Intonation in Australian languages

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Overview

- Intonational characteristics of a group of Australian indigenous languages (mainly Northern Australian languages)

Nita, Nancy, and Ruth, Goulburn Island, NT
Why is it useful to know about intonation in Australian languages?

• Many descriptions of intonation are based on handful of well-studied languages – English, German, Japanese etc.
• Need to understand less-well described languages to test and refine our understanding of how intonation works across a range of languages
• Before 1788
  – 200-250 distinct languages
• Present day
  – 70 languages
  – fewer than 10 have > 1,000 speakers
  – most have < 50 speakers
  – 20 languages or less being transmitted to next
generation
  – Kriol, a “mixed language”, is often spoken
  – Speakers are often multi-lingual
• 2006 Census:
  – 455,000 Australians identified as indigenous
  – 47,000 Australians (12% of the indigenous population) claimed to speak an Aboriginal language
Dalabon is almost gone.

Bininj Gun-wok (Kunwinjku variety) is healthy.

Mawng is still being acquired.

Iwaidja is declining...

(map courtesy of A. Butcher, Flinders University)
Here are some examples

Dalabon, Eastern Arnhem Land

Bininj Gun-wok (Kundedjnjenghmi variety), Eastern Arnhem Land

Mawng, Goulburn Island
What does intonation contribute to spoken communication?

- Sentence Modality e.g. question versus statement
- Phrasing, discourse segmentation – “chunking” for ease of processing
- Grammar of Focus marking; pragmatics – “what information is highlighted by intonation?”
- Speaker attitude, emotion, etc.
• *Tone Target Model* – intonation patterns are broken down into *sequences of tones*, L (low) H (high)

• *pitch accents, phrase & boundary tones* – these define the *intonational phrase* in English and German
• Words can be accented or unaccented in an intonational phrase
• An extra PITCH movement or TONE TARGET makes one word stand out from surrounding words
• PITCH ACCENTS
• **Pitch accents** – a tone or tone sequence or pitch shape aligning with primary stressed syllable of words in English or German \( T^* \) = accent

• Different pitch shapes occur on primary stressed syllables of accented words to make them stand out from surrounding words

  • \( H^* \) (high) \( L^* \) (low)
  • \( L+H^* \) (rising) \( L^*+H \) (“delayed rising or scooped”)
  • \( H^*+L \) \( H+L^* \) (“late falling”, “early falling”)
An example from an Australian Language

Kunwinjku (BGW)

Pitch Accent

Pitch Accent

*Ku-warrde bo-yoy* “Water lay in the cave”
• **Intonation phrase** – the part of an utterance over which a particular intonation pattern extends (may be one or more in an English or German sentence)

• Largest intonational constituent

• **BOUNDARY** tone defines the right EDGE of Intonational Phrase

• Usually marked with %  e.g. L% H%
• Intermediate phrase
• smaller intonational constituent usually marked with - e.g L- H-
• PHRASE tone defines EDGE of Intermediate phrase
• German, English combine two tones to mark Intonational Phrase boundaries e.g. L-L%, H-H%, L-H%
\( H \ L \) (Relatively) High or Low tone target relative to pitch range for that intonational phrase

* after the tone target denotes a \( H^* \) or \( L^* \) pitch accent, \(+H\) or \( L^+ \) either side of the * tone target indicates a BITONAL accent

- after the tone target denotes a \( H^- \) or \( L^- \) phrase accent or phrase tone, describes the pitch after the nuclear pitch accent (the last accent in a phrase)

\( % \) after the tone target denotes a \( H\% \) or \( L\% \) boundary tone; marks the final phonetic value of an intonational phrase as relatively High or Low
An example from an Australian Language

**Kunwinjku (BGW)**

<table>
<thead>
<tr>
<th>Tones</th>
<th>L+H*</th>
<th>!H*</th>
<th>L%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Words</td>
<td>ku-warnde</td>
<td>bo-yoy</td>
<td></td>
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</table>

*Ku-warrde bo-yoy “Water lay in the cave”*
Do all intonation languages have pitch accents?

- No, some only have phrase tones or boundary tones that mark the edges of chunks of speech and no pitch accents.
1. Does a language have lexical stress, tone/lexical pitch accent, both, or neither at the word level?

WORD

2. Is Sentence level prosodic prominence marked at the HEAD of the phrase?
   • Is it marked at the EDGE of the phrase?
   • Is it marked both at the EDGE/HEAD?

PHRASE
1. **Head-marking** prosody, e.g. English, German, Dutch

2. **Edge-marking prosody** e.g. French, Korean

3. **Head & Edge** marking prosody e.g. Japanese
English (and German)

Pitch accents, Phrase and Boundary TONES

Korean Phrase/ Boundary TONES

Japanese?

Three languages – Informational focus

from Ueyama & Jun 1998

English

(declarative: $H^* \rightarrow L \rightarrow L^\%$)

( interrogative: $L^* \rightarrow H \rightarrow H^\%$)

I DON'T like horror movies.

Do YOU like horror movies?

Korean

(declarative)

(complete dephrasing)

b. Korean

( interrogative)

(complete dephrasing)

c. Japanese

(declarative)

(strong trend for dephrasing)

( interrogative)

(strong trend for dephrasing)

from Ueyama & Jun 1998
What are we trying to find out?

• Challenge 1: What are the characteristic intonational “tunes” or melodies of Australian languages?

• Challenge 2: What is the intonational typology of Australian languages relative to other languages of the world?

• Are Australian languages Head-marking, Edge-marking, or Head- and Edge- marking?

• Challenge 3: What functions do tunes have in Australian languages?
• Typical and (atypical) tunes of Australian languages
Falling tunes

**Kundjedjedmi (BGW)**

<table>
<thead>
<tr>
<th>Tones</th>
<th>H*</th>
<th>L+H*</th>
<th>L%</th>
<th>H*</th>
<th>H*</th>
<th>L%</th>
<th>L+H*</th>
<th>&lt;</th>
<th>L%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Words</td>
<td>ngale</td>
<td>ngurrurdu</td>
<td>djang</td>
<td>ka-yo</td>
<td>djang-kurrme-rr-inj</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
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</table>

**Kunwinjku (BGW)**

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<td>Words</td>
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</table>

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**Ngale ngurrurdu djang ka-yo djang-kurrme-rr-inj**

“That emu of ours is a dreaming, she put herself in the landscape as a dreaming”

**Ku-warrde bo-yoy “Water lay in the cave”**
Rising & high level (non-falling) tunes

**Dalabon**

"(we make a windbreak), over there"

**Kuninjku**

"They went along……"

**Dalabon**

"(he made a spear), he made a hook spear”

"Stylized” high sustained contour – story telling

Also, Kayardild (Round 2010), Iwaidja (Birch 2002)
• Not as much variation in tune types that we see in languages like English or German
• High falling, High/Mid Level are the major tunes
• Fewer tone target categories
<table>
<thead>
<tr>
<th>Pitch accents</th>
<th>Left-edge boundary tones</th>
<th>Right-edge boundary tones</th>
<th>Right edge Intermediate/ Accentual phrase tones</th>
</tr>
</thead>
<tbody>
<tr>
<td>$H^*$</td>
<td></td>
<td>$L%$</td>
<td>$(Lp)$</td>
</tr>
<tr>
<td>$!H^*$</td>
<td></td>
<td>$H%$</td>
<td>$(Hp)$</td>
</tr>
<tr>
<td>$^H^*$</td>
<td></td>
<td>$LH%$</td>
<td></td>
</tr>
<tr>
<td>$L+H^*$</td>
<td></td>
<td>$^H%$</td>
<td></td>
</tr>
</tbody>
</table>

90%

2 basic pitch accent shapes
$H^* L+H^*$

Boundaries
$H\%$ or $L\%$
$Hp$ or $Lp$

e.g. English Pitch accents $H^* L^* L+H^* L^*$
$+H H+!H^* H^*+L, H+L^*$

German Pitch accents
$H^* L^* L^*+H H^*+L, L+H^* H+L^*$
Intonational Phrase

Pitch accent
$H^*, L+H^*$

Boundary tone
$L\%, LH\%, H\%$

Intermediate ("Accentual") Phrase

Pitch accent
$H^*, L+H^*$

Phrase tone
$L_p, H_p$
What kind of typology?

• Are they Head-marking?
• Edge-marking?
• Head/Edge-marking?
• **Pitch accents** - first or second syllable of the word in a phrase, often on the stem morpheme, also some prefixes, “stressed” syllable…

• Penultimate or final syllable of a phrase-final word

Fletcher & Evans 2002, Bishop 2003, Fletcher 2014
Boundary Tones and pitch range modification

- **Boundary tones** mark the right edge together with pitch accents
- Prevalence of “Hat pattern” in many languages

Kundjedjedmi (BGW)

```
Words: ngale ngurrudu djang ka-yo djkoper nj

Pitch range
Downstep！
Final Lowering
Pitch range reset
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“That emu of ours is a dreaming, she put herself in the landscape as a dreaming”
• **Intonational Phrases** often align with a single grammatical word made up of many morphemes (mildly – highly polysynthetic languages)

• words can be up to 12 morphemes long in Bininj Gun-wok!!

• Broken into smaller prosodic constituents
Dalabon – multi-verb Intonational Phrase

<table>
<thead>
<tr>
<th>Tones</th>
<th>H*</th>
<th>L+H°</th>
<th>Ha</th>
<th>H°</th>
<th>H*</th>
<th>L+H*</th>
<th>Final Lo</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nords</td>
<td>ka-lng</td>
<td>-yurd-mi-nj</td>
<td>bulu</td>
<td>kah-yelûng</td>
<td>-berrû-</td>
<td>bawo-ng</td>
<td></td>
</tr>
<tr>
<td>Break</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

3SG-SEQ-run-PP 3SG-R-SEQ-many-leave-PP

'He ran away then and left them all.'

(Fletcher 2014, Ross 2011)
What kind of typology?

- Head-marking
- Edge-marking
- Head/Edge-marking

Why?

You can't just accent any word in a phrase, unlike English.

Accents can shift 1-2 syllables into an IP, e.g. possible to have initial unaccented stretch of 2-3 syllables, but pitch accents stay relatively close to edges; certain morphemes attract accents.
What does intonation do?

• Tune and sentence modality

• Is there question versus statement intonation?

• Statements tend to either have falling intonation or mid-level, dipping intonation (for continuation)
Questions – expanded pitch range of first word

Pitch compression & strong pitch downdrift on rest of sentence but no loss of auditory prominence on final word for example

“Who is the one that she sent first?”
• Question word is often first in the utterance (not unusual in the world’s languages!)

• Location of the highest pitch peak, pitch downdrift or compression through rest of the phrase

• Similar pattern is realised without question word
• Are there ever question rises?

• Yes, in Warlpiri, Ngalagkan, Murrinh-patha

• People don’t ask a lot of yes/no questions!!

• Rising intonation is not so prevalent

• Possibly leads to intercultural communication problems…..
• How do Australian languages use intonation to highlight important information in connected speech?
Two general intonation strategies – information structure

• New/salient information: pitch accents on some kind of constituent
• Local pitch range or register reset at the beginning of intonational phrases
• Suspension of global pitch downtrends
• Modification of prosodic structure can give insights on the nature of prosodic typology
An example of “contrastive” focus in English

(in response to “Do you have a galah open cut mine?”)

• (No I’ve gotta DINGO open cut mine).

• Early nuclear accent – DINGO vs GALAH open cut mine “contrastive focus”

• Long unaccented stretch of speech after nuclear accent
• Australian - ‘free word order’

• Putting a word into initial position - focus (or discourse prominence) in a large number of Australian languages (Baker and Mushin 2008)
Focus in Australian Languages

- **Rising pitch accent shape** L+H* anchored to the focused word or very high H*

- **Intonational phrasing** – focused element is also often realized as its own intonational phrase

- **Pitch range expansion** on the focused word

- **No de-accenting of following material** - pitch accents remain but overall pitch range after the highlighted element is reduced, compressed
Fronted target word (object) realised with expanded pitch range “contrastive focus”

Separate Intonational Phrase

Verb - compressed pitch range but pitch accents remain – separate Intonational phrase

(We don’t call it puffer fish)

**Narut** arri-warnangajpu-n
“Our call it Sturgeon fish”
What if you want to highlight the final word?

**Question:** *Kurlingka Maria k-ing-atpi-ø rabbit or karlarrk?* Does Maria have a rabbit or a cat?

**Answer:** *Makiny, Maria k-ing-atpi-ø rabbit.* (see pitch trace above) No, Maria has a rabbit.
(Question: Is the woman hitting the man?)
Answer: Jita warrumpik kamanga-w-un warlk
The woman is hitting the tree.
Fewer “tones” i.e. fewer intonational pitch accent shapes compared to Germanic languages, e.g. German, Dutch, English; fewer complex intonational contours

Importance of intonational phrasing and pitch range manipulation to signal a range of “traditional” functions associated with intonation
• Our language consultants
• Nick Evans, Ruth Singer, Marija Tabain, Andy Butcher, Debbie Loakes, Hywel Stoakes, Simone Graetzer, Anna Parsons
• Australian Research Council and University of Melbourne
• Bishop, J. 2003. Aspects of prosody and intonation in Bininj Gun-wok. PhD thesis (available online through the University of Melbourne e-prints repository)


References & Bibliography


• Simard, Candide (2010). *The Prosodic Contours of Jaminjung, a Language of Northern Australia.* Manchester: University of Manchester PhD.