Syntactic reconstruction by phonology:

Edge aligned reconstruction and its application to Tangkic truncation[*]

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1.   Introduction

This chapter introduces a method for deriving historical syntactic hypotheses from
certain types of phonological reconstructions. The method, EDGE ALIGNED
RECONSTRUCTION, capitalises on the robust typological generalisation that the edges
of high level phonological domains, such as the utterance and intonation phrase, align
almost always with the edges of major syntactic domains such as the sentence and the
clause (Selkirk 1984, Nespor and Vogel 1986). Essentially, because the highest levels
of phonological and syntactic domains are aligned with one another, if a phonological
change is reconstructed as having occurred solely at the left edge, right edge, or in the
interior of a high level phonological domain, then we predict that the change will have
impacted differently on words in initial, final or in medial position within the
corresponding syntactic domain. That is, if words can be identified which must have

occupied certain PHONOLOGICAL positions when the change occurred, then hypotheses

can also be formulated regarding their SYNTAX. Furthermore, because historical

phonological facts are generally reconstructable back much further in time than is

often the case with historical syntactic facts, this method should provide access to

syntax at a time depth which is not usually accessible.

To illustrate the use of this method, examples are discussed from the Tangkic

language family of Queensland, Australia.

The chapter is organised as follows. Section 2 outlines the reasoning behind

edge aligned reconstruction and flags some the of more intricate aspects of

reconstructing phonological changes at domain edges. Sections 3 and 4 offer an

overview of the modern Tangkic languages and some of the phonological history of

Tangkic respectively. Sections 5–7 provide three examples of edge aligned

reconstruction at various time depths. Conclusions follow in §8.

## 2.   Edge aligned reconstruction

2.1   Changes at the edges and interior of phonological domains

Phonological changes can occur as the result of regular, phonetically conditioned

sound changes, as the result of systematic reanalyses of rules or rules systems, or as

the result of more idiosyncratic changes such as analogy within inflectional

paradigms.

Sometimes, the effects of a phonological change are distributed so that

otherwise identical material on the left edge, right edge, and interior of a phonological

domain are affected differently. For example, a sound change might occur only at the

left edge of a domain and not elsewhere, shown as A in Figure 3, or only at the right

edge, shown as B, or a change might occur at the boundaries between constituent sub-

domains, shown as C in Figure 3, in which case the change affects only the interior of the larger domain.

Figure 3. Changes at the edges and interior of phonological domains
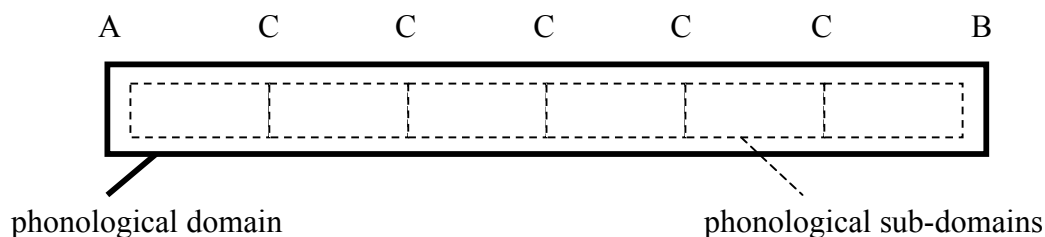
Let us now consider what will happen in the case that the prosodic domain in question is an intonation phrase or utterance,[1] which aligns with clauses or sentences.

Because of the alignment between phonological and syntactic domains, the phonological change will affect words systematically, and differently, depending on their syntax. Three classes will be distinguishable: (i) words which due to their syntax never occur in a position affected by the phonological change; (ii) words which due to their syntax occur only in positions affected by the phonological change; and (iii) words which due to their syntax appear in both positions.

Initially, after this phonological change occurs, words in class (i) should have forms which uniformly fail to reflect the change; words in class (ii) should have forms which uniformly do reflect it; and words in class (iii) should have positionally conditioned alternant forms, one of which reflects the change, and one which doesn't. If the alternation in class (iii) words becomes incorporated into the language as a productive rule of the phonology, that alternation might survive a long time; if not it

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[1] I take the 'utterance' to be a stretch of speech bounded by planned pauses (cf. Hayes 1989).

may just as well be quickly eliminated, usually in favour of the alternant form which most often surfaces in discourse.

In the case that an alternation does survive as a phonological rule, two additional complications can arise.

One such complication will apply to class (ii) words — words whose surface form uniformly reflects the effects of the change. Suppose the change was *X > Y, and suppose that that change now becomes incorporated into the daughter language as a productive phonological rule /X/ → [Y], in certain positions. Now, a word in class (ii) which began as *baX has changed to [baY]. It occurs only as [baY], and only in the appropriate position to be acted on the new rule /X/ → [Y]. Is the new form represented underlyingly as /baX/ or as /baY/?[2] It seems that languages may adopt either option.

A different complication can occur when a new productive rule is later reshaped by reanalysis or similar processes. Suppose for example that a synchronic rule arose as /XY/ → [Z], applying in certain environments, and in a subsequent development was altered to /Y/ → [Z]. In such cases it can happen that particularly frequent surface forms — for example surface [baZ] corresponding to underlying /baXY/ — defy the rule change, and thus in the environment where the new surface form corresponding to underlying /baXY/ should be [baXZ], one continues to find [baZ]. However, since the new state of the phonology no longer derives [baZ] from

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[2] The choice does not have any detectable effect until the daughter language changes again (for example, by losing the rule /X/ → [Y], or by allowing the word [baY] surface in new positions). At that point, it will matter.

/baXY/, a new underlying form is innovated, /baY/, which does yield [baZ] when operated on by the rule /Y/ → [Z].[3]

2.2   Using this information: edge aligned reconstruction

Once a phonological change has been reconstructed which, within a high level phonological domain, had a distribution like A, B or C in Figure 3, the next step is to search for words which on phonological grounds appear to have fallen into classes (i), (ii) or (iii), as defined in §2.1.[4] The stronger the phonological evidence for placing a word into class (i), (ii) and (iii), and the stronger the evidence for the phonological change itself, the stronger is the evidence for the syntactic hypotheses that follow.

Particularly good candidates will be words which have descended as doublets — that is, two independent words in the daughter language which clearly descend from just one word at an earlier stage. Ideally, the two doublet forms should have different meanings or functions, even if the difference is slight. If such cases can be found where the evidence places one of the doublet words in one word class, and the other in another word class, then we can reconstruct that the original word, with just one form but two meanings or functions, occupied different syntactic positions depending on which meaning/function it took. Under the right conditions, this allows

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[3] At least initially, this new underlying form /baY/ will only appear in environments where the new rule /Y/ → [Z] causes it to surface as [baZ]. However, subsequent change could place /baY/ in other positions, where other rules will act on it, causing it to surface as something other than [baZ].

[4] The evidence for this will come from the words' own phonological form in comparison to others', taken with respect to what is understood about the phonological rules which operated in the language around the time of the change.

us to formulate further, more general hypotheses connecting particular functions or meanings (which might be common to whole word classes) to word order.

In sections 5–7, this mode of reasoning will be applied to several doublets in the Tangkic languages.

3   The Tangkic language family

The Tangkic languages of Australia (non-Pama-Nyungan) were traditionally spoken at the Southern end of the Gulf of Carpentaria. Genetic affiliations of the languages are shown in (1). The three most extensively described languages in the family are Lardil (Hale 1967, 1975; Klokeid 1976; Ngakulmungan Kangka Leman 1997), Yukulta (Keen 1972, 1983), and Kayardild (Evans 1992, 1996). Yangkaal, a close sister of Kayardild, is attested in around sixty pages of fieldnotes and text transcription made by Hale (1960), a vocabulary of around 260 items by Tindale (1960) and a 43-line text transcribed in Evans (1996). In the discussion below, the synchronic characterisation of these languages is based on these sources, as well as my own field notes on Kayardild.

(1)   Genetic affiliations of the Tangkic languages
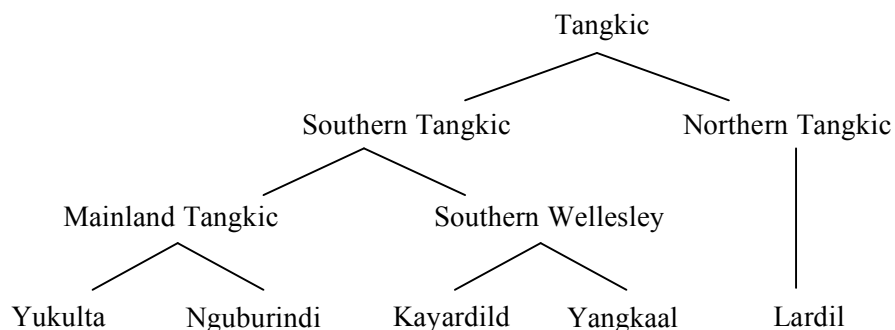
3.1   Morphosyntax

Morphologically, Tangkic languages are highly agglutinating, dependent marking
languages and are overwhelmingly suffixing. Kayardild, Yangkaal and Lardil have a
nominative–accusative alignment of core arguments, while Yukulta is predominantly
ergative–absolutive; Proto Tangkic is reconstructed as having been ergative–
absolutive in main clauses, though subordinate clauses were often effectively
nominative–accusative (Klokeid 1978, McConvell 1981, Evans 1996:424ff). The
languages exhibit a significant degree of word order flexibility and pervasive elision
of referentially recoverable NPs. The one area of word order rigidity is in the noun
phrase, whose surface order of determiner–modifier–head is violated only under
specific circumstances which are infrequent in discourse.[5] This fact will be of interest
in section 7. In Lardil (Northern Tangkic) and in Kayardild and Yangkaal (Southern
Wellesley within Southern Tangkic), direct object case inflections almost always
concurrently signal tense and aspectual semantics. Subordination markers are found
on both nouns and verbs across the clause.

3.2   Phonology

The phoneme inventory of Yukulta is given in Figure 1. Kayardild, Yangkaal and
Lardil all differ in having collapsed the Proto Tangkic */ḻ/ and */ɻ/ phonemes; Lardil
has one more phonemic vowel quality, which was probably inherited from Proto

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[5] The single most prominent exception is the variable word order in Southern Tangkic
modifier–head ~ head–modifier in cases where the head is a kin term and the modifier
a possessive pronoun.

Tangkic (Round and Evans, in prep.) – that fourth vowel quality in Proto Tangkic

would most likely have been phonetic [æ].

Figure 1. Phoneme inventory of Yukulta (with notes on Lardil, Kayardild).

apical		laminal			
	post-alveolar	dental	palato-alveolar	velar	labial
alveolar					

	apical		laminal				vowels
obstr.	t	ṭ	t̪	c	k	p	i, iː u, uː
nasal	n	ṇ	n̪	ɲ	ŋ	m	a, aː
trill	r						
lateral	l	ɭ					
glide		ɻ		j		w	

- Lardil has /e/, /eː/

- Kayardild, Yangkaal and Lardil have merged */ɭ/ and */ɻ/

In each language, the consonantal places of articulation are organised into major

classes, as indicated in Figure 2. Sound changes to be discussed in §4 were sensitive

to these classes.

Figure 2. Major classes of places of articulation

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                    ╱‾‾‾‾‾‾‾‾‾╲
              coronals              non-coronals
             ╱‾‾‾‾‾‾╲                ╱‾‾‾‾‾╲
        apicals        laminals   velars    labials
       ╱‾‾‾╲          ╱‾‾‾╲
   plain   retroflex  dental  palatal
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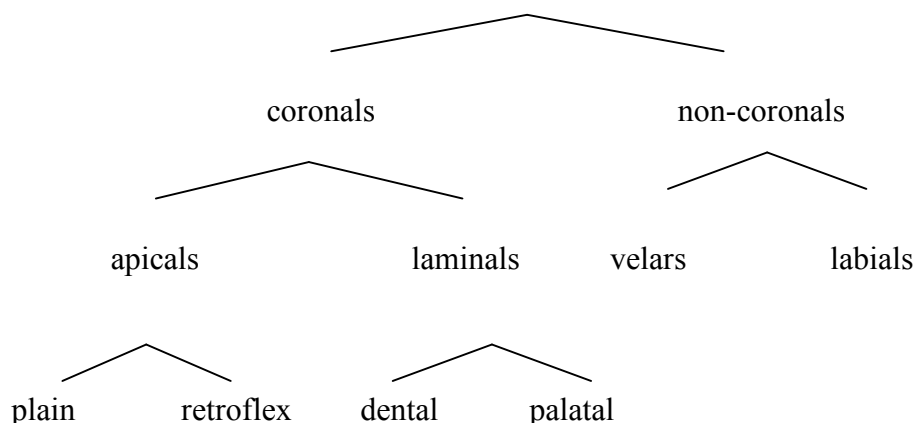
3.3   Phonology at the right edge of the word

There are three distinctive processes which can operate at the right edge of Tangkic

words. Following the Tangkic literature, I will refer to these as TRUNCATION,

AUGMENTATION and DELAMINALISATION and for simplicity, I will refer to them as

applying to the 'morphological word' (ω_M) to derive the 'surface word' (ω_S) —

though it should be noted that augmentation is sometimes analysed as involving a

morpheme itself,[6] and the surface word can be further altered in some languages. For

the purposes of this chapter, it will suffice to be aware that words can be acted on by

these processes; the exact conditions under which each applies in the individual

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[6] Klokeid (1976) analyses augmentation in Lardil as phonological; Keen (1973, 1984)

labels the corresponding material in Yukulta a 'morpheme' marking the absolutive

case, but does argue the point; for Kayardild, Evans (1996:102,136) analyses the

equivalent material as a nominative morpheme but notes that distributionally, it is

more of a default word-final suffix than a marker of any one specific grammatical

relation.

Tangkic languages will not be important here. Examples from Lardil are given in (2),

(3) and (4). All examples in this chapter will be cited in phonemic, not orthographic,

form.

(2)   Truncation ω_M: kantukantu   'red'

         ω_S: kantukan

(3)   Augmentation ω_M: kaŋ   'speech'

         ω_S: kaŋka

(4)　　　Delaminalisation[7]　　　ωS with default, stem-final laminal stop:

　　　　　　　　　　　　　　　jaɻpuṯ-uɻ　　　'animal-FUT.OBJ'[8]

　　　　　　　　　　　　　　　jaɻpuc-in　　　'animal-OBJ'

　　　　　　　　　　　　　　　jaɻpuṯ-ar　　　'animal-NONFUT.OBJ'

　　　　　　　　　　　ωS with apical stop (due to delaminalisation):

　　　　　　　　　　　　　　　jaɻput　　　　'animal.NOM'

In the Southern Tangkic languages word final truncation operates only on certain,
idiosyncratic word forms. In just the Southern Wellesley branch of Southern Tangkic,
a surface word (ωS) which ends in /a/ undergoes a special round of truncation,

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[7] In fact, it is somewhat historicising to refer to this process as delaminalisation in
Lardil. Synchronic 'delaminalisation' does reflect a historical change which originally
delaminalised underlyingly laminal consonants, but as argued by Evans (1996:74fn9),
Lardil actually possesses the reverse process synchronically, where underlying (non-
laminal) /t/ is laminalised. In the other Tangkic languages though the cognate
synchronic process remains one of delaminalisation (cf. Evans 1996:75).

[8] Abbreviations used in this chapter are: ACT actual tense, EXCESS excessive suffix,
FUT.OBJ future objective, GEN genitive, MABL modal ablative, MLOC modal locative,
NOM nominative, NONFUT.OBJ nonfuture objective, OBJ objective, PAST past tense,
PRECOND precondition, PRIOR prior tense, PSTN past nominaliser, THM thematic
consonant, UTIL utilitive.

deleting the final /a/ vowel, if the word appears utterance finally.[9] Additionally, any
cluster of apical consonants which is left at the end of the word after /a/-truncation has
applied, undergoes optional truncation of the final consonant: the process is relatively
rare in Kayardild but appears to have been more frequent in Yangkaal. An example is
shown in (5).

  (5)   Augmentation and utterance final truncation (Kayardild, Yangkaal)

      ω_M: ṯuŋal   'thing.NOM'

      ω_S utterance non-finally: ṯuŋalta

      ω_S utterance finally: ṯuŋalt ~ ṯuŋal

Each of these processes in (2)–(5) is connected historically to phonological changes
which occurred at the edges, or just in the interior, of high level phonological
domains, specifically, utterances. The reconstruction of their history is presented in
detail in Round (in prep). In this chapter, I will be interested in the results of that
reconstruction as it pertains to the history of word final truncation in pre-proto
Tangkic, and utterance final truncation in proto Southern Wellesley. The relevant
results of Round (in prep.) are summarised now in §4.

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[9] Evans' (1996:63–4) refers to the 'breath group' as the unit at whose right edge final
/a/-truncation occurs. It is identical to what I am referring to here as 'the utterance'.

4   Some historical phonological changes in Tangkic

As far back as has been reconstructed, pre-proto Tangkic possessed processes of
utterance final truncation which deleted utterance final /a/, as well as the non-initial
consonants of utterance final consonant clusters, and all utterance final labial
consonants. Truncation of /a/ applied before consonant truncation, and therefore fed
it. Example of the kinds of effects this would have had on words are given in (6a–c).

(6)   Utterance final truncation in pre-proto Tangkic

     a.   /a/ truncation

             ω_S utterance non-finally: *paɻapaɻa   'sun shade'

             ω_S utterance finally: *paɻapaɻ

     b.   consonant truncation

             ω_S utterance non-finally: *pukark   'root sp.'

             ω_S utterance finally: *pukar

     c.   /a/ truncation, followed by consonant truncation

             ω_S utterance non-finally: *ciɭkarpa   'shell sp.'

 ω_S utterance finally: *ciɭkar

This system of utterance final truncation has undergone change in all of the modern
branches of Tangkic. In Lardil (Northern Tangkic), it was collapsed together with an
originally distinct system of word final truncation, thus Lardil now possesses word
final truncation which includes the deletion of final /a/ (as well as /i/ and /u/, another
Lardil innovation) and the kinds of consonant truncation described above. In Yukulta

(Mainland Tangkic within Southern Tangkic), the rules of utterance final truncation
were lost altogether, that is, utterance final words no longer have special truncated
forms but instead look exactly like utterance internal words. In Kayardild and
Yangkaal (Southern Wellesley within Southern Tangkic) the inherited system is
largely preserved but consonant truncation has been scaled back, so it now applies
only to clusters of apical consonants.[10]

The scaling back of utterance final truncation in Southern Wellesley will be
used in §5 to reconstruct the order of certain main and subordinate clauses, and in §6
a relative chronology is proposed which places this phonological development later
than the shift in proto Southern Wellesley from an ergative–absolutive case system to
a nominative–accusative one.

Stepping further back in time, during pre-proto Tangkic a system of EXTERNAL
SANDHI processes applied so as to sometimes alter the consonant clusters formed
across the boundaries of words within an utterance, with an effective distribution as
shown in Figure 4.

Figure 4.   Distribution of effects of external sandhi in pre-proto Tangkic

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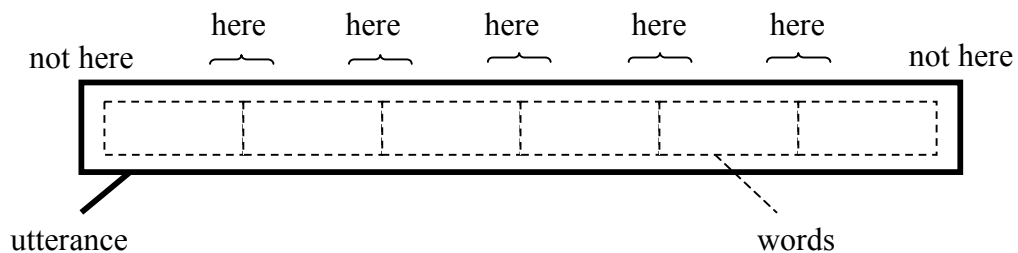
[10] The precise nature of utterance final truncation in Yangkaal is unclear. From Hale's
notes and Tindale's vocabulary, there appear to be cases where /a/-truncation fails to
apply to disyllabic words (these are always truncated in Kayardild).

At this early stage, it was possible for words to end underlyingly in the laminal
segments */NH/ and */TH/ — the symbols */NH/ and */TH/ represent a laminal nasal
and plosive respectively, whose specific realisation as laminal-dental or laminal-
palatal depended on the identity of adjacent segments.[11] As the sandhi system
evolved, a rule arose which deleted word final */NH/ and */TH/ in utterance-internal
positions (but not in utterance-final position). One complicating factor is that this rule
appears to have applied only to some, and not all, words ending in */NH/ and */TH/.
The exact conditioning factors are not yet understood, but for our purposes it will
suffice to know that it in general, words were affected if they terminated in a case or
number marking suffix ending in */NH/ or */TH/. This information will be used in §7
to reconstruct the word order of nominal predicate sentences in pre-proto Tangkic as
well as the modifier–head order in noun phrases.

5   The order of precondition clauses and main clauses in proto Southern Wellesley

In proto Southern Wellesley (within Southern Tangkic), the inherited rule of proto
Tangkic utterance final consonant deletion was scaled back.

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[11] Underlying phonemic distinctions between laminal palatals and laminal dentals did
exist in pre-proto Tangkic, but generally only (i) in the first segment of words, or (iii)
directly after the first vowel of a word. Since all laminal final stems and words of
interest in this chapter are polysyllabic, their final laminal segments meet neither of
these conditions, and so are represented as the undifferentiated laminals */NH/ and
*/TH/.

The old rule, which operated after the truncation of utterance final /a/, truncated the non-initial segments from clusters which became word final after the deletion of /a/. It also truncated final labial consonants /m/ and /p/.

The younger rule was still ordered after /a/-truncation, but it applied only to clusters of apical consonants. The transition from the old to the younger rule may have occurred in one leap or may have been stepwise. Whichever was the case, when the rule changed, certain high frequency items defied the rule change and developed new underlying forms, following the scenario described in §2.1. The Yangkaal word for 'boomerang' was one of these. Its development is summarised in Table 1 and explained below.

Table 1. Development of Yangkaal /waŋalk/ ~ /waŋal/ 'boomerang'

Stage	ω_M	ω_S (utterance internal)	ω_S (utterance final)	
I		waŋalk	waŋalka	waŋal	'boomerang'
II		waŋalk	waŋalka	i. waŋalk	
				ii. ! waŋal	
III	i. waŋalk	waŋalka	waŋalk	
	ii. waŋal		waŋal	
IV	i. waŋalk	waŋalka	waŋalk	
	ii. waŋal	waŋalta	waŋal ~ waŋalt	

In Table 1, Stage I shows the inherited state of affairs in early proto Southern Wellesley, where ω_M is augmented to yield ω_S, and then ω_S is truncated utterance

finally. In Stage II the new, scaled-back utterance final truncation rule comes into effect, but is defied by persistence of the original utterance final ω_S form /waŋal/ (indicated by '!') as an alternative to the newer, expected form /waŋalk/. Stage III shows the response to this in the innovation of a new underlying, utterance final allomorph for the lexeme. Stage IV, which represents modern Yangkaal, shows the new allomorph having spread from its original conditioning environment (utterance final position) into all environments, resulting in a lexeme with two alternative forms. A parallel development has occurred in the Kayardild and Yangkaal word for 'big',[12] shown in Table 2.

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[12] Both /cuŋara/ and /cuŋarpa/ are relatively frequent in Kayardild. In Yangkaal, /cuŋarpa/ is well attested but I have found /cuŋara/ just once, in a phrase recorded by Tindale (1960). Tindale's *'tjuŋaramala* 'high tide' is almost certainly /cuŋara malaa/ lit. 'big.NOM sea.NOM', which in Kayardild also means 'high tide'.

Table 2. Development of Kayardild, Yangkaal /cuŋarpa/ ~ /cuŋara/ 'big'

Stage	ω_M	ω_S (utterance internal)	ω_S (utterance final)	
I	cuŋarpa	cuŋarpa	cuŋar	'big'
II	cuŋarpa	cuŋarpa	i. cuŋarp	
			ii. ! cuŋar	
III	i. cuŋarpa	cuŋarpa	cuŋarp	
	ii. cuŋara		cuŋar	
IV	i. cuŋarpa	cuŋarpa	cuŋarp	
	ii. cuŋara	cuŋara	cuŋar	

We turn now to edge aligned reconstruction.

In Kayardild, past tense clauses contain verbs inflected with the past tense suffix /-ara/ and direct objects inflected with the 'modal' ablative /-kina/ ~ /-cina/ ~ /-ina/ ~ /-na/. The order of subject, verb and object is free, as indicated in (7) (note that utterance final /a/ is usually truncated).

(7) a. ɲiŋka_SUBJ kuri-c-ara_V [ṭaṭin-kina ṭulk-ina]_OBJ

         2sg.NOM see-THM-PAST that-MABL country-MABL

         'You've seen that country.'

  b. [ṭaṭin-kina ṭulk-ina]_OBJ kuri-c-ara_V ɲiŋk_SUBJ

  c. [ṭaṭin-kina ṭulk-ina]_OBJ ɲiŋka_SUBJ kuri-c-ar_V

In Kayardild 'precondition' clauses, verbs are inflected with the precondition suffix
/-arpa/ and direct objects with a different form of the modal ablative, /-kinapa/ ~
/-cinapa/ ~ /-inapa/ ~ /-napa/, as in (8).

(8)   caṭaa ṭaŋkaa ŋakan-kinapa wuŋi-c-arp,

        another.NOM man.NOM sandbank-MABL steal-THM-PRECOND

        ṭulmara ṭaŋkaa culija parki-c.

        country.UTIL man.NOM bone.MLOC chop-THM.ACT

        'If another man stole (one's) sandbank, the boss of that country would chop
        some bones (in a spell of vengeance).' (Evans 1996:262, ex7-27).

On the basis of extant examples, it seems that precondition clauses always or almost
always precede the main clause in a Kayardild sentence. Hence in fluent speech[13]
precondition clauses would precede main clauses within the utterance, as shown in
(9).

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[13] All of Evans' (1996:262) examples of precondition clause are final in the utterance,
however as Evans (1996:64) notes, utterance breaks were commonly inserted by his
consultants while speaking slowly.

(9)   Modern Kayardild   S

PRECOND clause   main clause

utterance
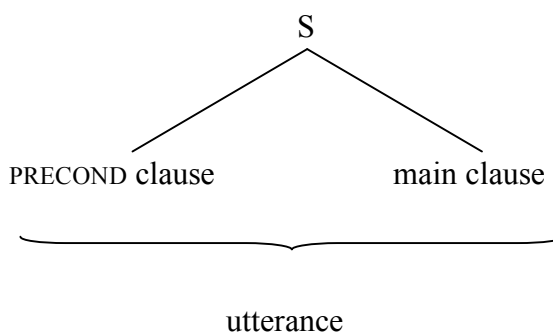
On the grounds of comparative evidence and semantic relatedness, both the verbal

and direct object inflections in past and precondition clauses in Kayardild are

reconstructed without doubt as having descended from the same proto Tangkic

endings, 'prior' /-arpa/ and 'ablative' /-kinapa/ ~ /-cinapa/ ~ /-inapa/ ~ /napa/

respectively. The question is, what can the divergent modern forms tell us about the

syntax of their ancestors at the point when they diverged?

We know that proto Southern Wellesley underwent a change of its rules of

utterance final truncation. We can reconstruct that these gave rise to new past tense

and modal ablative inflections as shown in Tables 3 and 4 (the modal ablative is

exemplified just for one allomorph /-kinapa/, but an equivalent process affected the

others).[14]

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[14] Tables 3 and 4 include the utterance final forms */-arp/ and */-kinap/ up until Stage

IV and then show them as being lost in Stage V. I include them because the past tense

and ablative suffixes still surface utterance finally as /-arp/ and /-kinap/ in Kayardild

song, even though those form–function pairings are now absent from the spoken

language.

Table 3.   Development of Kayardild /-ara/ 'past tense'

Stage	ω_M	ω_S (utterance internal)	ω_S (utterance final)
I	STEM-arpa	STEM-arpa	STEM-ar
II	STEM-arpa	STEM-arpa	i. STEM-arp
			ii. ! STEM-ar
III	i. STEM-arpa	STEM-arpa	STEM-arp
	ii. STEM-ara		STEM-ar
IV	i. STEM-arpa	STEM-arpa	STEM-arp
	ii. STEM-ara	STEM-ara	STEM-ar
V	STEM-ara	STEM-ara	STEM-ar

Table 4.   Development of Kayardild /-kinapa/ '(modal) ablative'

Stage	ω_M	ω_S (utterance internal)	ω_S (utterance final)
I	STEM-kinapa	STEM-kinapa	STEM-kina
II	STEM-kinapa	STEM-kinapa	i. STEM-kinap
			ii. ! STEM-kina
III	i. STEM-kinapa	STEM-kinapa	STEM-kinap
	ii. STEM-kina[#]		STEM-kina
IV	i. STEM-kinapa	STEM-kinapa	STEM-kinap
	ii. STEM-kina[#]	STEM-kina	STEM-kina
V	STEM-kina[#]	STEM-kina	STEM-kina

[#]The suffix /-kina/ is lexically specified in Kayardild as escaping utterance final /a/-truncation. This modern synchronic fact reflects the earlier, synchronic incongruity of the utterance final form /-kina/ in Stage II.

The phonological forms whose development is shown in Tables 3 and 4 originated in utterance final position and are now found in Kayardild past tense clauses; they are not found in precondition clauses. In precondition clauses one encounters the unchanged reflexes of the original suffixes /-arpa/ and /-kinapa/ ~ /-cinapa/ ~ /-inapa/ ~ /-napa/.

Given this evidence, I reconstruct that just as in modern Kayardild, precondition clauses in proto Southern Wellesley preceded main clauses, and past tense clauses were sentence final at the period corresponding to Stage II in Tables 3 and 4. Because of this sentential syntax, inflections in precondition clauses were rarely if ever utterance final and hence avoided the developments shown in Tables 3 and 4, even as inflections in past tense clauses were undergoing them. This historical syntactic result is obtained via reference to historical phonology.

6   The relative chronology of phonological and morphosyntactic change

This section rehearses an argument that the sound changes described in §5 occurred only after the shift in proto Southern Wellesley from an ergative–absolutive alignment to nominative–accusative alignment of core cases. Two lines of reasoning are presented, the second of which involves edge aligned reconstruction.

Evans (1996:423ff) provides a detailed reconstruction of clause types and case marking in proto Tangkic, and discusses their development in various daughter languages. Proto Tangkic main clauses were ergative–absolutive, but many subordinate clauses effectively had a nominative–accusative alignment. Both Northern Tangkic (Lardil) and Southern Wellesley (Kayardil, Yangkaal) became accusative predominantly through the coopting of subordinate clause types as new

main clauses. One such subordinate clause was the 'prior' clause of proto Tangkic, which proto Southern Wellesley coopted as its new past tense main clause.
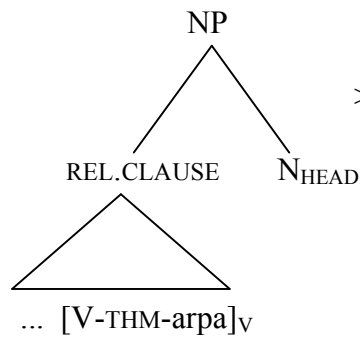
In §5 I reconstructed the variable development of the proto Tangkic prior suffix and ablative suffix in proto Southern Wellesley as being due to the existence of an association between the functions and distributions of precondition subordinate clauses and past tense main clauses, which, when phonological change occurred, became an association between function and form. That line of reasoning would be difficult to sustain if the two clause types had not yet diverged functionally.[15] Accordingly, it seems most reasonable to suppose that the two clause types had already diverged before the phonological change occurred, which in turn suggests that proto Southern Wellesley had already undergone the changes to clause structure which resulted in it becoming accusative. That is, the changes in §5 occurred after the shift to a nominative–accusative case system.

In the remainder of this section I offer a second reason to reconstruct this relative chronology of changes. Once again, this involves relating phonological change (or in this case, the absence of it) to syntax.
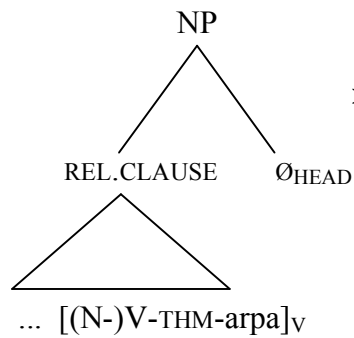
Modern Kayardild possesses a 'past nominaliser' suffix, cognate with the Tangkic prior suffix (and the Kayardild past tense and precondition suffixes). The past nominaliser suffix attaches to verb stems to derive a nominal word which typically denotes (i) an agent in a past event important in the life of the referent of an

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[15] The alternative scenario would be as follows: proto Southern Wellesley allowed prior subordinate clauses to stand either before or after main clauses. The phonological changes in §5 occurred, and the different forms of suffixes became associated with prior clauses in pre- versus post-main clause position. Only later did those positional variants diverge functionally.

incorporated nominal as in (10), or (ii) the place at which an event occurred, which

possibly involved an incorporated object, as in (11).

(10) a.   ŋicin-kiɲilu-ṯ-arpa   b.   niwan-taɻa-j-arpa

           1sg-deliver-THM-PSTN   3sg-circumcise-THM-PSTN

           'the one who delivered me'   'the one who circumcised him'

(11) maali-pati-j-arpa

      swamp.turtle-carry-THM-PSTN

      lit. 'the place where the swamp turtles were carried away'

One place name in Yukulta, cited by Keen (1983:193) also appears to be such a 'past

nominal'.

(12) kuḻṯaŋara-ṯija-c-arpa   'Flying fox waterhole (place name)'

      flying.fox-eat-THM-PRIOR

On the basis of this and other comparative morphosyntactic evidence, Evans

(1996:469–70) proposes that past nominals like those in (10)–(12) arose in proto

Southern Tangkic when the head noun was dropped from a noun phrase containing a

modifying, 'prior' relative clause whose verb was inflected with the prior suffix, (13).

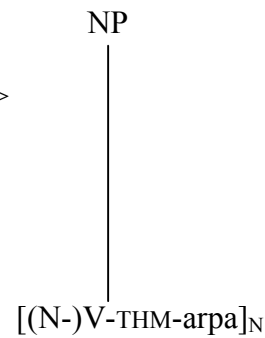(13)   Proto Tangkic   Proto Southern Tangkic

Let us consider this in light of the changes discussed in §5.

If past nominals existed in proto Southern Tangkic and they exist in Kayardild, then they also existed in proto Southern Wellesley. As full noun phrases they were free to appear sentence finally and thus utterance finally. Nevertheless, at the time when the proto Southern Wellesley past tense suffix (on verbs) and modal ablative suffix (on nouns) underwent changes due to their appearing in utterance final position (cf. §5), the past nominal suffix /-arpa/ (on nouns) did not change. (If it had changed, we would expect the change to have been the same as that in the past tense suffix, */-arpa/ > /-ara/). So, why did past nominal suffix not change? One possible answer lies in the relative chronology of the loss of ergativity in proto Southern Wellesley, for when proto Southern Wellesley underwent a shift from ergative to accusative alignment, there were concrete implications for the frequency with which a past nominal ending in /-arpa/ would have appeared in utterance final position, and hence have been exposed to phonological change.

During the ergative stage of proto Southern Tangkic, direct objects in indicative and imperative main clauses would have been in the absolutive case, marked only by augmentation, and in the case of a past nominal which underlyingly

ended in /-arpa/ augmentation has no effect: the word would end in /-arpa/.[16] Now, let us assume that word order in these kinds of main clauses was comparable with word order in the prior subordinate clauses which later became past tense main clauses: in that case, direct objects in each clause type would have been clause final, and utterance final with around the same frequency.[17] This suggests strongly that past nominals in the absolutive case ought to have changed from /-arpa/ > /-ara/, given that the (predecessor of) the past tense and the ablative suffix also changed. Conversely, the fact that the past nominal suffix did not change suggests that the phonological changes in §5 did not occur while proto Southern Tangkic was ergative.

During the accusative stage of proto Southern Tangkic, a past nominal word would end in /-arpa/ only in the nominative case, which was used to mark main clause subjects and imperative clause direct objects. In other cases, additional inflectional material would follow the string /-arpa/, preventing it from ever being utterance final. The key question now is, were utterance final nominatives (in later proto Southern Wellesley) less frequent than utterance final absolutives (in earlier proto Southern Wellesley)? If that turns out to be the case, then provided we assume that proto Southern Tangkic was already a nominative–accusative language when the changes in §5 occurred, we will have an explanation for why past nominal /-arpa/ failed to change to /-ara/.

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[16] Tangkic word final augmentation never has an effect on words ending /a/ which are trisyllabic or longer.

[17] If anything, direct objects in main clauses, especially in imperative clauses lacking overt subjects, would have appeared utterance finally MORE OFTEN than those in prior clauses. This only strengthens the argument offered here.

Since the ergative–absolutive case system in proto Southern Tangkic would have resembled modern Yukulta more than any other modern Tangkic language, I take a count based on the three Yukulta texts in Keen (1983). These yield ninety eight utterance-final words which are non-pronominal heads of noun phrases within indicative and imperative main clauses.[18] Of these, sixteen are absolutive-marked direct objects and intransitive subjects, but only six are (ergative or absolutive) subjects or imperative objects. That is, it seems reasonable to assume that the incidence of utterance final past nominals ending phonologically in /-arpa/ dropped significantly when proto Southern Wellesley became accusative. Accordingly, we gain the greatest explanation of modern synchronic facts by reconstructing proto Southern Wellesley as having become accusative before the changes in §5 took effect.

7   Modifier–head noun phrases and nominal predicate sentences in pre-proto Tangkic

In this section I turn to pre-proto Tangkic and reconstruct the word order modifier–head within the pre-proto Tangkic noun phrase and the order subject–predicate within the pre-proto Tangkic nominal predicate sentence. To do so, I will focus on two morphemes and the words which end in them. Both morphemes are reconstructed as originally ending in */NH/. They are the genitive suffix */-pakaraNH/ ~ */-wakaraNH/ ~ */-karaNH/, and the 'much' morpheme */muṭaNH/ which appears in modern Southern Tangkic as both a quantificational word stem /muṭa/ 'much, many'

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[18] I take Keen's line breaks and commas to indicate pauses, which demarcate the 'utterance' as defined in this chapter.

and a suffix /-muṭań/[19] 'characterised by a plentitude or excess of'. The modern

language evidence comes from Kayardild. The relevant historical phonological facts

are those of pre-proto Tangkic external sandhi (cf. §4), which deleted word final

*/NH/ from certain forms in utterance internal position, but not utterance finally.

In modern Kayardild, the nominative form of the genitive[20] is different,

depending on whether it appears as the predicate in a nominal predicate sentence as in

(14) with the structure (15), or as a modifier to a head noun in a noun phrase, as in

(16). In the former, the reflex of */NH/ appears, delaminalised to /n/ and augmented;

in the latter there is no trace of */NH/.

(14)   caṛa ṭaŋka-karant   'The track is from a human' (Evans 1996:152 ex 4-64)

         track.NOM person-GEN.NOM

(15)   S

         SUBJECT_NP   PREDICATE_NP
         ⎵‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾‾⎵
                     utterance
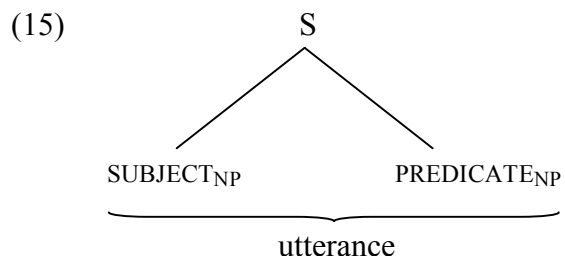
(16)   ṭapucu-kara maku   'elder brother's wife'

_____

[19] I use the symbol /ń/ to represent the 'palatalising n' morphophoneme (Evans
1996:126) which is the modern reflex of */NH/ (Round, in prep).

[20] In the case systems of all Tangkic languages, a word inflected in the genitive can be
further marked by other cases.

elder.bro-GEN.NOM wife.NOM

Turning to the 'much' morpheme, this can appear as a suffix as in (17), where the

nominal word ending in /-muṭant/ is the predicate in a nominal predicate sentence

with the same structure as (15), or as a quantificational word in itself, modifying a

head noun as in (18).

(17)   ŋata ka-muṭant   'I'm a chatterbox'

        I.NOM speech-EXCESS.NOM

(18)   muṭaa wuṟant   'much food'

        much.NOM food.NOM

In (17), a reflex of the */NH/ segment appears, delaminalised and augmented. It

should be said that nominals ending in /-muṭań/ need not function as predicate

nominals, rather they can also appear as head nouns in other types of NPs, or as

modifiers in NPs. However, in my corpus of spontaneous Kayardild speech, nominals

ending in /-muṭań/ occur in predicate nominal function more often than any in other

function, by a factor of ten to one (based on a corpus of 49 tokens).

        In (18), no reflex of */NH/ is present. (The word /muṭaa/ is the augmented

form of underlying /muṭa/). Within an NP the word /muṭaa/ need not always be a

modifier. It can stand as its own as the predicate in a nominal predicate sentence, but

a corpus examination shows that /muṭaa/ functions as a modifier on the order of ten

times more frequently than as a predicate NP (based on a sample of 100 tokens).

Now, in pre-proto Tangkic, words ending in */NH/ could surface sometimes

with final */NH/ (namely, in utterance final position), and sometimes without (in

utterance medial position). Using edge aligned reconstruction, we hypothesise that the

correlation between function and the presence or absence of a reflex of */NH/ in

modern Kayardild continues a similar correlation from pre-proto Tangkic. That is, in

pre-proto Tangkic, */NH/ was present in predicate nominals but absent from

modifiers in an NP. That is, we reconstruct that predicate nominals occurred utterance

finally, but modifiers in NPs did not. This can be explained if pre-proto Tangkic had

predicate nominal sentences with the same structure as in (15), and noun phrases with

the rigid word order modifier–head. Both of these results are significant: in a

linguistic area where word order is usually strikingly free, we reconstruct two

instances in pre-proto Tangkic in which word order was not free, but was tightly

constrained. These significant historical syntactic results are obtained via reference to

historical phonology.

8.   Conclusion

No method of reconstruction in historical linguistics is failsafe. There will always be

specific linguistic changes which are unexpected, and any method which relies on

what 'usually happens' will sometimes fail or lead us astray. Edge aligned

reconstruction is no different in this respect. Nevertheless, I hope to have shown that

edge aligned reconstruction does produce plausible results, and that its foundations

are well grounded enough and general enough to be applied cross-linguistically where

suitable evidence becomes available. Any new method which can shed more, or

different, light on the past is welcome, and to that extent I hope that edge aligned

reconstruction can find a useful place in the standard toolkit of the historical linguist.

References

Evans, Nicholas. 1992. *Kayardild dictionary and thesaurus*. Melbourne: University of
Melbourne Linguistics Department.

Evans, Nicholas. 1996. A *grammar of Kayardild: with historical-comparative notes
on Tangkic*. Berlin: Mouton de Gruyter.

Hale, Kenneth. 1960. Yangkal, Yukulta, Kayartilt field notes. Unpublished ms.,
Australian Institute of Aboriginal and Torres Strait Islander Studies Library,
Canberra.

Hale, Kenneth. 1967. Some Productive Rules in Lardil Mornington Island Syntax.
Papers in Australian Linguistics, No. 2, 63-73. Canberra: Pacific Linguistics,
A-11.

Hale, Kenneth. 1973. Deep-Surface Canonical Disparities in Relation to Analysis and
Change: an Australian Example. In Thomas A. Sebeok (ed.) *Current trends in
linguistics, vol. XI: Diachronic, areal and typological linguistics*, 401-58. The
Hague: Mouton de Gruyter.

Hayes, Bruce. 1989. The prosodic hierarchy in meter. In Paul Kiparsky & Gilbert
Youmans (eds) *Phonetics and Phonology Volume 1: Rhythm and Meter*, 201–
260. San Diego: Academic Press.

Keen, Sandra. 1973. A description of the Yukulta language: An Australian aboriginal
language of North-west Queensland. Melbourne: Monash University. MA
thesis.

Keen, Sandra. 1983. Yukulta. In Robert M. W. Dixon and Barry J. Blake (eds),
Handbook of Australian languages, vol. 3, 190-304. Amsterdam: Benjamins.

Klokeid, Terry J. 1976. Topics in Lardil grammar. Cambridge MA: MIT. Ph.D.
dissertation.

Klokeid, Terry J. 1978. Nominal inflection in Pama-Nyungan: a case study in
relational grammar. In Werner Abraham (ed.), *Valence, semantic case and
grammatical relations*, 577-615. Amsterdam: Benjamins.

McConvell, Patrick. 1981. How Lardil became accusative. *Lingua* 55:141–79.

Nespor, Marina and Irene Vogel. 1986. *Prosodic phonology*. Dordrecht: Foris.

Ngakulmungan Kangka Leman (compilers). 1997. *Lardil Dictionary*. Gununa,
Queensland: Mornington Shire Council.

Roth, W. E. 1897. Obarindi (Word List). Unpublished MS, in uncatalogued MS216,
Mitchell Library, Sydney.

Round, Erich R. in prep. The origins of Tangkic truncation, augmentation and
delaminalisation.

Round, Erich R. and Nicholas Evans. in prep. An etymological dictionary of Tangkic.

Selkirk, Elizabeth O. 1984. *Phonology and Syntax: The Relation between Sound and
Structure*. Cambridge, MA: MIT Press.

Tindale, Norman B. 1960. Janggal to English vocabulary, Forsyth Island, Queensland.
Unpublished ms., in item AA338/8/19 'Queensland Vocabularies 1960–63',
South Australia Museum, Adelaide.