of these branches, 16 are inflected pronouns with regular inflections. For example, *ngali* '1du.excl', *ngalingka* '1du.excl-DAT/PURP' and *ngalinha* '1du.excl-ACC' are all included, as are similar sets of other non-singular pronouns, all with the same DAT/PURP and ACC suffixes. That leaves 52 which are roots or unsegmentable inflected forms, including 14 pronouns. Only three of the 52 are verbs (and one apparently a verb in Pitta-Pitta but a nominal in other languages). Some 100 more items (44 + 56) could be regarded as probable proto-forms, but should be used with caution.

In describing his methodology, Austin says (1990b: 176) that he reconstructs only from intermediate proto-languages.[4] However, this seems not to be so, for his lexical reconstructions, at least. Austin lists the languages from which he reconstructs at each level; for example, he lists the three Western Karnic languages rather than just proto-Western Karnic when giving his Central Karnic reconstructions. Items represented by only one Western Karnic language include **yapa* 'afraid' and **yartu* 'sated'. Similarly, proto-Karnic items represented by only one Western Karnic language include **kalumpa* 'clover' and **kimpa* 'raw'.

The proposition that Arabana/Wangkangurru (AW) was part of Karnic was rejected by Austin, based on the absence of evidence for his diagnostic innovations and a comparison of it with his Western Karnic (comprising Diyari, Ngamini and Yaluyandi). This rejection was not convincing because AW's closest genetic connections seem to be with Wangka-Yutjurru and Pitta-Pitta across the Simpson

[4] This could lead, as a referee of this paper points out, to his missing some words that appeared in only one branch of a subgroup and so did not figure in the reconstructed proto-language for that subgroup. An example would be **kapi* 'egg' (Di *kapi*, Wm *kapinya*).

Desert to the north (see Section 5), and if it was related to Austin's Karnic it would be via these languages.

As part of his argument for excluding AW from Karnic, Austin gives a list of proto-Karnic words found in AW; he found only 54. From my limited Wangkangurru wordlist and with a few extra items from Luise Hercus (p.c.) I was able to add 33 to this. The items not represented include four third person singular feminine forms (since AW does not have the gender distinction in pronouns), and seven other pronominal forms. Pitta-Pitta is represented in 121 forms in the proto-Karnic list—not significantly greater than the final number for AW (and, again, several pronouns do not correspond). Austin also lists some items that AW has in common with languages to its east, and Hercus (p.c.) finds many others, but I would expect that these could be shown to be areal (since if they were found in Pitta-Pitta or Wangka-Yutjurru they would be classed as proto-Karnic).

Austin refers to lexical and morphological similarities used by Hercus (1994) to support her classification of AW as part of Karnic, and says that they do not stand up to close inspection. As an example, he refers to the benefactive suffix (*-la* in AW) and says that it differs from the similar suffix in 'Karnic proper' in that it does not have the additional function of turning certain intransitive verb roots into causative transitive stems. The causativizing function in AW is instead marked by a change of stem-final *a* to *i*. However, Hercus (1994: 146–148)[5] states that the causative in *–i* is limited to relatively few verbs, and that the suffix *-la* can have a causativizing function in AW.

Austin states (1990b: 173) that he has considered data on a number of languages to the south of Lake Eyre that seemed closely related. However, he does not mention any results of his considerations, and he does not include them in his Karnic. He does not mention Kalali and Badjidi,[6] which Breen (1971) regarded as Karnic, but later (Breen 1990: 3) called 'Karna–Mari fringe languages'. (This refers to a discontinuous group of languages, mostly poorly attested, scattered between Karnic and Mari languages but not showing much connection with either or with one another. The only one well attested is also the most remote geographically, Kalkutungu.)

3. Bowern's Papers

Claire Bowern's main publications on Karnic are her honours thesis (1998) and her 2001 paper.

Bowern (1998) includes AW and Kalali (but not Badjidi) in Karnic. She gives (1998: 206–207) a number of reasons why she does not accept Austin's arguments on the question of the membership of AW, without referring to its apparently close relationship to Pitta-Pitta and Wangka-Yutjurru [which she does, however, recognize, as witness her family tree (Bowern 1998: 203, 217)]. She also gives justification for

[5] Published some years after Austin's paper.

[6] Mathews (1905) spells the last consonant of this name with an *r*. Partial speakers I consulted pronounced it [d]. I conclude that it was [ɾ], which I am spelling *d*.

excluding the Yalyi languages.[7] Bowern (and, earlier, Austin in some instances) proposes a number of changes from proto-Pama-Nyungan which are ancestral to the Karnic languages such as some aspects of the pronominal forms, and the presence of three contrasting rhotics (which in some languages interact with a voicing distinction in stops). For masculine and feminine third person singular pronouns Bowern reconstructs **nhu*[8] and **nhan-* (compared with Austin's **nhawa* and **nhani*). The discussion in Dixon (2002: 461–462) suggests that this gender contrast in Karnic third person singular pronouns may be a retention rather than an innovation. Bowern (1998: 158–159) came to a similar conclusion.

The north-western branch (part of which Austin excluded from his Karnic) does not conform as well as other branches to some of these postulated changes; for example, only Pitta-Pitta (of this branch) has a masculine–feminine distinction in the third person pronouns and shows a vowel alternation in the masculine pronoun that Bowern describes (2001: 253). The membership of this branch in Karnic, and also the membership of Kalali on the eastern extremity, need to be examined.

Bowern (2001: 245) says that 'Peter Austin (1990a) published a classification of Karnic with approximately three hundred lexical reconstructions'. Obviously she has lumped Austin's proto-Western Karnic and proto-Central Karnic with his proto-Karnic.[9] She then uses his reconstructions for branches of Karnic as reconstructions for the whole, as witness her Table 3 (2001: 251), reproduced here, with my comments, as Table 1.[10]

Bowern's (1998: 203, 217) chart and list of subgroups of Karnic shows a primary division between the north-western languages (PP, WY, AW) and the rest; the latter then splitting into eastern and central divisions. Her later chart (2001: 254) appears to contradict this because of an error in copying the earlier chart: Pitta-Pitta and Wangka-Yutjurru should be branching from a node on the line joining proto-Karnic with Arabana–Wangkangurru but are shown as branching from a node on the line joining proto-Karnic with Eastern Karnic.

Bowern's (2001: 246) map shows Karruwali and Mayawarli as a single language (or even a single dialect; there is no boundary between them, whereas there is between Yawarrawarrka and Yandruwandha, and between Wangkangurru and Arabana). My figures for Karruwali, Mayawarli (both very poorly attested) and Pitta-Pitta are given in Table 2. Figures in parentheses give the number of items compared.

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[7] For a more detailed study of this group, comprising Malyangapa, Wadikali and Yardliyawara, see Hercus and Austin (2004).

[8] Earlier (Bowern 1998: 36) given as *nhV*. Bowern (2001) also gives both forms.

[9] Western Karnic is part of Central Karnic.

[10] A referee disagrees with my disapproval of Bowern's practice here, saying that 'Bowern is obviously counting reconstructions to various intermediate proto-languages. What's wrong with that?' But Bowern is specifically talking about innovations between pPN and pK; pWK and pCK are not reconstructions between those two, but reconstructions between pK and the modern languages.

Table 1 Comparison of pPN and pK lexical reconstructions (after Bowern, my comments and orthography)

pPN	pK	English	Comment
**kumpu*	**puda*	urine	Wm yura
**kami*	**kanyini*	mother's mother	
**kutharra*	**parrkulu*	two	
**muka*	**pampu*	egg	Wm has *kapinya* (< Mari?[a])
**nga-*	**thayi*	eat	Wm has *thaltha*[b]
**ngalirna*	no category	1dl.excl	
**ngatyi*	**kami*	mother's father	
**nguna*	**parri*	lie down	not pK, pCK
**nhumpVlV*	**nhula*	2dl	
**nyina*	**ngama*	sit	not pK, pWK
**pangV*	**paku*	dig	
**parnta*	**marda*	stone	not pK, pCK
**parnti*	**panthama*	smell	not pK, pCK
**patha*	**matha*	bite	not pK, pCK
**purlka*	**pirna*	big	not pK, pCK
**tharrV*	**tharrka*	stand	Wm has *thina*
**thalany*	**tharli*	tongue	Wm has *thalanya* (< Mari)
**paka*	**paku*	dig	'dig' in table twice
**partu-*	**karlathurra*	turkey	
**kurka*	**kimpa*	alive, raw	nothing from Wm
**pangkarra*	**kalta*	blue-tongue	nothing from PP branch

Notes: [a] Nearby Mari languages have gabuny (and Kalali kapiya), but Diyari has kapi

[b] Austin reconstructs **thayi* 'eat' only for one branch—mistakenly, as it is certainly also in PP, but reconstructing it for pK depends on Wm *thaltha* being cognate at this level, which is doubted, given that *tha*-initial and *ja*-initial forms are widespread

Table 2 Karruwali, Mayawarli and Pitta-Pitta comparison

	Overall % cognate	% Verbs cognate
Karruwali/Mayawarli	27 (75)	22 (16)
Karruwali/Pitta-Pitta	29 (114)	25 (14)
Mayawarli/Pitta-Pitta	72 (97)	86 (14)

4. Overall and Verb Cognate Counts

Breen (1990: 157) gives counts of apparent cognates overall and for various word-classes for several pairs of languages from in and around the Karnic area. The interpretation of these is based on the fact that, in Australia, at least, different word-classes are borrowed at different rates, and in particular, that verbs are less readily borrowed than other open word classes. Koch (1997: 41) says that:

> most linguists would agree that verbs are replaced by borrowing much less easily than nouns and adjectives and that a high level of sharing of verbs is therefore a more reliable indicator of close genetic relationship between languages than statistics that group all kinds of vocabulary.

The application of this to the estimation of the degree of genetic relationship of languages has been tested for some other language groups but hardly proven yet. The reasoning is as follows. If the percentage of verbs cognate is lower than the overall percent cognate, for example, this is an indication that the overall percent cognate (and also, to a lesser extent, the percentage of verbs cognate) is somewhat inflated by loanwords and the genetic relationship between the languages is not as close as the overall figure (or even the verb figure) suggests. If the percentage for verbs is higher than the overall percentage, this suggests that the languages are more closely related than the overall figure suggests, and that the overall figure has fallen due to borrowing from languages other than the one involved in the count (see Breen 1990: Ch. 7). See also Green (2003: 369–370) for an example for languages very distantly related to those of the Karnic area. Blake (in Breen & Blake 2007: 71, note 3) finds that Germanic languages (English and German) share a much lower percentage of verbs + adjectives than of general vocabulary with Romance languages (French and Italian).

The relevant figures from the table (Breen 1990: 157), mostly revised and with a few additions, are reproduced here as Table 3. These are based on my 1971 250-word lists[11] [not 100 as stated by Bowern (2001: 249, footnote)]. Most involve well-attested languages: 90% or more of the 250 words are known. Two languages, Kungkari[12] and Mithaka, are not well-attested. For Kungkari, only about 130 items, including about 20 verbs, are attested, and for Mithaka only about 180 including 30 verbs. In both cases the data are not always reliable. Even for a pair of well-attested languages the number of verbs comparable is only about 40, so a couple of errors or misjudgements can make a significant difference. The types of comparisons are as follows:

line 1, languages in the same branch of Karnic;
lines 2–4, contiguous languages in different branches;
lines 5–9, distant languages in different branches;
lines 10–11, contiguous languages, one of each pair not Karnic;
lines 12–13, distant languages, one of each pair not Karnic;
line 14, contiguous languages, neither Karnic, relationship unclear.

A result with the verb figure clearly higher than the overall figure is that for Pitta-Pitta and Wangkangurru: overall 32%, verbs 40%. This suggests that these two languages are quite close genetically, although the figures are not statistically very significant—there is an approximately 20% probability that they could have arisen by chance (chi square test). The figures for Kungkari and Margany are similar, although less convincing because of the paucity of data for Kungkari. The figures for Wangkangurru and Ngamini, on the other hand, overall 39%, verbs 23%, suggest that these two neighbouring languages are nowhere near as close genetically as the figure 39% (or even the figure 23%) would suggest, and the probability that this is a chance

[11] Except that my source for Diyari is mainly Austin (1981), and Wangkangurru vocabulary is from Menning and Nash (1981), Hercus (p.c.) and my own fieldnotes. Figures in parentheses give number of items counted.
[12] Which, as a referee reminds me, must not be confused with the Mari language Gunggari, further east.

Table 3 Cognate counts

		Overall % cognate	% Verbs cognate
1	Wangkangurru/Pitta-Pitta	32 (208)	40 (35)
2	Wangkangurru/Ngamini	39 (214)	23 (37)
3	Yandruwandha/Wangkumara	29 (246)	24 (46)
4	Pitta-Pitta/Mithaka	43 (190)	29 (31)
5	Wangkumara/Diyari	29 (205)	25 (40)
6	Wangkumara/Wangka-Yutjurru	13 (204)	8 (40)
7	Wangkumara/Pitta-Pitta	15 (210)	8 (39)
8	Pitta-Pitta/Diyari	30 (209)	24 (39)
9	Pitta-Pitta/Yandruwandha	26 (221)	18 (45)
10	Wangkumara/Margany	17 (232)	12 (41)
11	Antekerrepenh/Wangka-Yutjurru	16 (214)	11 (40)
12	Pitta-Pitta/Bidjara	9 (221)	10 (40)
13	Pitta-Pitta/Kungkari	21 (132)	20 (20)
14	Kungkari/Margany	34 (137)	52 (20)

result is less than 5% in this instance (unlike most in the table). The situation seems to be similar for Pitta-Pitta and Mithaka, although it should be noted that Mithaka is neighbour to southern dialects of the Pitta-Pitta group while our data come mainly from the northernmost dialect, and also that Mithaka is poorly and unreliably attested. Other figures in the table suggest that geographically distant pairs of supposed Karnic languages (Pitta-Pitta and Diyari, Wangkumara and Diyari) are a little more closely related than are Wangkangurru and Ngamini. However, the relationship between Wangkumara and the two northern languages seems very distant. Pitta-Pitta/Yandruwandha figures are also suggestive of a distant relationship. Neighbours Yandruwandha and Wangkumara seem to be moderately close, but show the effect of borrowing. Mari languages (Margany, Bidjara) are much more distantly related to Karnic languages; the neighbours Margany and Wangkumara show the effect of loanwords. The relationship between the Arandic language Antekerrepenh and its neighbour Wangka-Yutjurru is similar to that between Margany and Wangkumara.

Note that the figures for Pitta-Pitta and Kungkari (which nobody says is Karnic, and which seems to be rather closely related to Margany according to the figures here) are higher than the figures comparing Pitta-Pitta with Wangkumara.

5. The Position of Wangka-Yutjurru

Pitta-Pitta, Wangka-Yutjurru, Wangkangurru and Arabana are believed by Hercus and Breen to form a subgroup, which is split into a northern subgroup with PP and WY as two closely related and contiguous languages, each with a number of dialects, and a southern subgroup comprising one language, AW, with several dialects (see Hercus 1994: 6–8). However, although AW is now substantially different from the

other two, there are some indications that WY could be closer genetically to AW than it is to PP.[13] Apparent innovations they share include:

- the change from /l/ to /d/ (Hercus's /r/) in words like *ngadi* '1du.excl' and suffixes like aversive (or causal) *-da*;
- the retroflexion of the apical nasal in the first person plural pronoun;
- a compound allative suffix with dative as the second part; the first part is ergative in AW *-duku*, and is *nu* in WY *-nunga*, perhaps from nasalization of the ergative suffix under the influence of the following nasal consonant (but note that Ngamini has ergative *-nu*);
- a suffix *-la*, variously called causative and benefactive and perhaps best called applicative (see Hercus 1994: 146–151, 153–154; Blake & Breen 1971: 70–71; Blake 1979: 204–206);[14]
- a morpheme *(y)ilV-* meaning 'thus', *ila-* ∼ *ili-* in AW with various additions (see Hercus 1994: 225–227) and *ila-* with deictic suffixes in WY; PP has a word *ilaarri* 'there' which would be related. (*-arri* is a deictic suffix denoting long distance from the speaker).

A retention (or innovation?) they share is the absence of gender in the 3sg pronoun. AW and WY also share (exclusively, except perhaps the first two) some lexical items:

- *kutha* 'water' [unless it is a loan from Arandic *kwaty*, as Koch and Hercus (2004) suggest],
- *ngawi* 'to hear' (compare Arandic *aw*),
- *karla* 'river',
- *pirta* 'to hit',
- *mi(d)lha* 'nose' (*milya* in PP, *mulha* in many languages),
- *patha* 'skin' (not in Arabana?),
- *papu* 'egg' (PP and some others have *pampu*),
- *karurra* 'root',
- *puka* 'rotten' in AW cf. WY *pukatji* 'to smell (tr)'.

This is comparable with the number of exclusive lexical innovations that can be found for the group AW–WY–PP.

Other evidence for the larger group includes:

- pronominal similarities (see Hercus 1994: 110),
- *-li* denoting habitual action (see Hercus 1994: 191),

[13] As noted above, O'Grady *et al*. (1966a, 1966b) grouped their Wongkamala (part of my WY) with AW, but it is doubted that this was based on any actual data.

[14] There is a puzzling inconsistency between Blake and Breen (1971) and Blake (1979: 204–205); the former has *-la* for WY corresponding to *-ri* for PP in this function, while the latter has *-la* for PP. A quick search in my PP tape transcripts found confirmation of *-ri* as transitivizing an intransitive verb, followed immediately by a sentence illustrating *-la* affixed to a transitive verb with applicative function. It seems that PP has separate suffixes for the two functions, while WY and AW use *-la* for both.

- *munthi* 'oneself' (see Hercus 1994: 116),
- *-wili* 'like' (AW and PP; replaced by a preposition in WY, but retained there in the ending of *yakarluwidi* 'on this side' and *marralawidi* 'further over'),
- *nhadi* 'now' (see Hercus 1994: 256; Blake 1979: 221),
- *-kali* in AW and *kali* in WY and PP expressing uncertainty (see Hercus 1994: 258), and
- the semantic change by which the former locative suffix **-la* came to mark aversive.

A number of others are shared with languages like Ngamini and Mithaka. I counted 43 words in my comparative list which seem to be shared by PP and WY and no other language. They share also a system of marking the syntactic cases which depends on the tense: in non-future tenses we have S marked by *-0*, A by *-lu* (PP), *-du* (WY) and O by *-nha*, while in future we have S and A marked by *-ngu* and O by dative. Also they share the absence of an inclusive/exclusive distinction in first person non-singular pronouns.

A sound correspondence in the pronominal system for which WY perhaps sides with PP, against a number of the Lake Eyre basin languages as well as AW, concerns the second person non-singular pronouns. PP has (nominative forms) *nhula* (dual) and *nhuda* (plural), while such languages as Diyari, Yandruwandha and Wangkumara have *yula* and *yuda* (or, in the case of Wangkumara, *yurra*), respectively. WY has dual *yukulu*, which may exhibit the *nh/y* opposition, and *nhuda* (which does not). In AW the combination of the initial consonant change (which proceeded to a loss in this language) and the $l > d$ change would have made both pronouns identical. AW solved this problem by combining the remnant of the old pronoun with the third person pronoun (which also functions as a number marker) for that number; the two pronouns are now *udupula* (dual) and *udkadi* (plural). If the initial consonant change did affect WY this may have provided the motivation for the change of the dual to *yukulu*, which, as Bowern (1998: 144) suggests, may combine part of the pronoun **yuda* (from **yula* from **nhula* or from **nhuda* from **nhula*) with the dual suffix *-kulu*. Later WY may have borrowed **nhuda* back from PP (if it had ever changed).

Cognate counts gave the figures in Table 4 (and compare also the Pitta-Pitta/Wangkangurru figures in Table 3).

The figures for Pitta-Pitta/Wangka-Yutjurru, rather higher than obtained in earlier counts [60% overall in Breen (1971)] suggest that these two are dialects of a single language rather than two languages. Nevertheless, there is still a clear divide between east and west in this set of dialects.

Table 4 Cognate counts for western and northern languages

	Overall % cognate	% Verbs cognate
Pitta-Pitta/Wangka-Yutjurru	70 (235)	76 (44)
Wangka-Yutjurru/Wangkangurru	35 (203)	50 (35)

Pitta-Pitta and some of its dialects share a long north–south boundary with Wangka-Yutjurru (including Wangkamanha) and borrowing must have been common. The boundary between Wangkangurru and Wangkamanha is shorter and is in very inhospitable country, which could suggest a lack of interaction between them; but in fact there were frequent and close contacts (Luise Hercus p.c.). Given this, and the closeness of the relationship between Wangka-Yutjurru and Pitta-Pitta, I must accept the conventional classification and attribute the AW–WY commonalities noted above to diffusion.

6. The Central Karnic Languages

Breen's (1971) figures suggested two languages: a language chain running from Karruwali in the northeast through Mithaka, Yaluyandi, Karanguru (presumed; I knew of no data), Ngamini to Diyari (and onwards, certainly including Dhirari and, with foresight, probably Pilardapa, about which I then had no knowledge). A little Pilardapa data has since been published by Austin (1990a), and he has also published (1991) an analysis of the little data available on Karangura (note the different spelling), finding it very closely related to Ngamini.

Austin postulated three languages, Diyari–Ngamini–Yaluyandi (Di–Ng–Yl), Mithaka–Karruwali (Mi–Ka) and Yandruwandha–Yawarrawarrka (Yn–Yw), based on a decontextualization of Breen's comment (1971: 24) that:

> both the old and new data justify the grouping of Jandruwanta and Jawarawarka as dialects of the same language, and Dieri, Ngamani and Jelujendi as belonging to a different language.

This comment referred to O'Grady *et al.*'s (1966a, 1966b) grouping of Yandruwandha with Diyari, Karanguru, Ngamini and Yaluyandi, with Yawarrawarrka being classed as a separate language. Mithaka and Karruwali were not mentioned by Breen because O'Grady *et al*. did not mention them in that context. In fact, the map facing Breen's page 20 shows Diyari, Ngamini, Karanguru and Yaluyandi forming part of a dialect chain which also includes Mithaka and Karruwali, and this is supported by the data in Table 1 (page 22). Yandruwandha and Yawarrawarrka constitute the only other languages in this subgroup.[15] Bowern (1998: 6) repeats Austin's error.

Austin's (and Bowern's) classification has, therefore, never been explicitly justified. I have reanalysed the data. Table 5 gives cognate counts (overall figure/verbs figure, number of items counted in parentheses on the following line) for these seven lects.

Examining these figures, we see that Diyari, Ngamini and Yaluyandi are very close, Mithaka and Karruwali are very close, Yandruwandha and Yawarrawarrka are very close. Yaluyandi and Mithaka are not quite so close and it is something of a toss-up as to whether they are part of a dialect chain or belong to two closely-related languages.

[15] Austin contradicts this in the tree and text on p. 176, where he calls Yandruwandha, Yawarrawarrka, Mithaka and Karruwali all separate languages, giving a five-way split in Central Karnic.

Table 5 Cognate counts, Central Karnic

	Nga	Yalu	Mi	Karru	Yawa	Yandru
Diyari	74/75 (198, 40)	80/80 (144, 30)	44/39 (142, 28)	40/40 (90, 10)	54/51 (170, 41)	50/53 (204, 43)
Ngamini		80/85 (140, 40)	46/42 (169, 26)	36/29 (107, 14)	57/49 (168, 41)	49/43 (221, 42)
Yaluyandi			65/62 (125, 26)	52/42 (79, 12)	75/71 (118, 28)	61/58 (144, 31)
Mithaka				72/79 (90, 14)	52/48 (148, 29)	44/42 (180, 31)
Karruwali					42/44 (99, 18)	37/35 (113, 17)
Yawarrawarrka (Yandruwandha)						81/79 (193, 42)

Comparing Mithaka with Ngamini (not contiguous) it seems that they belong to different languages. It is suggestive too that Mithaka and Karruwali counts with the other Central Karnic languages almost always show a lower figure for verbs than overall, although the differences are always small. Bowern's isogloss summaries (1998: especially 205–206) also suggest that Mithaka does not belong to the same language as Diyari, Ngamini and Yaluyandi. Neither do Mithaka and Karruwali belong to the same language as Yandruwandha and Yawarrawarrka.

It should be noted that Karruwali data consist of two early amateur wordlists, Anonymous (1886) and WHW (1912). Mithaka sources are an old wordlist (Campbell 1899) and brief recordings of Maudie Naylon and Bill Gorringe. Campbell called his language 'Murunuda' while Gorringe preferred the name Marrulha but conceded that it was (the same as) Mithaka and also knew and accepted Campbell's name. Consistency between the three sources is very high; the two modern sources have 89% vocabulary in common and each has about 80% in common with the old list. The sources are combined in the list I use. However, there may be two or more dialects involved. Marrulha appears on maps as a separate name [Tindale's (1940) Marulta] and is quite remote from Yaluyandi. Thus lower cognate counts between the two could reasonably be expected.

A source of concern in the table, however, is the very high figures for Yawarrawarrka and Yaluyandi, and to a lesser degree, for Yandruwandha and Yaluyandi. I regard these figures with suspicion. My main source of data on the first two is the famous Mrs Maudie Naylon, and these were not her best languages (although she knew them much better than Mithaka).[16] A substantial part of my Yaluyandi wordlist is taken from Austin's (1990b) lists of reconstructions, and, of course, being attestations of reconstructed items they are all words that have cognates

[16] I recorded Mrs Naylon in Wangkangurru (her first language), Ngamini, Yandruwandha, Yawarrawarrka, Diyari (which, she said, she learnt at school), Yaluyandi and Mithaka. Her ability to keep them separate was usually excellent.

in other Karnic languages. The fact that these two sets of figures are so much higher than the figures for Yandruwandha and Yawarrawarrka with Ngamini and Diyari makes them seem unlikely; note that Diyari and Ngamini are dialects of the same language as Yaluyandi (although Diyari, as the following tables show, is not as close to the other two as they are to one another), and Yandruwandha and Diyari are contiguous. A comparison of the wordlists for Strzelecki Yandruwandha and Yawarrawarrka with that for Innamincka Yandruwandha supports this belief (Strzelecki Yandruwandha is located south of Innamincka Yandruwandha, the source of most of my data on Yandruwandha). The Strzelecki Yandruwandha list shares 83% with the contiguous Innamincka Yandruwandha but 91% with the non-contiguous Yawarrawarrka, while Innamincka Yandruwandha and the contiguous Yawarrawarrka, as Table 3 shows, share 81%.

The following three tables give brief comparisons of pronouns (including interrogatives) (Table 6), nominal case inflections (Table 7) and verbal suffixes (Table 8). Karruwali is not included in the latter two tables, due to lack of information. I have converted the Diyari items to the orthography I use for the other languages.

These three tables do not point strongly to any particular classification of the languages, but they do cast doubt on the remarkably high cognate figures for Yawarrawarrka with Yaluyandi. I cannot maintain my original two-language classification; there seem to be three, as per Austin and Bowern.

Table 6 Central Karnic pronouns

	Diyari	Ngamini	Yaluyandi	Mithaka	Karru	Yawa	Yandru
1sgN	*nganhi*	*nganyi*	*nganyi*	*nganyi*	*nganyi*	*nganyi*	*nganyi*
1sgE	*ngathu*	*ngathi*	*ngathi*	*ngathu*	*ngathu*	*ngathu*	*ngathu*
2sgN	*yini*	*yini*	*yini*	*yini*	*yini*	*yini*	*yini*
2sgE	*yundru*	*yindi*	*yindi*	*yundu*	*yindu*	*yundru*	*yundru*
1du.in	*ngaldra*	*ngalku*	*ngalku*		*ngalu*	*ngaldra*	*ngaldra*
1du.ex	*ngali*	*ngali*	*ngali*	*ngali*		*ngali*	*ngali*
2du	*yula*	*yulku*	*yulku*	*yula*		*yula*	*yula*
3du	*pula*	*pulku*	*pulku*	*pula*		*pula*	*pula*
1pl.in	*ngayana*	*nganyudu*	*nganyudu*			*ngandra*	*ngandra*
1pl.ex	*ngayani*	*ngayini*	*ngayani*			*ngana*	*ngana*
2pl	*yuda*	*yuda*	*yuda*	*yuda*		*yuda*	*yuda*
3pl	*thana*	*thana*	*thana*	*thana*		*thana*	*thana*
who	*wara*	*wara*	*wara*	*wara*	*wara*	*wara*	*wara*
what	*minha*	*minha*	*minha*	*minha*	*minha*	*minha*	*minha*
where	*wardayadi*	*warratha*	*warada*	*wardali*	*warda-*	*yilanggi*	*yilanggi*
when	*wintha*	*wintja*		*wintjala*		*wintjama*	*walpi*

Note: I have no justification for placing Mithaka *ngali* in the 1du.ex row rather than 1du.in other than to conform with the other languages. Similarly, I have no justification for placing Karruwali *ngalu* in the 1du.in row other than that I would expect it to have *ngali* for 1du.ex.

Table 7 Central Karnic noun morphology[a]

	Nominative	Ergative	Accusative	Dative	Locative	Ablative
Diyari						
Sg	*-0*	*-li, -yali*	*-0*	*-ya*	*-nhi*	*-ndru*
NSg	*-0*	*-li*	*-nha*	*-rni*	*-ngu*	*-ngundru*
Fem name	*-ni*	*-ndru*	*-nha*	*-nhangka*	*-nhangu*	*-ngundru*
Male name	*-nha*	*-li*	*-nha*	*-rni*	*-ngu*	*-ngundru*
Ngamini	*-0*	*-nu*	*-0*	*-ngka*	*-mu*	*-ngundu*
Yaluyandi	*-0*	*-ndu*	?	*-ngka*	*-mu*	*-ndu*
Mithaka	*-0*	*-ndu, -lu*	*-0*	*-ngadi*	*-ngu*	?
Yawarrawarrka	*-0*	*-li*	*-0*	*-ma*	*-nyi, -ni*	*-nguda*
Yandruwandha	*-0*	*-li*	*-0*	*-ngadi*	*-yi*	*-nguda*

Notes: [a] My apologies for the different organization of Tables 5 and 6, with language names across the top in one and down the side in the other. It was the only way I could make them fit.
Bowern (1998) gives *-li* as non-singular ergative in Ngamini and Yaluyandi [in this she follows Austin (1990a), at least for Ngamini]. For Ngamini I suspect (and was told on one occasion by Maudie Naylon) that *-li* is an intrusion from Yawarrawarrka. It occurs occasionally in my corpus, normally in the singular. Bowern gives *-ndana* and *-ya* (as well as *-mu*) as locative suffixes for Ngamini. The suffix *-ndana* is actually, according to my data, aversive: *thurrundana* '[Come away] from the fire' (tape 24); *wamarandana* '[Build a shelter] before the storm' (tape 281). I don't know *-ya*. She gives *-ngura* (my *–nguda*) in Ngamini as causal/aversive; according to my data it denotes origin: *waradanguda* 'Where [do they come] from?' (tape 22); *paringuda* '[Ngamini language] from the river' (tape 282). Mithaka data are very poor and I have omitted some forms that occur in my notes. There is a hint in a Karruwali wordlist that the ergative suffix may be *-li*; the word given for 'light' is *'burle'* which could be *paruli*, the same as the ergative or instrumental form of the corresponding word in Yandruwandha and Yawarrawarrka.

Table 8 Central Karnic verb morphology

	Imperative	Past	Present	Future/ Purposive	Reflexive	Reciprocal
Diyari	*-0, -ya*	*-ya*	*-yi*	*-lha*	*-tjarri*	*-mali*
Ngamini	*-0, -ya*	*-rna wadayi*	*-yi, -ya*	*-lha*	*-tjarri*	*-mali*
Yaluyandi		*-ndu, -nda*	*-yada*	*-lhangka*		
Mithaka	*-iya*	*-ndadi*	*-nda(kuli)*	*-nanga*		*-pali*
Yawarrawarrka	*-0*	*-ni* (imm.[a]) *-itha* (near)	*-rla*	*-iya*	*-yindri*	*-yindri*
Yandruwandha	*-0*	*-na* (imm.) *-nhana* (near)	*-rla*	*-nga*	*-yindri*	*-yindri*

Note: [a] The abbreviation 'imm.' refers to immediate past tense. 'Near' is near past tense (see Breen 2004a, 2004b).

7. Kalali and Badjidi as Karnic Languages

The major source of Kalali (Garlali[17]) information was George Wallace, recorded at Quilpie in the late 1970s, in the last years of his life. He had a fair vocabulary and knowledge of the basic grammar, although he did not normally produce sentences

[17] I am responsible for some variation in the spelling of this name. I originally used Galali, following Capell (1963), but, hearing retroflexion, changed to Garlali in the late 1960s, and this was adopted by some others. I

totally in Kalali. He occasionally used words from Margany (to the northeast) or Wangkumara/Punthamara (to the west) as well as giving sentences partly in English. Shorter recordings of four other speakers as well as Myles's vocabulary in Curr (called 'Wonkomarra' but located in Kalali country) agree well with the Wallace material.[18] The main source for Badjidi is Mathews (1905), but I have recorded some material.

I compared Kalali lexical items with 36 proto-Karnic forms given by Austin (1990b)—those of his items which represent all three of his branches, minus pronouns (which are dealt with below). Of 20 for which I found Kalali correspondents, there were 12 matches and two doubtful (*witji* 'give' with **nguntji*, *ngara* 'who' with **wara*). The Kalali vocabulary does not include such ubiquitous Karnic items as *karna* 'person', *minha* 'what' or *nguda* 'camp', or even *kuna* 'faeces'. The list is as follows:

	proto-Karnic	Kalali
beard	*nganka*	*ngankudu*
black	*tjimpa*	*murrumurru*
camp	*nguda*	*tharlu*
chest	*murna*	*murna*
clay	*thaka*	*thaka'dirt'*
dogwood tree	*kuyamarra*	*kuyamarra*
foot	*thina*	*tjina*
forehead	*ngurlu*	*ngurlu*
galah	*kila(n)*	*kilambara*
give	*nguntji*	*witji*
hand	*mara*	*mara*
nose	*mulha*	*mintji*
person	*karna*	*ngurra*
search	*wanthi*	*wanki*
swan	*kuti*	*kuturu*
wild turkey	*karlathurra*	*tjikada*
two	*parrkulu*	*parrkulu*
water	*ngapa*	*ngapa*
what	*minha*	*nali*
who	*wara*	*ngara*

There were also two Kalali words that matched proto-Karnic items for which there was no Wangkumara correspondent: *parta* 'to hold' (**parda*) and *kunthi* 'sandfly' (**kunthi* 'mosquito'). (The Kalali word given for 'mosquito' is *yudi*.)

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later decided that the retroflexion was in the second of the two laterals and briefly used Galarli. Later again I decided that this retroflexion was not contrastive [perhaps because the preceding vowel was unstressed, or perhaps—see Henderson (1998: 194–197)—because of the preceding apical consonant] and I have used Kalali since the late 1980s.

[18] Bowern (1998: 16) notes that material recorded by Holmer (1988), with which I am not yet familiar, is mostly very similar to that in my transcripts.

The figure of 91% cognate given by Bowern (1998) [misunderstanding Breen (1971)] is not for Kalali and Wangkumara (Garlali) (McDonald & Wurm 1979) as Bowern says (1998: 7) but for Kalali and 'Wonkomarra' (Myles 1886), and 'Wonkomarra' is clearly a different language from modern Wangkumara as recorded by several linguists. This count is simply a comparison of Kalali from two sources.[19]

Austin gives only one bound morpheme (*-*lu* ERG) as proto-Karnic,[20] and Kalali does not have a reflex of this. Kalali has the Cu/Ca ergative/locative pairing (i.e. -*ngu* and -*nga*) which is widespread in Australia but absent from Karnic (although there are possible cognates of both these morphemes, as noted below). Object nouns seem not to be marked; there is one object that seems to have -*ri* added and one with -*nhani*, but many with nothing. Dative is -*wu* (also = allative), not -*nga* as in Bowern. Kalali does not have the three-way distinction of S, A and O in singular pronouns that Karnic languages have (see Breen 1990: 3). Also, Bowern gives *nganala* as 1sg.LOC, but I have *nganhanguna*. (Also *yinhanguna* 2sg.LOC, *ngananguna* — not **ngananhanguna* — 1pl.LOC.) I have a passage on tape that seems to suggest that *ngali* is 1du.incl and *ngalindu* 1du.excl but this is clearly refuted by other data.

I compared bound morphemes with those in Wangkumara and found hardly any correspondences. Ergative is -*ngu*, which is a very minor allomorph in Wangkumara, only on duals. Locative is -*nga*; Wangkumara has -*langa* and in some cases -*ngala*. Wangkumara has 'immediate past' -*nga*; -*nanga* is one of the past tense forms in Kalali. And that's about it.

Bowern's (2001: 256) Table 6 (an expansion of her 1998 Table 2.2), comparing Wangkumara, Kalali and Badjidi, gives a very different picture. In fact, it is consistent with her having used McDonald and Wurm (1979) as her source for Kalali, although she says on the same page and several pages before that the language described in that book is Punthamara, not Kalali.[21] It is repeated here as Table 9.

My own data on nominal and verbal suffixation of these three languages, along with Margany, the Mari language contiguous with all three of them, are summarized in Table 10, along with Mathews' (1905) notes on Badjidi (which I supplement with the locative suffix). Kalali forms are not always reliable. (1) means 'heard only once'. Note that 'ergative' includes instrumental function, 'dative' includes (in some of the languages) allative and/or genitive functions. Functions not known for Kalali or Badjidi are not included. For Wangkumara M is masculine singular, N is non-masculine-singular (i.e. singular and non-masculine, or plural), D is dual. For

[19] I have now revised this to 88%, but think this is an underestimate. Negative counts are clustered in fields such as kinship where my data are particularly poor.

[20] Although, as noted in 2 above, a couple of others can be extracted from his pronoun attestations. One of these, -*nha* accusative, is attested in Kalali as well as in numerous languages outside the Karnic area.

[21] Assuming this, she postulates some differences between Punthamara and Wangkumara, which are not confirmed by my data (see Breen 1981: 280); for example (1998: 56), that Punthamara generalizes the ergative suffix -*(a)ndru* to all nouns.

Table 9 Wangkumara, Kalali, Badjidi comparison (Bowern)

	Wangkumara	Kalali	Badjidi
3dl.nom	*pula*	*pula*	*punipula*
case split in 3dl	erg;nom;acc	erg;nom;acc	erg;abs
1sg.nom	*nganyi*	*nganyi*	*ngayi*
3sg.nom	*nhu-* (masc.)	*nhu-* (masc.)	*kuninha*
nominal acc.	*-nha*	*-nha*	*-0*
locative	*-langa*	*-nga*	*-la*
nominal erg.	masc. *-ngu,* fem. *-ndru*	*-ngu*	*-lu*
nominal dat.	*-nga*	*-nga*	*-ku*
nominal nom.	marked for masc. and fem.	marked for masc. and fem.	*-0*

Notes: line 1: Kalali *pula(ndu)*; see below. Badjidi *pula* (Breen fieldnotes, tape 244); I can find no source for *punipula*.
line 2: Kalali nom;acc. (Breen 1990: 3). Badjidi nom;acc (Mathews 1905: 58).
line 3: Kalali *ngathu* (Breen 1990: 3). Badjidi *nganyi* (Mathews 1905: 58).
line 4: Kalali 3sg.nom *nhingki* (accusative *nhingkinha*, genitive *nhingkiyani*) (Breen fieldnotes, e.g. tape 588). The Badjidi word might be a demonstrative; Mathews has some other demonstratives starting (like this one) with *gu*.
line 5: Kalali has zero, e.g.

	Karri	*ngathu* *mani-nanga*
	yellowbelly	1sg:NOM get-PAST
'I caught a yellowbelly (fish).'		(Breen transcript, tape 564).

Bowern (1998: 62) said it had *-r(r)i* (see the fifth paragraph of this section).
line 6: Conceded.
line 7: Wangkumara has *-(u)lu* for masculine nouns, *-ngu* only for dual-marked nouns [Bowern (1998: 53) has it correct].
line 8: Kalali dative is *-wu*, as in

Wanki-lingu	*ngathu*	*ngantjini-wu*	*yarnta-wu.*
search-PRES	1sg:NOM	1sg:GEN-DAT	stone-DAT
'I'm looking for my money.'		(Breen transcript, tape 565)	

line 9: Kalali nominative is zero, as in

Ngantjini	*yadamani*	*nama-nanga.*
1sg:GEN	horse	run-PAST
'My horse ran away.'	(Breen transcript, tape 566)	

Margany *T* represents a stop homorganic with a preceding nasal, *V* a vowel and *C* a non-nasal consonant. Some minor details of allomorphy are omitted.

Correspondences between different languages in the list in Table 10 are almost completely confined to very widespread forms—the various zero suffixes, and the dative *−gu* (or *−ku*) with its lenited form *−wu*. These have no value for low-level subgrouping.

My data on the nominative and ergative pronouns of these four languages are given in Table 11. Kalali presumably lost a nominative-ergative opposition at some time

Table 10 Grammar comparison

	Wangkumara	Kalali	Badjidi	Margany
nominative	*-ia* (M), *-nhani* (N) *-0* (D)	*-0*	*-0*	*-0*
ergative	*-ulu* (M), *-(a)ndru* (N), *-ngu* (D)	*-ngu*	*-lu*	*V-nggu, -Tu, C-u*
accusative	*-(i/a)nha, -nhanha*	*-0*	*-0*	*-0*
locative	*-langa, -ngala* (D)	*-nga*	*-la*	*V-ngga, -Ta C-a*
dative	*-(a)nga*	*-wu*	*-gu*	*-gu*
ablative	*-(a)ndru*	*-gali* (1), *-yilanga* (1)	*-mani*	*-mundu*
proprietive	*-bartu*	*-withi*		*-bari*
privative	*-mundhu*	*-buthada*		*-idba*
imperative	*-0*	*-0*	*-0*[a]	*-0*
past	*-garli*[b]	*-na(nga), -langa*	*-nginana*	*-la*[c]
present	*-garla*	*-lingu*	*-nana*	*-nhi*
future		*-thu*	*-ngana*	
purposive	*-rra, -da*	*-nha*		*-n.gu, -lu*
potential	*-langu*	*-tji*		*-indju*
reflexive	*-ii*		*-niwaniny*[d]	*-li*
causative	*-munka*	*-kadi*		*-ma*

Notes: [a] Or *–na*; Mathews includes this *-na* as part of the stem of his illustrative verb, but it does not appear in all inflected forms.
[b] Recent past; there are also immediate past *-nga* and far past *-marni.*
[c] There is also a recent past *-Vnhi*, where *V* repeats the stem-final vowel.
[d] This is actually reflexive plus present tense.

Table 11 Pronoun comparison

	Wangkumara	Kalali	Badjidi	Margany
1sg (N or N/Erg)	*nganyi/ngathu*	*ngathu*	*nganyi/ngatha*	*ngaya*
2sg (N or N/Erg)	*ini/yundru*	*yundu*	*yini/yuntu*	*inda*
3sg (M N/Erg F N/Erg)	*nhia-/nhulu- nhani-/nhandru-*	*nyingki*[a]	'nyunna'?/ 'nyalu'	*nhula*
1duN (incl/excl)	*ngala/ngali*	*ngali(ndu)*	*ngali/nyangali*	*ngali*
2duN	*yula*	*wurandu*	—	*ibalu*
3duN	*pula-*	*pula(ndu)*	—	*bula*
1plN (incl/excl)	*ngandra/ngana*	*nganandu*	*ngana/nyangana*	*ngana*
2plN	*yurra*	—	—	*ida*
3plN	*thana-*	*thana(ndu)*	—	*dhana*

Note: [a] Diyari has *nhingki-* 'this, here'. Yandruwandha has *nhinggi-* ∼ *nhinggu* as the base of some demonstratives.

in the past, and had ergative forms take over in all persons and numbers.[22] Hence the *-ndu* ending on non-singular pronouns. (Compare the ergative suffix *-ngu* on Wangkumara non-singular pronouns, but note that Mithaka and Yaluyandi have ergative *-ndu* on nouns.) This is omitted sometimes in my data, and may have been in the process of being lost. The original nominative singular forms may have been **nganyi*, **yini* and **nyini*. There may be more data on Badjidi available in Mathews' fieldnotes (1905). I speculate that '*nyunna*', which he gives for 'that', is the nominative form corresponding to his ergative third person singular '*nyalu*'; he actually gives '*guninna*'. Note the first person non-singular exclusive pronouns, which seem to have been formed by preposing the first syllable of the third person singular to the inclusive forms.

The only other Kalali personal pronouns attested are compared with Wangkumara forms below:

accusative	*nganha* (1sg)	(W *nganha*)
	inha (2sg)	(W *ina*)
	nhingkinha (3sg)	(W *nhinha-*, *nhanha-*)
genitive	*ngantjini* (1sg)	(W *ngantja(ni)*)
locative	*nganhanguna* (1sg)	(W *nganhala*)
	inhanguna (2sg)	(W *ingala*)
	ngananguna (1pl)	(W *ngandrangala, nganangala*)

Cognate counts for Wangkumara, Kalali, Badjidi and Margany, based on Breen's (1971) 250-word list (slightly modified), are given in Table 12, as overall percentage cognate (number of items compared) on the upper line and percentage of verbs cognate (number of items compared) on the lower line.

These figures suggest distant relationships of all the languages involved. The figures for Wangkumara/Kalali, Kalali/Badjidi and Badjidi/Margany are all highly significant ($p < 0.01$) and all suggest substantial borrowing between the languages involved. The other figures do not suggest such a high level of borrowing.

Table 12 Cognate counts

	Kalali	Badjidi	Margany
Wangkumara	45 (201) 26 (40)	30 (208) 21 (38)	17 (232) 12 (41)
Kalali		44 (174) 22 (36)	25 (190) 16 (37)
Badjidi			32 (214) 13 (39)

[22] This is in contrast with what seems to have happened to another 'Karna–Mari fringe language', Kungkari (Breen 1990), in which it was the accusative forms that expanded, taking over the function of nominative.

Table 13 Kalali cognates with Ngamini and Pitta-Pitta

	Kalali overall	Kalali verbs
Ngamini	16 (173)	6 (32)
Pitta-Pitta	14 (175)	15 (33)

A comparison of Kalali with two more distant Karnic languages, Ngamini and Pitta-Pitta, is given in Table 13.

The Pitta-Pitta/Kalali verb figure is based on only five positives, a couple of which are dubious: *tuntji/dhunya* or *dhunyi* 'to cry' and *yanka/banka* 'to tell'. Note also that Pitta-Pitta and Wangka-Yutjurru have *-ngu* for future subject and *-nga* dative, with which compare Kalali *-ngu* ergative and *-nga* locative.

The evidence that neither Kalali nor Badjidi belongs to any low-level genetic grouping with languages to their west, nor with the Mari languages to their east, is quite overwhelming. The occasional similarities must be due to diffusion.

8. So What About Karnic?

I compiled a list of those proto-Central Karnic words that correspond to words in my comparative lists (about half of the words in my lists). These were words that were in either Austin's proto-Karnic list or his proto-Central Karnic list and were attested in both primary branches of Central Karnic as I see it, i.e. in Diyari, Ngamini, Yaluyandi, Mithaka or Karruwali and in Yandruwandha or Yawarrawarrka. I compared this list with my lists for Wangkumara and Pitta-Pitta.

There were 121 comparable items for Wangkumara, including 28 verbs, and my cognate figures were 41% overall, 46% for verbs. These figures, combined with the similarities in the pronoun paradigm and some grammatical similarities (as noted by Bowern), do suggest a close genetic relationship with the Central Karnic languages. The figures for Yandruwandha/Wangkumara (contiguous languages, with counts inflated by borrowing) and Diyari/Wangkumara (non-contiguous) in Table 3 above are not so positive. None of these figures have any statistical significance.

There were 133 comparable items for Pitta-Pitta, including 27 verbs, and my cognate figures were 47% overall, 33% for verbs. These figures (with $p < 0.20$), coupled with grammatical differences such as the presence of a separate allative inflection and of an aversive inflection derived from a former locative suffix in Pitta-Pitta and its closest relatives, do not suggest a close genetic relationship. A count involving Pitta-Pitta's relatives Wangka-Yutjurru and Arabana/Wangkangurru would be even less favourable. See also the figures for contiguous pairs Wangkangurru/Ngamini and Pitta-Pitta/Mithaka in Table 3.

If Arabana/Wangkangurru (AW), Wangka-Yutjurru (WY) and Pitta-Pitta (PP) on the west side and Wangkumara (Wm) on the east side are two outer branches of a genetic grouping they could be expected to retain some words that have been lost from the central languages. I have found 12 possible examples, most of them quite

unconvincing, being areal or involving sound changes for which there is no other evidence. These are:

- 'mother' *ngama* (WY *ngama*, PP *ngamari*, AW *ama*, Wm *ngamadja*); found in many other languages, including Warluwarra and Arandic languages which are contiguous with the western branch;
- 'shield': PP *kunparra*, Wm *kulgarra*; unlikely;
- 'body hair' *puntju* (also in Kalali, Badjidi, Guwa, Yalarnnga, Kalkutungu; 'hair' in Kungkari, Yanda); areal;
- 'ear': *ngadawa* in WY, PP; *ngarramanda* in Wm;
- 'knee' *pu(r)nku*-: PP *purnku*, Wm *punkula*; *punkul* in Mayi languages;[23]
- 'emu' *kulparrV*: *kulparri* WY, PP (and Kalali, Badjidi and many Mari languages), *kulbarra* Wm; areal;
- 'crow' *wak*-: WY *wakirti*, PP *wakir(t)i* and *wakarla*, AW *wakarla*, Wm *wagaratji*; names based on *wak*, representative of its call, are widespread;
- 'dogwood' *kuyamarra*: PP, Wm; given as 'stick' in Di. Also in Antekerrepenh, Alyawarr and Warluwarra; areal;
- 'soon': *pada* WY, *parla* Wm; doubtful;
- 'tomorrow': *wakana* WY, *wikala* Wm; doubtful;
- 'come here' *kawa*: WY, PP, Wm, Kalali; Central Karnic languages have *kaparra* which may be cognate;
- 'bite' *patja*: WY, PP, Wm. Wm also has *dratja*. Western Desert languages are among many with *patja*; Central Karnic languages have *matha* which, like many other forms such as Adnyamathanha *vaya* and *badha* in Mari languages, must be cognate at a higher level.

In the absence of detailed reconstructions to support them, most conclusions from this reassessment of Karnic are tentative. The only firm conclusions are that Kalali and Badjidi do not form part of any genetic grouping of Lake Eyre Basin languages. My data do not cast much light on Austin's (1990a) Central Karnic; I no longer hold that Mithaka and Karruwali are part of a dialect chain including Austin's Western Karnic languages, but information on them is probably too slight to ever permit any firm conclusions. The main justification for Central Karnic remains the fairly substantial number of lexical items reconstructed by Austin.

I propose that there is a subgroup comprising AW, WY and PP, although there has been significant north–south borrowing (at least) between these languages, as noted in Section 5, and this obscures genetic relationships. Detailed justification of this grouping is a high priority (and note that much of the data, especially for Wangka-Yutjurru, is still in the form of untranscribed tapes). Only when this subgroup is established (or shown not to exist) can the question of Karnic as a whole be finally determined.

[23] The southernmost Mayi dialect, Wunumara, appears on the map.

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