

Stress, tonal alignment, and phrasal position in Singapore English



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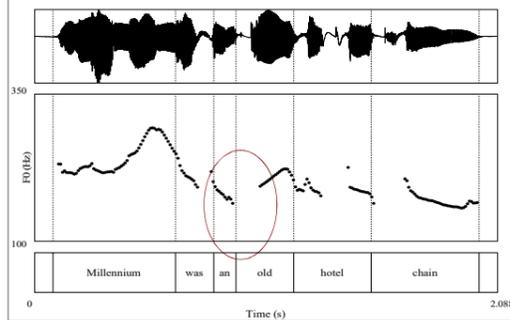
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I. Introduction

- Previous work on SgE intonation:
 - Series of rises [1, 2]
 - Domain of rise: Accentual Phrase [2, 3] – content word + preceding function words
 - In **initial** APs (largest f0 range): **no** clear tonal target on stressed syllables [4], but initial stress → higher F0 scaling
- Possible L* [2]:
 - Consistent L target at left edge of AP
 - Additional L optionally aligned to a lexically stressed syllable



Question: Is tonal alignment in **non-initial** utterance position sensitive to the location of lexical stress?

- What is the target/anchor of L tones in the AP? (e.g. Fig 1.)

II. Methods

Participants

- 8 ethnic Chinese native speakers of Singapore English (4M, 4F; mean age: 22)

Procedure

- Produce sentences displayed on a screen using Experigen [5]

(1) Initial stress: *minerals*

- Medial AP: They explain minerals to the tourists.
- Medial AP + Function word: They explain the minerals to the tourists.
- Final AP: They explain *minerals*.
- Final AP + Function word: They explain the minerals.

Materials

- 12 trisyllabic targets:
- Stress: 6 initial (1), 6 medial (2)
 - AP position: utterance-medial vs. final
 - Distance from left edge of AP: +/- preceding function word
- (2) Medial stress: *memorials*
- Medial AP: They explain memorials to the tourists.
 - Medial AP + Function word: They explain the memorials to the tourists.
 - Final AP: They explain *memorials*.
 - Final AP + Function word: They explain the memorials.

III. Results

Initial inspection: Variety of global intonation patterns, even for the same item/condition.

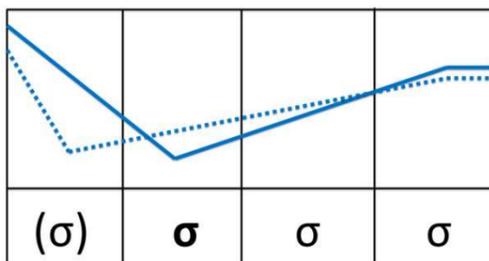
- What are the observable qualitative patterns?
- How do differences in stress lead to broad differences in tonal alignment and scaling for each prosodic position?

Preliminary qualitative analysis - abstract, phonological coding; labeling of turning points in contour (Table 1):

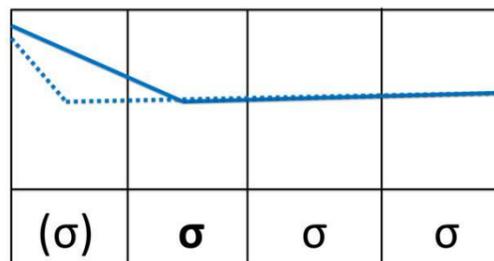
- Contour/Tune type (rise/rise-fall or plateau)
- Syllable-level alignment of L and H tones in each AP (e.g., stressed syllable or left/right edge of AP)

IIIa. Utterance-medial

Rise

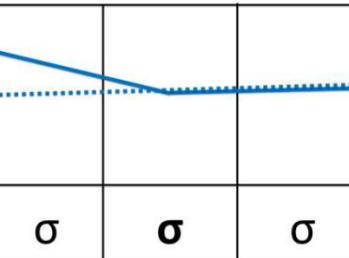
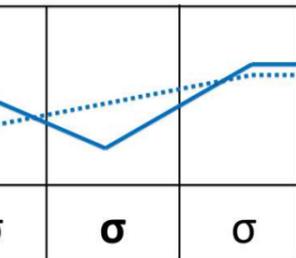


Plateau



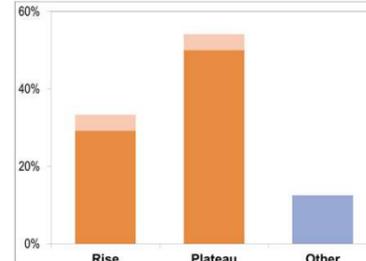
Stress
1st σ

- Left
- Stressed σ
- Post-stress
- N/A

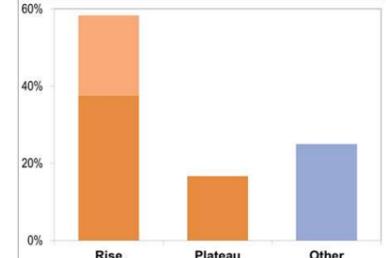
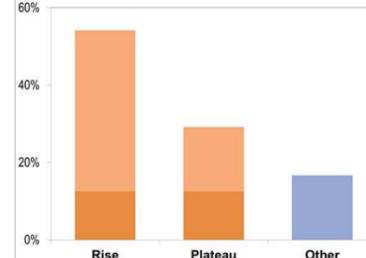
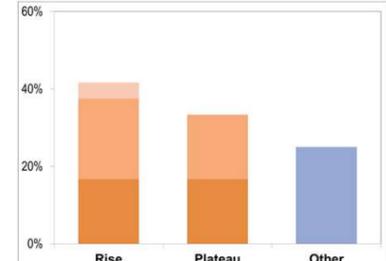


Stress
2nd σ

No function word

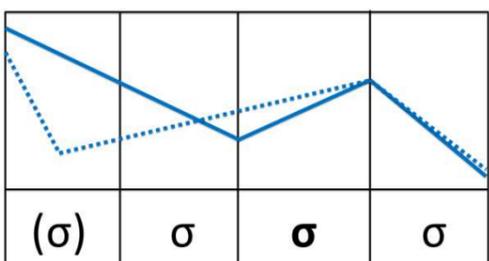


Function word

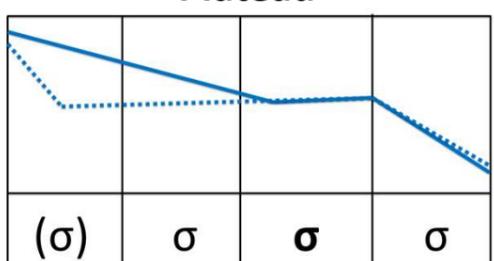


IIIb. Utterance-final

Rise-fall



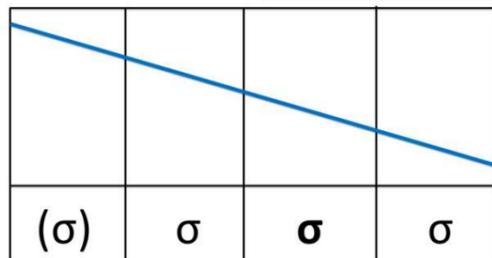
Plateau



Stress
1st σ

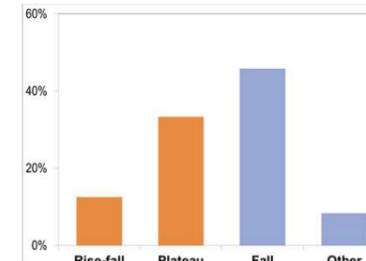
- Left
- Stressed σ
- Post-stress
- N/A

Fall

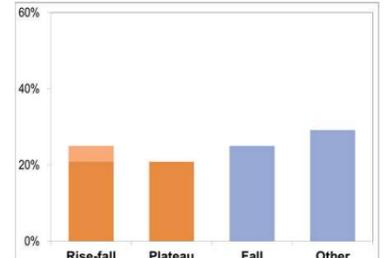
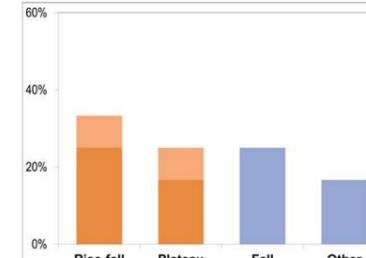
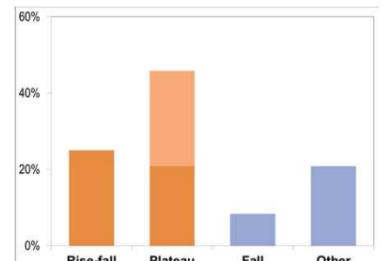


Stress
2nd σ

No function word



Function word



V. Discussion/Conclusion

- High variability of L tone alignment in non-initial position
- Relation between lexical stress and f0 differs by phrasal position
 - Do SgE listeners perceive stress differences for all positions/patterns?
 - Do cues to stress differ by position/pattern?
- Stress sensitivity in SgE requires consideration of phrasal structure and position, not simply word prominence (variety-specific *ecology* of stress realization)
- Future directions:
 - Quantitative analysis of alignment by global pattern
 - Which factors condition/predict the choice of global contour type?

Selected References

- [1] D. Deterding, "The intonation of Singapore English," *J Int Phonet Assoc* 24, pp. 61–72, 1994.
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