I. The claims

1. 'Checked tones' as monomoraic syllables
   - Traditionally transcribed as closed syllables with /ʔ/ codas (Qian 1992, Wang 2011)
   - No phonetic study has confirmed the existence of coda glottal stops
   - Based on my fieldwork acoustic data, they are plain short vowels in monomoraic (open) syllables
   - First-time phonetic evidence of monomoraic syllables in Chinese languages

2. 'Exceptional' light-initial sandhi patterns
   - The second syllable can influence tone sandhi only when the initial syllable is light ('checked') — I refer to this as 'light-initial sandhi'
   - Counter to previous descriptions, where only the initial syllable determines the sandhi pitch pattern (Left dominance) (Duanniu 1999, Shi & Jiang 2013)
   - I propose a more refined root-based analysis to this novel light-initial pattern

II. Background

1. Lexical tones in Suzhou
   - A Northern Wu dialect with seven lexical tones

   ![Graphical representation of Suzhou tones]

2. Left dominance: the traditional tone-sandhi analysis
   - Assumed for many Wu dialects (Chan & Ren 1989 for Wu, Duanniu 1999 for Shanghai, Chan 1999 for Danyang, Shi & Jiang 2013 for Suzhou)
   - Initial syllable determines the surface pitch; everything else is irrelevant
   - Captured by left-aligned, non-iterative syllabic trochees
   - A strong syllable (σ) retains its tonal material; a weak footed syllable (ε) can receive tone through re-association, but cannot retain its own tone; third & fourth syllables are unfooted and always surface with default L tones. (Shi & Jiang 2013)

   ![Diagram of tone sandhi patterns]

   - /L(H)V/ + X X X X → PrWd
   - /L(H)V/ + X X X L L → Ft
   - My fieldwork data shows 'exceptions' to this generalization

III. Findings of the current study

1. No phonetic evidence for /ʔ/
   - No coda stop closure for the 'checked tones' (a & b)
   - Intervocalic consonant durations are the same for 'checked' / 'unchecked' tones (α vs. c)
   - 'Unchecked' vowels (>250ms in running speech) are more than twice as long as 'checked' ones (>100ms)

   ![Spectrograms of vowel duration]

2. Second syllable plays a role in light-initial sandhi forms
   - What we would expect if the traditional analysis were true: /H/ + T = [L/H/L] and /LH/ + T = [L/H/L]

   ![Diagram of sandhi patterns]

   - Conclusion: 'checked tones' are light monomoraic open syllables (e.g. [kʰə])

IV. Analysis for the light-initial sandhi

1. Tones
   - Underlying tones with brackets (T) are floating
   - Surface tones with underlying (T) are short (monomoraic) in duration

   ![Diagram of tone sandhi patterns]

<table>
<thead>
<tr>
<th>Bimoraic, T_{σ}</th>
<th>Monomoraic, T_{ρ}</th>
</tr>
</thead>
<tbody>
<tr>
<td>[H]</td>
<td>[LH]</td>
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<tr>
<td>H</td>
<td>H</td>
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<td>H</td>
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2. Relevant metrical structure
   - In light-initial sandhi, the relevant metrical structure is a left-aligned bimoraic trochee (Kager 1998)
   - Violates syllable integrity, but ensures that the head (monomoraic) is not lighter in quantity than the dependent (Head-Dependent Asymmetries) (Kager & Martinez-Paniolo 2018, Dreher & van der Hulst 1998)

3. Basics of the OT analysis
   - TBU = µ: Tones surface with full contours in isolation
   - Tone sandhi: association is one-to-one, left-to-right
   - Every mora has to have a tone: toneless moras receive a default L (Antilla & Bodomo 2000, Xip 2000, Zhang 2002b, Gussenhoven 2004)
   - T = µ, µ → T, ALIGN-R-CONTOUR, ALIGN-L-TONE
   - SPECIFY >> DEP-T
   - All tonal material from the initial morpheme must be preserved (Shi & Jiang 2013)
   - Max-INITIAL
   - Unfooted (third) moras never carry H tones on the surface (Breiteler 2017)
   - "Non-FM"
   - Pre-associated tones are preserved; floating ones can be deleted (Morén 2001)
   - Max-LINK >> MAX-T
   - Tones cannot spread across syllables (Kühlein 2011)
   - NO SPREAD-α

   ![Diagram of OT analysis]

Pattern A: /L(H)V/ → Ft
Pattern B: /L(H)V/ → Ft
Pattern C: /L(H)V/ → Ft
Pattern D: /L(H)V/ → Ft
Pattern E: /L(H)V/ → Ft

   ![Diagram of tone sandhi patterns]

   - Conclusion: When the initial syllable is light in a disyllabic word, the second syllable influences the sandhi form

IV. Conclusions

- A new piece of phonetic data:
  - Absence of coda glottal closure in 'checked' syllables
  - Emergence of (stressed) light syllables in Wu Chinese

- A phonological argument for quantity-sensitive foot formation:
  - Second syllables are relevant in light-initial sandhi
  - Disyllabic trochees when initial syllable is heavy, bimoraic trochees when initial syllable is light