

Left-edge tonal events in Kayardild (Australian) — a typological perspective

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Abstract

To date, most intonational typologies have been formulated on the basis of an analysis of a handful of the world's languages. In this study, intonational patterns were examined in an indigenous Australian language, Kayardild. This language appears to differ from other languages of the region in that intonation is not solely delimitative, and a wider variety of phrasal melodies are also observed, particularly at the left edge of intonational units. Moreover, the placement of certain intonational events gives rise to certain pragmatic or semantic nuances, suggesting that the intonational typology of the language is quite different from its geographical near-neighbours.

1. Introduction

The intonational systems of most non Indo-European languages have been poorly studied relative to languages like English, Swedish, German, and Dutch, for example. It is therefore not surprising that there is little published work on intonation of Australian Languages. Yet it is particularly important to examine the intonational systems of typologically varied languages in light of recent studies of intonational universals and intonational typology (e.g. [1], [2]) that include (through no fault of their own) few data from languages other than those whose intonation systems have been fully worked out. In recent years, there has been increased interest in documenting intonational phenomena in minority or endangered languages in Australia, as well as elsewhere [3].

In this paper we present preliminary findings from a study of intonation in an indigenous Australian language, Kayardild. Figure 1 shows a map of Australia indicating where Kayardild is spoken. Kayardild is a member of the Tangkic family (non-Pama-Nyungan), spoken in the South Wellesley Islands, southern Gulf of Carpentaria. Drastic language shift means that fewer than ten people now speak the language. It is not closely related to any of the other Australian languages on which recent intonational research has been conducted (e.g. Dyirbal and Warlpiri both belong to the Pama-Nyungan family, while Mayali and Dalabon belong to the Gunwinyguan family, only distantly related to Tangkic). Typologically, it is characterized by a number of highly unusual morphosyntactic features [4], all realized by multiple inflectional suffixes distributed over all words in their scope; there are no prefixes, and word order is relatively free. Grammatical information is thus concentrated at the right extremity of words.

Two aspects of intonational typology are taken into consideration in this study. First of all, we naturally assume that all languages have intonation and that it performs a grouping function at the very least. We assume therefore that all Australian languages, including

Kayardild, have intonational events that perform a clear demarcative or grouping function. Secondly, with respect to the role of pitch height, there is as yet no convincing evidence that any Australian language has lexical tone or lexically contrastive pitch accent. They are therefore more likely to be classified as intonation languages in the sense that there is a phrase-level contrast between intonation phrases that are concluded with a fall and phrases that have sustained high-level pitch, for example. This is certainly the case in the three main languages we have examined: Mayali (Bininj Gun-wok), Dalabon, and now Kayardild, the language under investigation in this paper.

Most Australian languages have also been analyzed as having lexical stress. For example, earlier analyses of Kayardild [4] suggest certain syllables in words are metrically more prominent than others, in other words it has lexical stress. Primary stress is assigned to the first syllable, with complex rules for assigning secondary stress to syllables that are long, penultimate, or initiate suffixes of two or more syllables. Consonants between adjacent stressed syllables tend to be non-phonemically lengthened. It is still not apparent, however, whether there is the same kind of relationship between the lexical stress system and higher levels of intonational and prosodic organization that you find in languages like English, for example. In English, the metrically strongest syllable of a word in focus is associated with an intonational target or pitch accent (according to commonly used terminology within Autosegmental Metrical theory [2]). The pitch accents may vary in tonal shape and alignment.

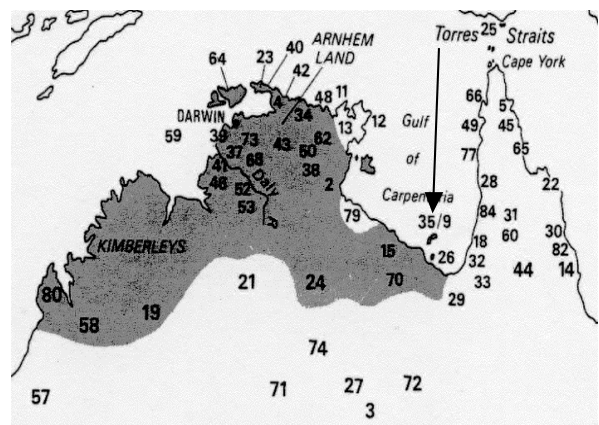


Figure 1: A map of Northern Australia showing where Kayardild is still spoken. The map also shows the location of other indigenous languages that are still spoken in Northern Australia.

There may also be a degree of typological variation among Australian languages. There is no reason to assume that they are all prosodically identical given the range of grammatical differences. On the other hand, one general feature of Australian languages is that they are morphologically complex and most have a range of particles, which perform focus-marking and question functions, for example. As a consequence, the range of tunes or melodies may be somewhat restricted compared to true intonation languages, like English or German. Information requests or questions are not necessarily associated with rising intonation at the right-phrase edge, for example [3]. Nor is it evident in the languages we have examined so far, that there is a wide variety of tune-types or tune-shapes that may serve to highlight a particular word in an intonational phrase to promote some kind of pragmatic interpretation. The most common phrasal melody is akin to the flat hat, i.e. a melody that consists of a rise on the first or second syllable, and a fall on the penultimate or final syllable of an intonational phrase. Gussenhoven [5] and Grice et al. [6] suggest that tonal events can perform a demarcative *and* phrasal-prominence function in languages. Bininj Gun-Wok (Mayali) is an Australian language where intonational events are primarily demarcative or delimitative, but there are nevertheless two kinds of tonal events, namely a right or left-edge tonal event that marks the absolute right or left edge of an intonational phrase, and an additional tone target that aligns either with the first or second syllable of an intonational phrase, and the penultimate syllable of the phrase ([3], [7]).

By contrast, our initial impressionistic analyses of Kayardild suggests that its intonational typology may be more like a true intonation language, with tonal events performing a pragmatic /focal-marking function in addition to a phrase-delimiting function. In particular, there appears to be a degree of variation in the kinds of melodies observed at the left edge of intonational units that we have not observed in other Australian languages. The aim of this study was to address the following specific questions:

¥ what kinds of left edge tones delimit an intonational phrase?

¥ what is the role of phrase-initial prominence-lending tones and left-phrase-edge delimitative or demarcative tones? In other words, are prominence-lending intonational events phonetically realised in and around certain syllables, i.e. metrically strong syllables?

¥ Do particular constructions/particles associate with particular melodies at the left edge?

We also wanted to confirm whether or not this language really does differ from the other languages we have examined so far, and place our findings within current frameworks of intonational typology.

2. Method and Materials

2.1. Corpus

Materials used as the basis for this study all come from naturalistic speech, recorded by the second author between 1982 and 1999 in the field. The corpus consists of three texts of between 3-5 minutes in duration. The speakers consist of one female (2 texts) and one male (1 text). The narratives were phonemically transcribed, translated and

glossed by the second author of this paper with the assistance of the speakers. The field recordings were then digitized at 22kHz using ESPS/Xwaves.

2.2. Word and prosodic labeling

A broad intonational categorization of the main tunes in the corpus was carried out using the F0 signal and auditory analysis. For example, intonational boundaries were identified where there was clear evidence of phrasal groupings and where it was possible to give a general description to the main tonal characteristics of the intonation contour associated with these groupings. While the analysis was primarily conducted within the framework of autosegmental-metrical analyses of intonation [2], as suggested in the previous section, we also thought it helpful to use more general British School of Intonation terminology in our initial summary of contour-types in the corpus. A table of tonal events was also drawn up and is described in the next section. Our starting point was to describe the main tonal shape of the different contours. For example, where intonational phrases began with clear rises, these were transcribed as LH (low, high) and where they concluded with falls, these were transcribed as HL (high, low).

As mentioned in the previous section, impressionistic analysis of Kayardild has also suggested that the left-edge of intonational groupings show a degree of tonal variation. This variation is tonal on the one hand in that different melodies are observed at the left edge. There is also variation depending on whether the initial part of the contour constitutes a head or a pre-head. With respect to the use of the latter terms, this depended on whether the second tone in the left-edge sequence was starred (e.g. H*) indicating that the first intonational peak was judged to be associated with a metrically strong syllable (i.e. stressed), or unstarred. Where part of the left edge tune consisted of a starred tone, this was classified as a head in this study. If it was unclear whether the syllable was stressed or not, the tone remained unstarred and this constituted a pre-head. The provisional tune inventory and tonal criteria are summarized in the following sections. We also examined the corpus for particular constructions or particles, which might be associated with distinctive melodies.

3. Results

3.1. General tonal inventory and major tune-types

A total of 408 intonational phrases were analyzed in this corpus. There were a large number of basic flat-hat contours with a LHHL tonal shape, i.e. with clear rises at the left edge of the intonational phrase, and clear falls at the right edge of the intonational phrase. There were also frequent cases of high tone-onset phrases resembling high plateaus with or without a final fall. Table 1 summarizes the main tonal categories and tonal events that were developed in this study, together with their general pitch description. We are assuming that all of the intonational tunes of Kayardild can be derived from combinations of these. The table details three broad categories of intonational events. The events with the % diacritic indicate left or right boundary tone marking the absolute edges of the intonation phrase. As mentioned earlier, events with or without the * diacritic indicate whether a tone was associated with a phonologically stressed syllable or not. Tones were either relatively high, H, or

low L, or relatively mid-level, !H. At this stage we are only using the ! diacritic to indicate that the H tone is scaled relatively lower than any preceding H tones. It does not imply phonological downstep and is not used in the same way as it is in models of English intonation, for example [2]. We have also provisionally included a bitonal accent L+H*, and we use an additional diacritic ^ to indicate when the H tone is realized in higher key than other H tone events in the same intonational phrase.

Table 1: Provisional tonal categories with general pitch description for Kayardild

Left-edge Tones		Tone targets in and around stressed syllables	
(Intonational Phrases)			
%L	low	L*	low
%H	high	H*	high
%H	lowered high/mid	^H*	expanded high
%	unmarked	L+H*	rising
	boundary	L+^H*	expanded rising
		!H*	lowered high/mid
Right-edge Tones			
L%	low	!H%	lowered high/mid
H%/^H%	high/expanded high	LH%	low rising
Additional Notation			
L	low IP-internal target	>	early target
H	high IP-internal target	<	late target

Figure 2 illustrates one of the tunes of interest in this study. The first intonational phrase starts with a high head. The general tonal shape is HHHL with the first tone showing a relatively high phrase onset (e.g. %H) and the second tone of the phrase being associated with the first lexically stressed syllable of the phrase (e.g. H*). There were 60 examples of this type of high onset contour across the corpus. The second phrase in Figure 2 shows a variant of the LHHL (flat hat) pattern. There were 191 instances of this pattern, making it the most frequent tune.

Figure 3 shows an example of what we term the low head pattern, a variant on the pattern observed at the start of the second intonational phrase in Figure 2. The difference between the two general low/high sequences lies in the sustained period of low pitch at the beginning of the phrase in Figure 3. We ascribe this sustained low stretch to the presence of a low pitch target associated with the first syllable of the particle *maraka*, whereas in the second phrase in Figure 2 there is no evidence of a sustained low tone. The general tonal description of the low head is LLH versus LH. We have transcribed these two respective left edge melodies as %L L*H* and %L H*. Figure 4, by contrast, shows an example of a low pre-head, with the period of low rising pitch, also transcribed LLH, but with the second L being part of a rising tonal combination associated with the second word of the phrase, /dulka/ earth. This was a more common pattern than the one observed in Figure 3, with 38 instances compared to 23.

Conversely, there were several cases of what looked like early phrasal prominence followed by long stretches of low pitch material which looked very much like the long tails that are sometimes observed in languages like English. These patterns are not found in other northern Australian languages like Bininj Gun-wok or Dalabon [7], [8]. There were 48 examples of long tails in intonation

phrases, which had a general tonal shape of LHHL. The H target was usually always associated with a stressed syllable and was followed by a sharp fall and then a sustained period of low pitch until the end of the phrase.

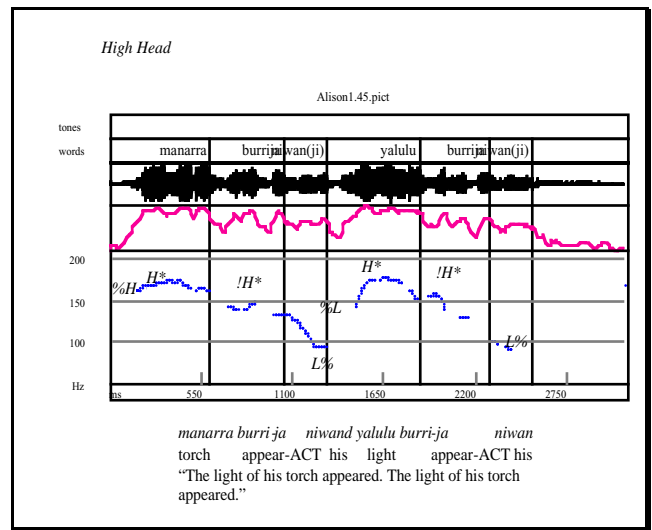


Figure 2.: An example of a high head from the corpus, produced by a female speaker.

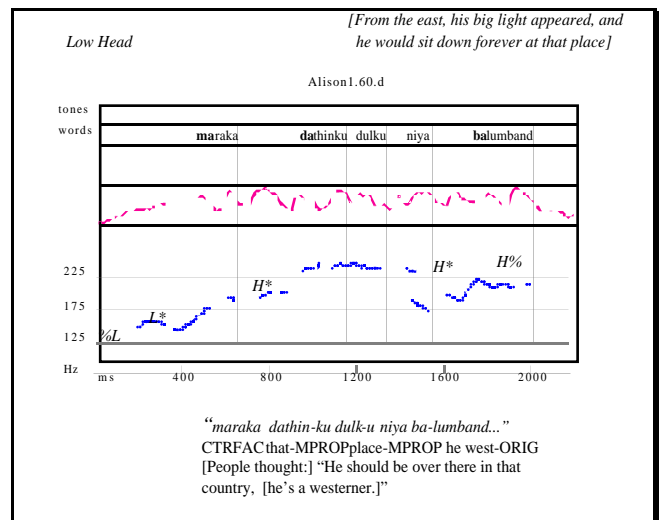


Figure 3: An example of a low head LLH sequence at the left edge of an intonational phrase, produced by the same speaker as illustrated in Figure 2.

3.2. Tune and the semantics of *maraka* and *nginja*

In this section we examine the interaction of the LLH left-edge tonal contours with two important Kayardild particles, *maraka* and *nginja*. The particle *maraka* expresses a range of meanings depending on its grammatical context. In combination with the verbal potential inflection plus modal proprietary, it spells out a course of action that should have been taken, and was not, and it is glossed CTRFCT for counterfactual. The utterance in Figure 3 shows an example of this particle. The utterance means: [People thought] He should be over

there in that country, [he s a westerner] . In combination with a noun or NP, by contrast, it has the semblative meaning like, as if,. Figure 4 shows an example of this particular construction. The syntax - and apparently, the tune - of this is distinctive, and comparable for both these two uses: the particle comes early in the clause (first or second position), the clause begins at a low pitch (%L), *maraka* may be unaccented or may bear a L* accent itself, and the word (usually a verb) that is in focus, as spelling out what should have been done, occurs late in the clause with an associated H* or L+H* bitonal accent. We would not necessarily claim at this stage that this rising melody is a single gestalt, but would suggest that it can be analyzed as the combination of a low tone on the particle

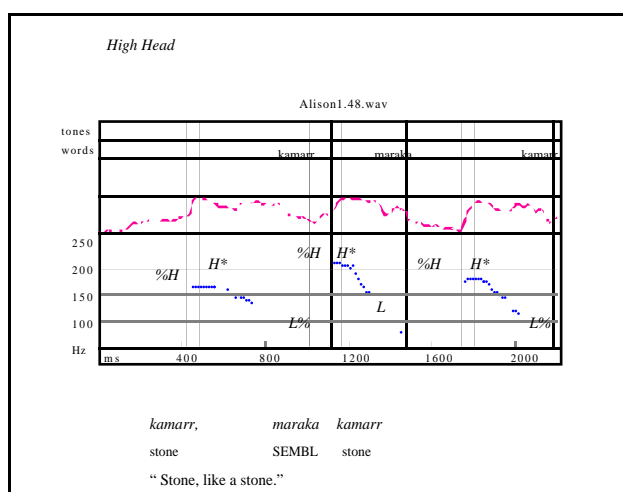


Figure 4: An example of the Semblative function of the particle *maraka*, produced with falling intonation.

and a high tone, which goes onto the in-focus element. We suggest that this fits into more general principles of associating high tones in Kayardild with new information, for example, which is not that unusual in many languages.. The use of phrase-internal pitch targets in this way suggests that intonation in this language does not perform solely an edge-marking function, but may use pitch targets to highlight particular lexical items, as in many other intonation languages.

The other particle of interest *Nginja*, means counter to expectations, and marks the clause it occurs in as unexpected or contrary to social norms. It is regularly realized in our corpus with an H tone target realized in expanded range, which may or may not be located at the left-edge of a phrase, contrary to *maraka* when used as a counterfactual. It serves to emphasize or highlight the counterexpectational meaning of *nginja*. Once again, the most likely reason for this relates to the focus-marking function of certain tonal events in Kayardild. This use of expanded range of the phrase-internal pitch target was noted relatively often in the corpus with a range of lexical items, and not just this particle.

4. Discussion

Kayardild is a language that appears to use intonational

events to demarcate the edges of units, but also uses phrase-internal pitch targets to bring certain items within an intonational unit into focus. This makes the language quite different from other Northern Australian languages described so far. In this paper we have concentrated on the role of left-edge phrasal tones and their relationship with a phrase internal pitch target, although we also have noted examples of early phrasal-prominences followed by a long low pitch tail. Intonational phrases may begin with a period of low pitch before the first high pitch target of the phrase. There are two variants of this pattern: one which is attributable to a low pre-head (i.e. %L H*) where the rise is slow to get going and reaches its peak on the third or fourth syllable of the phrase, and a low head, where the low stretch is sustained due the presence of a pitch accent-like L tone target (i.e. %L L* H*). Intonation phrases with high pitch onsets are also relatively common, but so far we have found no evidence of the same kind of variation that was observed among the low -pitch onset phrases.

Kayardild is a free word order language (like Russian, for example), yet shows a degree of intonational variation early in an intonational phrase that one would expect in a true intonation language like English or German. Typologies that combine the several dimensions of intonational organization (e.g. head-marking versus edge-marking, or combined head-and-edge-marking functions; stress accent versus non-stress accent, and of the degree to which intonational choices can signal such pragmatic dimensions as new versus given information), with various dimensions of morphosyntactic organization (free versus fixed word order, head- versus dependent marking and so forth), clearly require us to examine a large number of cells in the typological possibility space before we can make substantive claims about correlations between these levels of grammatical organization. The Kayardild data presented here show the importance of little-documented languages in testing whether certain of these logical possibilities are in fact found in natural languages. They also show that the intonational typology of Australian languages is far from uniform.

5. References

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