Tone in Gadsup Noun Phrases
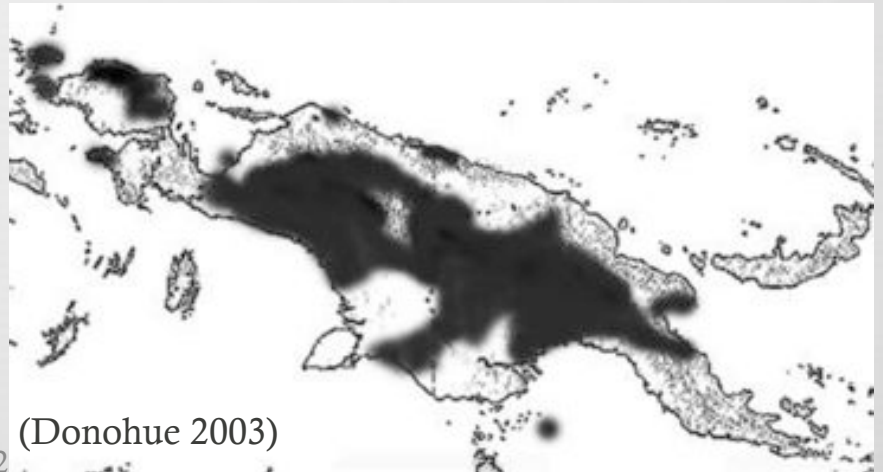
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SIL PNG

Introduction

✧ What is tone?

  ✧ 'A language with tone is one in which an indication of pitch enters into the lexical realization of at least some morphemes.' (Yip 2002:4)

✧ How common is tone?

  ✧ 60-70% of the world's languages (Yip 2002)

  ✧ Extremely common in PNG (Donohue 2003)

(Donohue 2003)

Introduction

- Tone is often analysed using Autosegmental Theory (Goldsmith 1976)
  - Tones float "above" segments on a separate tier
  - Tones associate to "tone bearing units" (TBU) in a 1-to-1 fashion
  - TBU is either the syllable or the mora
  - Directionality is a parameter (L-to-R or R-to-L), though this is debated (Zoll 2003)

Introduction

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- Contour tones:
  - Contours are often analysable as combinations of level tones (Duanmu 1994)
  - A level tone is one for which a level pitch is an acceptable variant (Maddieson 1978)
  - Contours are more common in heavy syllables and at prosodic boundaries (Zhang 2001)

- 'One doesn't hear tones, one hears pitches!' (Donohue; Hyman 2010)

Tone in PNG

❧

- Surveys of tone in PNG: **Donohue 1997**, **Cahill 2011**

- **Syllable tone**
  - Rare in PNG, with only a few indisputable cases
  - Every syllable can be assigned a tone (e.g. H, L)
  - The logical possibility of tonal complexity rises with the increase in syllable count
  - Chuave (Donohue 1997), Iau (Edmondson 1992), Weri (Boxwell & Boxwell 1966), **Gadsup** (Frantz & Frantz 1973, Cahill 2011)

Tone in PNG

- **"Pitch-Accent"** (i.e. Restricted tone system)
    - Found in somewhat random parts of the country, generally bordering an area with word tone (Donohue 2005)
    - These systems are analysed in disparate fashions according to theoretical underpinnings
    - A restricted set of tonemes (e.g. privative H vs. ø) which are associated to words by lexical accent or general stress placement rules
    - Kamoro (Donohue 1997), Marind (Donohue 1997)

Tone in PNG

Word tone

- Most common in PNG, especially across Trans-New Guinea

- Each word is assigned one from a set of underlying tonal melodies (e.g. L, H, LH, HL, LHL)

- The melody then spreads out or contracts to encompass all the syllables, including any affixes

- Some languages have words with lexical accents as well

- Barupu (Corris 2005), Fore (Scott 1990), Kairi (Newman & Petterson 1989), Mian (Fedden 2012), Siane (James 1994), Skou (Donohue 2003)

Gadsup

- Language family
  - TNG, Kainantu-Goroka
- Location
  - EHP, Kainantu district
- Population: 22000 +
- Scope
  - Analysis based on recordings of only one man, Timmy Kea (from Anamunampa village)
  - Aseranka dialect

- Previous analysis
  - Frantz & Frantz 1973, Cahill 2011
  - 4 tonemes: H, L, F, R
  - Three long vowels
    - /a/, /e/, /o/
  - Three short vowels
    - /a/, /i/, /u/
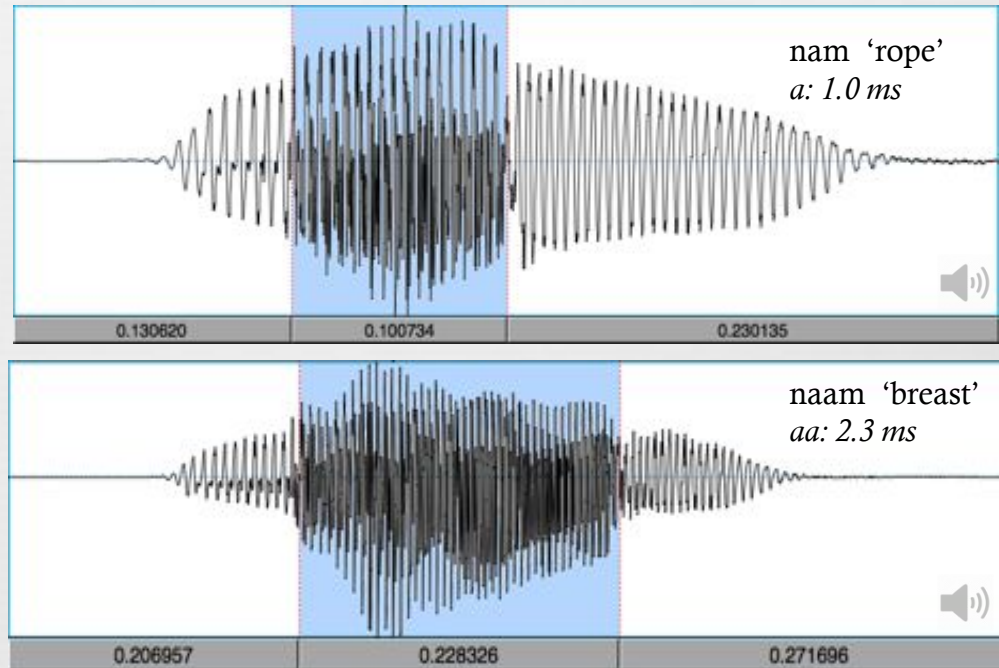 - 91% of contours occur on the ultima
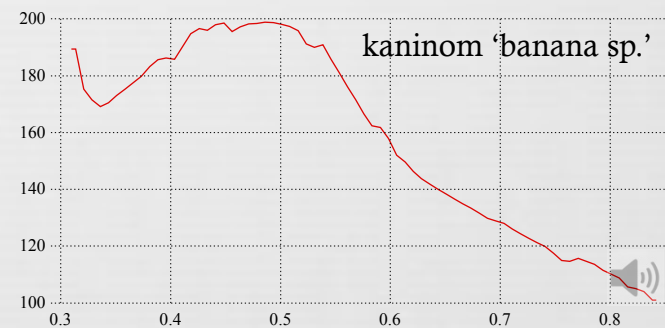
Phonetics

Phonetics

- Vowel length

- Pitch delay

- Declination

- Tone contrast

- Pitch heights

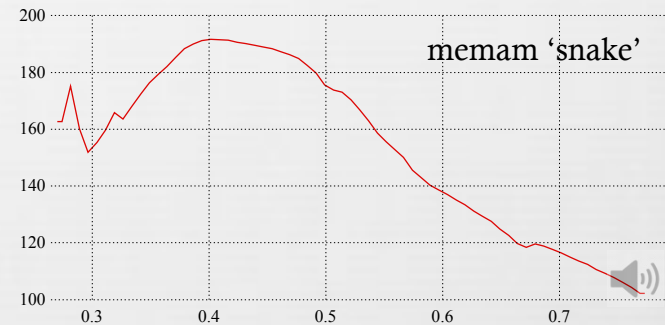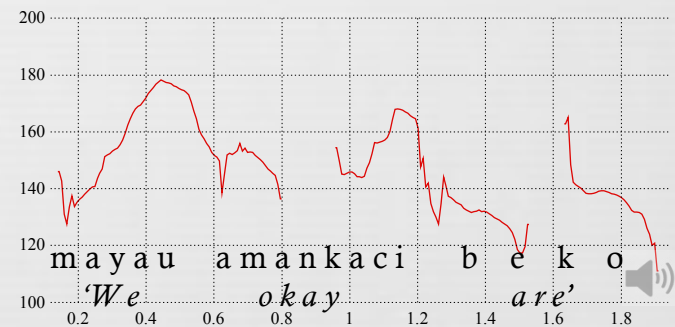- Falling low pitch

- Context

Phonetics

Vowel length

Pitch delay

Declination

Tone contrast

Pitch heights

Falling low pitch

Context

nam 'rope'
a: 1.0 ms

0.130620   0.100734   0.230135

naam 'breast'
aa: 2.3 ms

0.206957   0.228326   0.271696

Phonetics

- Vowel length

- **Pitch delay**

- Declination

- Tone contrast

- Pitch heights

- Falling low pitch

- Context

memam 'snake'

kaninom 'banana sp.'

Phonetics

- Vowel length
- Pitch delay
- **Declination**
- Tone contrast
- Pitch heights
- Falling low pitch
- Context

memanuc 'snakes'

m a y a u   a m a n k a c i   b e k o
'We   okay   are'
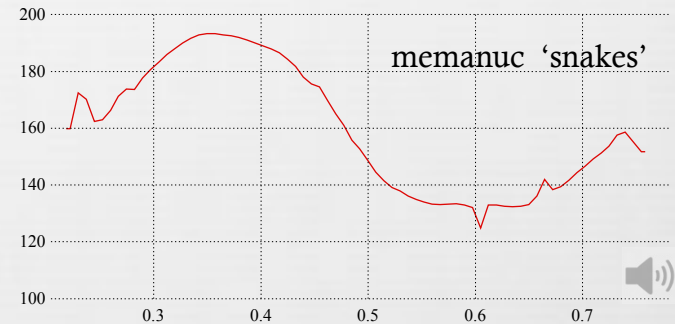
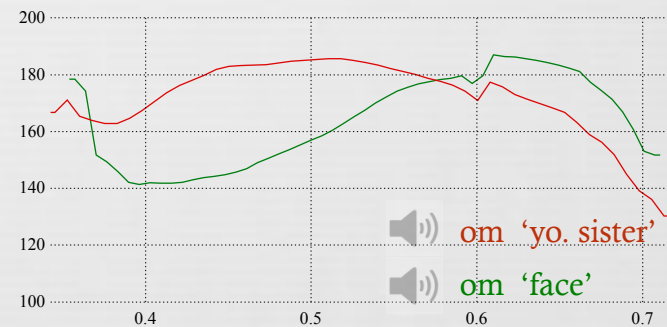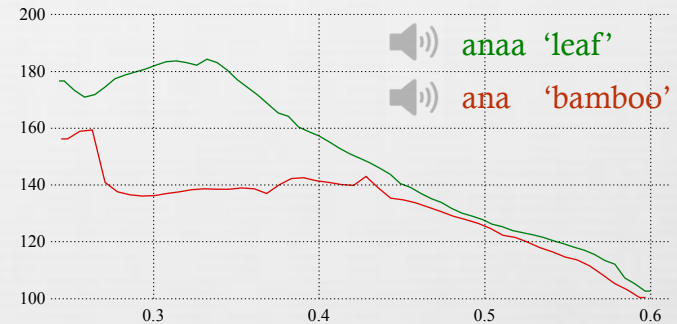*c*   glottal stop

Phonetics

- Vowel length
- Pitch delay
- Declination
- **Tone contrast**
- Pitch heights
- Falling low pitch
- Context

anaa 'leaf'
ana 'bamboo'

om 'yo. sister'
om 'face'

Phonetics

- Vowel length
- Pitch delay
- Declination
- Tone contrast
- **Pitch heights**
- Falling low pitch
- Context

Word	Gloss	Frequency	Chao
uc	'jungle'	180→200	5
orem	'tree kangaroo sp.'	170	44
fom	'pig'	150	3
faanem	'flying fox'	140→130	21

Phonetics

- Vowel length
- Pitch delay
- Declination
- Tone contrast
- Pitch heights
- **Falling low pitch**
- Context

kasic 'black'
kase 'parrot sp.'

navi 'coconut'
yaan 'tree'
iroo 'bandicoot'
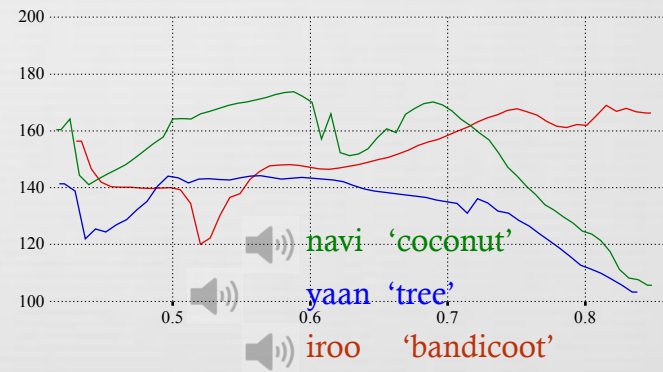
Phonetics

- Vowel length
- Pitch delay
- Declination
- Contour tones
- Pitch heights
- Falling low pitch
- **Context**
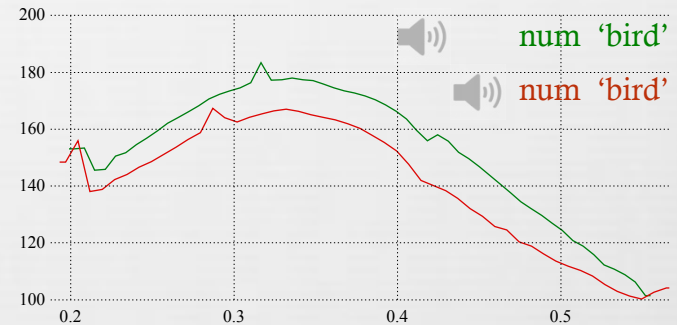
Nouns (monomorphemic)

❧ Plateaus occur at the left edge; contours at the right edge

🔊 sàfùràá   🔊 kánínòm   🔊 ìsàyàác

'tree kangaroo sp.'   'banana sp.'   'snake sp.'

     ❧ **The melody spreads right-to-left**
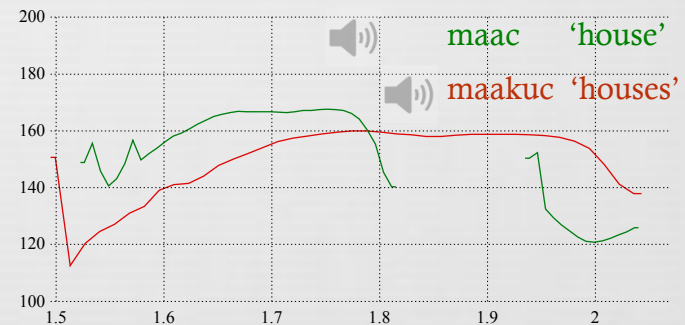
❧ Long vowels attract contour tones; no concave or convex contours allowed

🔊 ìyàác   🔊 òòbá   🔊 yùnáàm

'long'   'yam'   'food'

     ❧ **The TBU is the (vocalic) mora; nasals are non-moraic**

Nouns (monomorphemic)

- The non-high vowels (a, e, o) may be long or short; the high vowels (i, u) are always short, never taking contour tones

- Codas do not effect tone; stops only prevent phonetic falls

- The available patterns match expectations:
  - 1μ: ìm (L), úc (H)
  - 2μ: yààn (L), órém (H), bàî (LH), máà (HL)
  - 3μ: fàànèm (L), náándúm (H), ìyàá (LH), fĭndóòm (HL), yùnáàm (LHL)
  - 4μ: yààyùfâm (L), ánáánó (H), ànààyó (LH), kánínóòm (HL), ààfáyù (LHL)

Nouns (polymorphemic)

❧ The plural suffix and the phrasal marker surface as either H or L, almost always opposite of the final tone of the noun's melody; **tonal dissimilation**

🔊 órén<u>ùc</u>   🔊 fààèn<u>úc</u>   🔊 nòm<u>í</u>   🔊 máác<u>ǐ</u>

'tree kangaroos'   'flying foxes'   'water'   'house'

❧ Case suffixes surface as either H or L, though seemingly unrelated to the final tone of the noun's melody

🔊 ànù<u>fàc</u>   🔊 úc<u>pác</u>   🔊 sàfùrà<u>námmác</u>   🔊 àctàyà<u>nàmmàc</u>

'to the mountain'   'to the jungle'   'with the cuscus'   'with grass'

Nouns (polymorphemic)

❧ When the phrasal marker follows a case suffix, it is always H

🔊 ànù**fàcí**   🔊 káárì**kímí**   🔊 màkù**fácí**   🔊 hámàà**fóní**
'to the mountain'   'in the car'   'to the village'   'with the hammer'

❧ When a case suffix follows the plural suffix, the case suffix is always L

nùn**úcnàmmàcí**   máák**ùcnàmmàcí**
'with the birds'   'with the houses'

❧ Possessive prefixes surface as either H or L depending on the noun's tonal melody

🔊 **á**bàm   🔊 sèn = **tí**bàm   🔊 **à**nààfú   🔊 sèn = **tì**nààfú
'his mouth'   'my mouth'   'his grandparent'   'my grandparent'
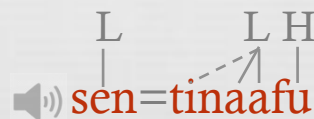
Nouns (polymorphemic)

- What do we know so far?
  - Floating tones dock onto monomorphemic nouns only if their final vowel is phonemically long, and no other tone has filled the mora

    L H   L H L   H L H
    🔊 safuraa   🔊 abaa   🔊 maa

  - Case suffixes have underlying L tone, but this is replaced by a noun's floating tone

    L H L   L H L   H L H L
    nun**ucnammac**   🔊 safuraa**nammac**   maa**nammac**

  - Tonal melody spreads onto possessive prefix

    H L   L   L H
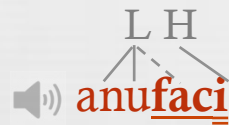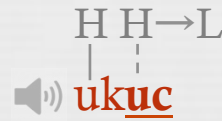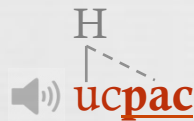   🔊 abam   🔊 sen=tinaafu

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Nouns (polymorphemic)

❧ What do we know so far?

  ❧ The plural *uc* suffix and the phrasal *i* marker are underlyingly H, but this is replaced by a noun's floating tone

L H	L H	L H L H	H L H H
anu**faci**	acta ya**uc**	abaa**uc**	maa**i**

  ❧ Also, Meussen's Rule (HH→HL) is in effect:

H	H H→L
uc**pac**	uk**uc**

Nouns (polymorphemic)

ର Gadsup has 7 *bona fide* tonal melodies based on this analysis

ର **L, H, LH, HL, LHL, HLH, LHLH**

ର The **"last but one"** tone of complex melodies usually associates to the final syllable, and then the melody spreads outward to encompass the root, prefixes, and suffixes

ର Precedent: Kairi (Newman & Petterson 1990), Mian (Fedden 2012)

ର Occasionally the entire melody surfaces on the noun, leaving no floating tones; this means such words have underlying accents which override default association rules

Borrowed words

❧

- '[T]here seems to be a direct correspondence between the major stress of English (or French) and a high tone in the borrowing language' (Kenstowicz 2006:136; *regarding the African context*)
  - Bisyllabic words with initial stress correlate with HLH melodies
    - 🔊 káápì 'cup'
    - 🔊 káárìnámmác 'with the car'
    - 🔊 hámààfóní 'with a hammer'
  - Others have L or LH melodies
    - 🔊 kòmpyùtàá → 🔊 kòmpyùtààkímí 'inside the computer'
    - 🔊 trààktàá ~ 🔊 trààká 'tractor'
    - 🔊 mòbàìl 'mobile phone'

Noun Phrases

❧

ɞ Floating tone analysis is supported by tonal perturbation in noun phrases

ɞ Many adjectives have a floating tone which replaces a following noun's tonal melody

H L H   L   H L H L

🔊 sicto   + 🔊 fakoo   →   🔊 sicto fakoo   'small spear'

L   H   L   H

🔊 baakac   + 🔊 orem   →   🔊 baakac orem   'short treee kangaroo'
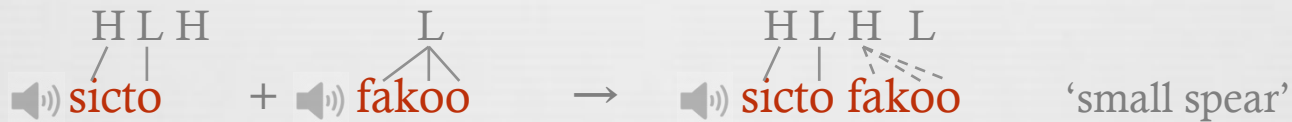
Noun Phrases

❧ What does this mean?
  ❧ Tonal melodies are a property of morphemes, but a NP may only have one melody
  ❧ The melody of the first word spreads throughout the NP
  ❧ Conjoined NPs, however, allow multiple melodies

L H L   L   L

🔊 safuraa**nammac**   nun**nammac**   'a tree kangaroo with a bird'

Noun Phrases

❧

☙ Further support for sparsely attested melodies:
  ☙ sicto HLH, amucna LHLH

      L H L H   L   L H L H L

🔊 amucna   +   🔊 num   →   🔊 amucna num   'many birds'

☙ However, the melody does not spread onto intensifiers:

      L H L H   L   L   L

🔊 amucna   ukam   🔊 baakac   ukam

Summary

- Every word has one of 7 tonal melodies
  - L, H, LH, HL, LHL, HLH, LHLH
  - However, these melodies are often only discoverable in polymorphemic forms or across word boundaries in the noun phrase

- The final vowel of each noun is 'the locus of the pitch change' (Newman & Petterson 1990)
  - The default is for the "last but one" tone to associate to a noun's final syllable
  - This produces what one might call an "offset tone system"

Summary

- The tonal melody spreads leftward to cover the root and any prefixes, and then it spreads rightward onto suffixes

- Some words have lexical accents which pull the tonal melody inward, removing a floating tone

- The tonal melody of the first word of each noun phrase spreads throughout the NP

- Suffixes and clitics have their own tonal melodies
  - L, H, LH

Summary

❧

- Three of the five vowels have phonemically long counterparts which can attract contour tones

- Floating tones displace underlying tones of suffixes

- Successive H tonemes are disallowed (HH→HL)

- Mid-level pitches occur in three contexts:
  - a L tone raises next to a H
  - a H tone lowers next to a L
  - an all-L or all-H word in isolation

Conclusion

⸰⸰⸰

- ❧ Orthographical considerations
  - ❧ Words should have an ideographic value (Saussure 1916)
  - ❧ Tone should not be written in Gadsup NPs, since each word can surface with multiple tonal melodies depending on the context
  - ❧ It appears to be more important that vowel length is represented accurately
  - ❧ However, tone could be minimally represented by marking minimal pairs and verbal morphemes

Conclusion

⸎ It is important to understand the tone!

    ⸎ Discover prosodic boundaries (words, phrases)

    ⸎ Distinguish between clitics and affixes

    ⸎ Clarify whether vowel length is phonemic

    ⸎ Discover minimal pairs

    ⸎ Unravel verbal morphemes such as person, tense, aspect & mood

    ⸎ Peak into history: compounds, borrowed words, etc.

    ⸎ Produce effective orthographies

    ⸎ Learn to speak accurately

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