

Non-plateaus, non-toneless heads

Tone assignment in Colloquial Singaporean English

E-Ching Ng
e-ching.ng@yale.edu
Yale University

CLS 45, University of Chicago, 16-18 April 2009

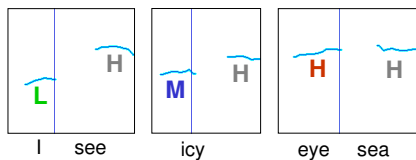
Outline

- **CSE data**
 - Pitch tracks: 2 varieties of CSE
 - Generalisations
- **OT analysis**
 - Siraj (2008)
 - Fully specified variety: H]_{PWD}, Plateau
 - Interpolated variety: \emptyset toneless heads
- **Stress-tone proposal**
 - + Head constraint family: Head/T
 - Non-head constraint family: *NonHead/T

2

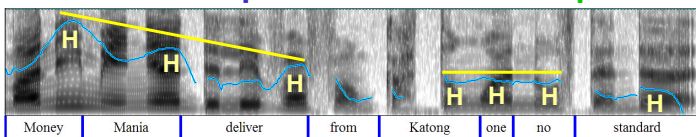
Word-level tone (Wee 2008, Ng 2008a, Siraj 2008)

Minimal triplet



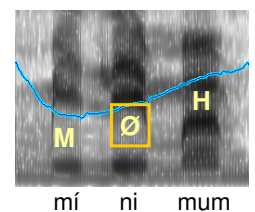
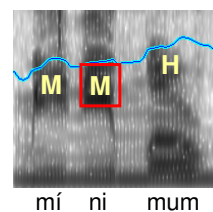
Downstep

No downstep



Gloss: 'Money Mania (imaginary brand name) delivered from Katong is low-quality.'

Variation: M ~ \emptyset (Ng 2008b)



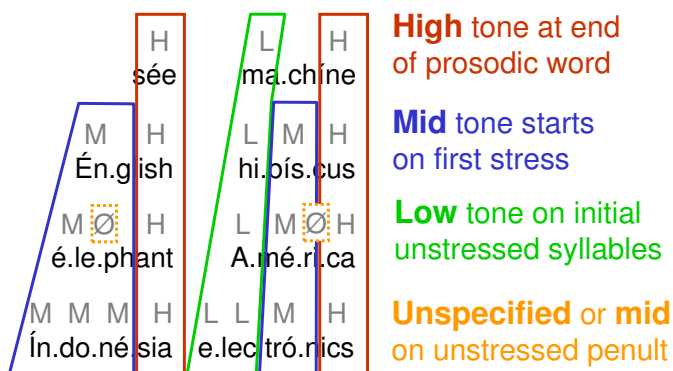
Fully specified variety

vs.

Interpolated variety

4

Generalisations



5

Outline

- **CSE data**
 - Pitch tracks: 2 varieties of CSE
 - Generalisations
- **OT analysis**
 - Siraj (2008)
 - Fully specified variety: H]_{PWD}, Plateau
 - Interpolated variety: \emptyset toneless heads
- **Stress-tone proposal**
 - + Head constraint family: Head/T
 - Non-head constraint family: *NonHead/T

6

Siraj (2008)

- $H]_{Ft}$ M H H vs. M \emptyset H
Pá.na.ma vs. é.le.phant
- $H]_{PWd}$ vs. Hd/M,H
- **Hd/M** vs. *NonHd/L
- **NonHd/L** vs. *NonHd/L
- **Econ** - One violation per tone inserted
- No discussion of **downstep**

7

Notation and assumptions



- The **TBU** in CSE is the syllable
- **Spreading** does not skip TBUs
– Level pitch track: spreading, not same tone
- **Given**: stress, prosodic word structure
– See Ng (2008b) for phonetic evidence

8

Final H

- **Anchor-R (PWd, H)**: The TBU at the PWd right edge must be linked to H.

| (póst)(mán) | $H]_{PWd}$ | $H]_{PWd}$ |
|-----------------------|------------|------------|
| a. | | |
| b. M H (póst)(mán) | W* | |

- Not **Align-R** (Bantu: Yip 2002:90):
Every H must be at a PWd right edge.

9

Tone and stress

(De Lacy 1999, 2002, 2006)

- ***Head/L**: Do not link heads to low tone.
- ***NonHead/M,H**: Do not link non-heads to mid or high tone.

| é.le.phant | *Hd/L | *NHd/M,H |
|------------|-------|----------|
| a. | | ** |
| a. | W* | L* |

Specify(T) assumed to avoid tonelessness.

10

Non-Plateau: *Dip

- **Plateau**: No H \emptyset H or H \emptyset ... \emptyset H sequences.
 - Bantu: Cassimjee & Kisseberth (1999)
 - CSE: M \emptyset H vs. HLH, HMH, MLM, MLH, HLM?
- ***Dip**: No fall-rise sequences (surface).

| é.le.phant | *Dip | *NHd/M,H |
|------------------------|------|----------|
| a. | | ** |
| b. M L H é.le.phant | W* | L* |

11

Variation: M ~ \emptyset

Specified

| é.le.phant | Spec(T) | *NHd/M,H |
|----------------------------------|---------|----------|
| a. | | ** |
| b. M \emptyset H é.le.phant | W* | L* |

Interpolated

| é.le.phant | *NHd/M,H | Spec(T) |
|----------------------------------|----------|---------|
| b. M \emptyset H é.le.phant | * | * |
| a. | W** | L |

12

Ruling out toneless heads

- **Specify(T)** can't rule out toneless heads in interpolated variety, with those rankings.

| Ín.do.né.sia | *Hd/L | *NHd/M,H | Spec(T) |
|----------------------------|-------|----------|---------|
| a. | | ** | |
| b. M Ø Ø H Ín.do.né.sia | | L* | W** |

Hd/M,H needed to force tone on heads.

13

Outline

- **CSE data**
 - Pitch tracks: 2 varieties of CSE
 - Generalisations
- **OT analysis**
 - Siraj (2008)
 - Fully specified variety: H]_{PWD}, Plateau
 - Interpolated variety: ● toneless heads
- **Stress-tone proposal**
 - + Head constraint family: Head/T
 - Non-head constraint family: *NonHead/T

14

Negative *Hd/T unnecessary

- **Category conflation** was original argument for negative constraints (De Lacy 1999)
 - Equal harmony of H/M, M/L, H/M/L
- **Atomistic constraints** must be negative
 - *Hd/L >> *Hd/M >> *Hd/H (De Lacy 1999, 2002)
- **Stringent hierarchies** can be either
 - *Hd/L; *Hd/L,M; *Hd/L,M,H (De Lacy 2006)
 - + Hd/H; Hd/M,H; Hd/L,M,H (my proposal)

15

Huajuapan Mixtec

- **Conflation** of H and M heads
 - Head foot is leftmost HM/HL/ML trochee
- **Same results for positive/negative**
 - *Hd/L penalises low heads
 - + Hd/M,H penalises low and toneless heads

| /MLHL/ | *Hd/L | [Hd] | Hd/M,H | [Hd] |
|------------|-------|------|--------|------|
| a. (M̂L)HL | | | | |
| b. ML(ĤL) | | W* | | W* |

16

Negative *Hd/T problematic

- **Typologically problematic possibility** if we stick to negative constraints:
 - All heads toneless, all non-heads with tone
 - *Head/T >> Specify(T) >> *NonHead/T
- **Omit *Hd/H or *Hd/L,M,H?**
 - This is De Lacy's solution (1999, 2002)
 - Won't help CSE: medial heads aren't high

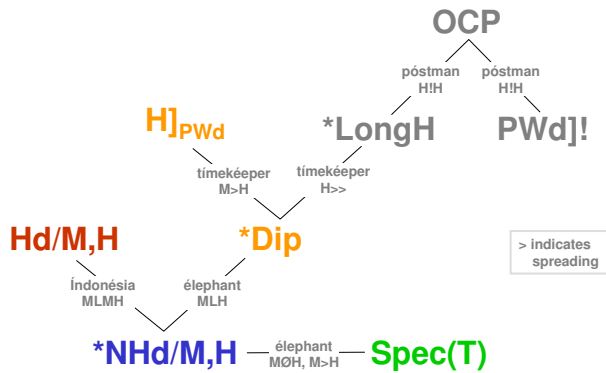
17

Negative *NonHd/T needed

- **Mandarin Chinese** (Yip 2001)
 - All heads keep tone, all non-heads lose it
 - *NonHd/T >> Specify(T) >> *Hd/T
 - + NonHd/T can't account for this
- **CSE interpolated variety**
 - Spec(T) favours fully specified M
 - + NHd/L penalises both M and Ø
 - *NHd/M,H needed to favour interpolated Ø

18

Crucial ranking



19

Conclusion

- **Bantu constraints**
 - $H]_{PWd}$ counts violations per $]_{PWd}$ in CSE
 - Plateau/*Dip must refer to surface, not HØH
- **Stress-tone constraints**
 - + Head constraint family: **Head/T**
 - Non-head constraint family: ***NonHead/T**

20

Many thanks to

- My advisor Darya Kavitskaya and other Yale faculty Gaja Jarosz and Jelena Krivokapić;
- Wee Lian Hee, Pasha Siraj, Mary Beckman, Sun-Ah Jun, Low Ee Ling, Diana Apoussidou, Lisa Lim, Julie McGory, Tom Conners, Uri Tadmor, Devyani Sharma, Sakina Suffian Sahuri, Bao Zhiming and K. P. Mohanan;
- Lim Tse Yang, Huang Zhipeng, my family, Raffles Junior College and my many consultants.

21

References

- Cassimjee, Farida & Charles W. Kisseberth. 1999. A conspiracy argument for Optimality Theory: Emakhuwa dialectology. Paper presented at PLC 23, 27-28 Feb 1999. *U. Penn Working Papers in Linguistics* 6(1): 81-96.
- de Lacy, Paul. 1999. Tone and prominence. Ms., Rutgers University. ROA 333.
- de Lacy, Paul. 2002. The interaction of tone and stress in Optimality Theory. *Phonology* 19(1): 1-32.
- de Lacy, Paul. 2006. *Markedness: Reduction and Preservation in Phonology*. Cambridge: Cambridge University Press.
- Ng, E-Ching. 2008a. Malay meets Chinese meets English: Where does Colloquial Singaporean English word-level tone come from? Paper presented at Workshop on Language Transfer, UWE (Bristol), 9-11 July 2008.
- Ng, E-Ching. 2008b. Affixation, compounding and the prosodic word in Singaporean English. Paper presented at Workshop on Prosodic Alignment at the Word Level. Institut für Deutsche Sprache, 20-21 Nov 2008.
- Siraj, Pasha. 2008. Stress-dependent word tone in Singaporean English. Poster presentation at TIE 3, Lisbon, 15 September 2008.
- Wee, Lian-Hee. 2008. More or Less English: Two Phonological Patterns in the Englishes of Singapore and Hong Kong. *World Englishes* 27(3/4): 480-501.
- Yip, Moira. 2001. The complex interaction of tone and prominence. In Kimi, M. & U. Strauss (eds.), *NELS 31*, pp.531-545. Amherst, MA: GLSA.
- Yip, Moira. 2002. *Tone*. Cambridge Textbooks in Linguistics. Cambridge: Cambridge University Press.

22

Appendix

1. Data collection
2. CSE stress – preliminary analysis
3. Tone assignment – Optimality Theory analysis

1. Data collection

- *Please note* that only part of the data has been analysed so far.
- *Speakers* cited here are all ethnic Chinese and lifelong Singapore residents. 6 males, 8 females. 6 context script, 8 morphology script.
- *Register*: Informal but clear, as if to a deaf aunty.
- *Discards and repetition*: Speakers were free to repeat tokens if they had stumbled the first time, but were asked not to emphasise the correction.
- *Focus*: Speakers were instructed to emphasise only the words in capitals.
- *Equipment*: Marantz PMD671 solid state recorder, Shure SM10A microphone.
- *Phonetic analysis* was carried out using Praat.

1.1. Context script

- *Target words* were presented as imaginary brand names. Speakers were asked to pretend they were common brands such as Colgate.
- *Presentation*: PowerPoint slides, replying to experimenter’s prompt.
- *No. of targets/tokens*: 14 words, 3 conditions (sentence-initial, -medial, -final). CSE 6 repetitions (except 1 spkr: 3 repetitions).

| <i>Sample</i> |
|---|
| 1. ALI say cannot order. Money deliver from Katong no standard one. |
| 2. ALI say cannot order Minimum deliver from Katong one. No standard. |
| 3. ALI say cannot order Tikam-tikam. Deliver from Katong no standard one. |

1.2. Morphology script

- *Target words* were presented as imaginary brand names where possible.
- *Idioms* were presented in conversation fragments.
- *Presentation*: Paper script, replying to experimenter’s prompt.
- *No. of targets/tokens*: 6 speakers read all 238 target words twice, 2 read it once.

| <i>Sample</i> |
|---|
| 1. NEVER order IC from Katong lah. |
| 2. ALWAYS order Helpful from Punggol lah. |
| 3. BETTER order Locate from Jurong lah. |

2. CSE stress - Preliminary analysis

- *Data source*: CSE morphology script.
- *Number of tokens*: 41 tokens over three speakers (two male, one female).
- *Measurements*: Average & maximum intensity, consonant & vowel duration. Vowels judged by periodicity. Voice onset time considered part of consonant.
- *Conditions held constant*: tone (mid), syllable structure (CV), vowel (within the pair), word (adjacent syllables were paired).
- *Criterion for classification as stressed vs. unstressed*: Tone patterns. If the initial syllable was M, the first and third syllables were classified as stressed, and the second as unstressed. If L, the opposite. Tones verified from pitch tracks.

| <i>Words used</i> | | | | |
|-------------------|---------------------|-------------------------|-------------------------|---------------------|
| economy | <u>minimum</u> | psychology | techno <u>logy</u> | photo <u>graphy</u> |
| economics | <u>minimise</u> | psychological | techno <u>logical</u> | wiki <u>pedia</u> |
| economical | <u>minimisation</u> | psych <u>ologically</u> | techno <u>logically</u> | |

- *Results*: A paired t-test finds that stressed and unstressed syllables differ significantly in average and maximum intensity (p = 0.000), as well as vowel duration (p = 0.000) and consonant duration (p = 0.004).

3. Tone assignment - Optimality Theory analysis

3.1. Assumptions and notation

- The TBU in CSE is the syllable. **Contour tones** have not been considered.
- **Spreading** does not skip TBUs.
 - Level pitch tracks have been interpreted as spreading, not identical tones.
- **Input:** Stress and prosodic word structure are as reported in Ng (2008b).
- \emptyset when unspecified for tone. $>$ indicates spreading with strict locality.
- **Accent marks** refer to stress. Primary and secondary stress not distinguished.

3.2. Constraints

- $H]_{\text{PwD}}$ or ANCHOR-R (PwD, H): One violation per TBU at the right edge of a prosodic word which is not linked to a high tone.
- OCP: One violation per pair of adjacent identical tones, including MØM, etc.
- *LONGH: One violation per high tone linked to more than one TBU.
- HD/M,H: One violation per stressed syllable not linked to mid or high tone.
- *DIP: One violation for each maximal fall-rise sequence.
- SPECIFY(T): One violation per TBU not linked to tone.
- *NHD/M,H: One violation per unstressed syllable linked to mid/high tone.
- PwD]!: One violation per prosodic word right edge not followed by downstep.

3.3. Tableau

| | | | | | | | | |
|-----------------|-------------------|-----|--------|--------|------|------|----------|-------|
| 1. (kéy) | $H]_{\text{PwD}}$ | OCP | *LongH | Hd/M,H | *Dip | Spec | *NHD/M,H | PwD]! |
| ☞ (H) | | | | | | | | |
| 2. (mó.ney) | $H]_{\text{PwD}}$ | OCP | *LongH | Hd/M,H | *Dip | Spec | *NHD/M,H | PwD]! |
| ☞ (MH) | | | | | | | * | |
| a. (LH) | | | | W* | | | * | |
| b. (H>) | | | W* | | | | * | |
| c. (ØH) | | | | W* | | W* | * | |
| d. (HL) | W* | | | | | | L | |
| 3. (un.léss) | $H]_{\text{PwD}}$ | OCP | *LongH | Hd/M,H | *Dip | Spec | *NHD/M,H | PwD]! |
| ☞ (LH) | | | | | | | | |
| a. (MH) | | | | | | | W* | |
| b. (H>) | | | W* | | | | W* | |
| c. (ØH) | | | | | | W* | | |
| 4. (é.le.phant) | $H]_{\text{PwD}}$ | OCP | *LongH | Hd/M,H | *Dip | Spec | *NHD/M,H | PwD]! |
| ☞ (M>H) | | | | | | | ** | |
| a. (MØH) | | | | | | W* | L* | |
| b. (HL>) | W* | | | | | | L | |

| | | | | | | | | |
|-------------------|-------------------|-----|--------|--------|------|------|----------|-------|
| c. (MLH) | | | | | W* | | L* | |
| d. (H>>) | | | W* | | | | W** | |
| e. (L>H) | | | | W* | | | L* | |
| 5. (im.pór.tant) | $H]_{\text{PwD}}$ | OCP | *LongH | Hd/M,H | *Dip | Spec | *NHD/M,H | PwD]! |
| ☞ (LMH) | | | | | | | * | |
| a. (MHL) | W* | | | | | | * | |
| b. (L>H) | | | | W* | | | * | |
| c. (M>H) | | | | | | | W** | |
| d. (LH>) | | | W* | | | | * | |
| e. (ØMH) | | | | | | W* | * | |
| 6. (Ín.do.né.sia) | $H]_{\text{PwD}}$ | OCP | *LongH | Hd/M,H | *Dip | Spec | *NHD/M,H | PwD]! |
| ☞ (M>>H) | | | | | | | ** | |
| a. (M>MH) | | W* | | | | | ** | |
| b. (MØMH) | | W* | | | | W* | L* | |
| c. (H>>>) | | | W* | | | | ** | |
| d. (MLMH) | | | | | W* | | L* | |
| e. (HLMH) | | | | | W* | | L* | |
| f. (MØØH) | | | | W* | | W** | L* | |
| 7. ((M)ÓE) | $H]_{\text{PwD}}$ | OCP | *LongH | Hd/M,H | *Dip | Spec | *NHD/M,H | PwD]! |
| ☞ ((H)!MH) | | | | | * | | * | |
| a. ((H)>>) | | | W* | | L | | * | W* |
| 8. (time)(kéeper) | $H]_{\text{PwD}}$ | OCP | *LongH | Hd/M,H | *Dip | Spec | *NHD/M,H | PwD]! |
| ☞ (H)!(MH) | | | | | * | | * | |
| a. (H)(MH) | | | | | * | | * | W* |
| b. (H)>>) | | | W* | | L | | * | |
| c. (M)>H) | W* | | | | L | | * | |
| 9. (póst)(mán) | $H]_{\text{PwD}}$ | OCP | *LongH | Hd/M,H | *Dip | Spec | *NHD/M,H | PwD]! |
| ☞ (H)(>) | | | * | | | | | * |
| a. (H)!(H) | | W* | L | | | | | L |
| b. (M)!(H) | W* | | L | | | | | L |

3.4. Crucial rankings

