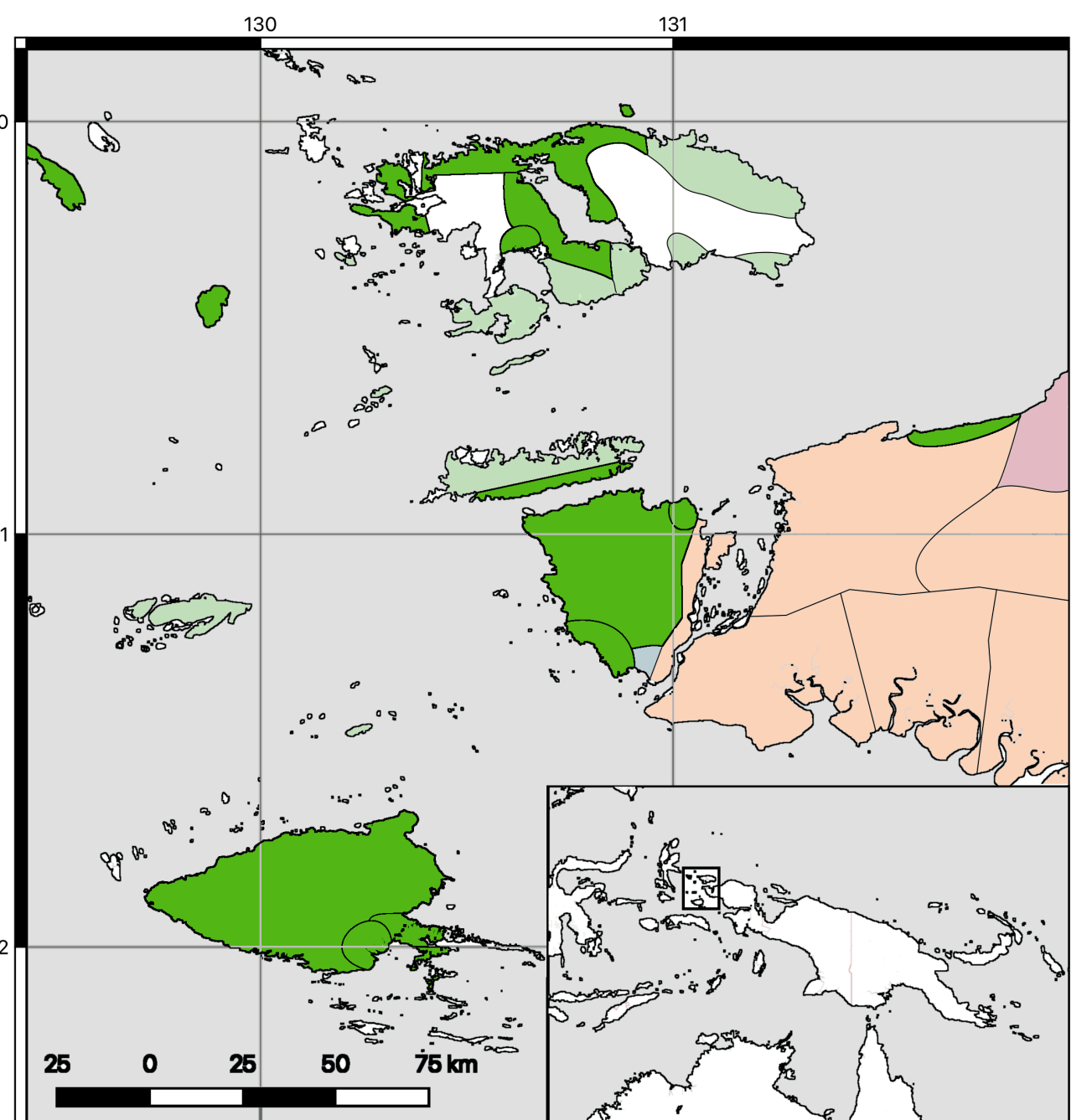# Multiple uncommon word-prosodic changes in Raja Ampat: When—and why?

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The Raja Ampat languages

- Austronesian
  > Malayo-Polynesian
    > South Halmahera-West New Guinea

- **Segmental inventories:**
  14-15 consonants, 5-7 vowels
  - Matbat: /i e ɛ a ɔ o u/
    /p b t d k g f s m n ŋ l j w/
  - Maʹya: /i e a o u/
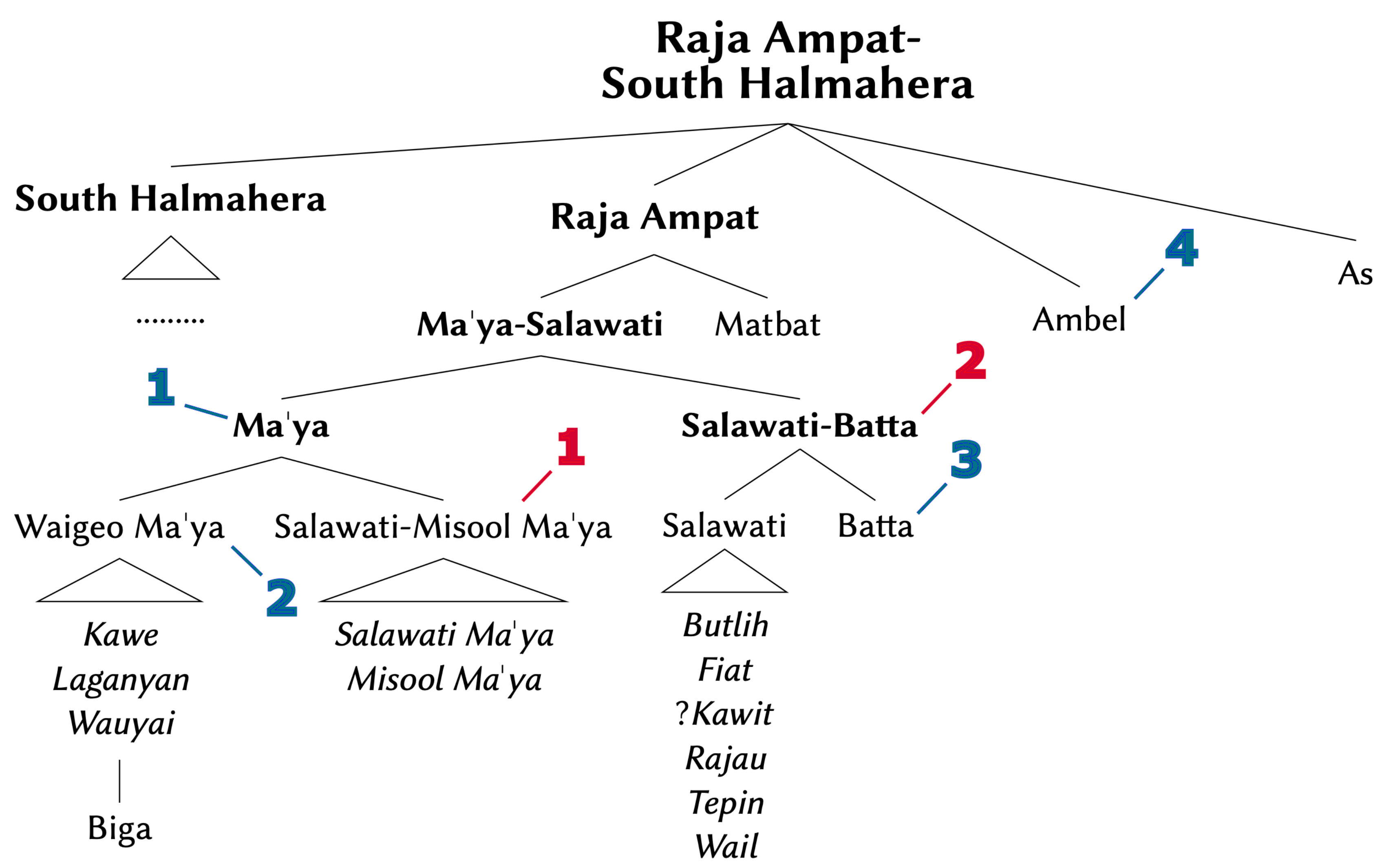   /p b t d k g f s m n l r j w/

- **Word prosody:**

	Ambel	Matbat	Waigeo Maʹya	Salawati-Misool Maʹya	Biga	Salawati	Batta
			Maʹya-Salawati				
No. of tones	1	6	2	2	2	2	3
Tonal inventory	High	Extra High Fall, High, Low Rise, Low, Rise-Fall, Low Fall	High, Rise	High, Rise	High, Extra-High	High, Rise	High, Rise, Low
Domain	Syllable	Syllable	Word	Word	Word	Word	Word
TBU	Mora	?	Final syl	Final syl	Final syl	Final syl	Final syl
Obligatory?	✗	✓	✗	✗	✗	✗	✗
Culminative?	✓	✗	✓	✓	✓	✓	✓
Lexical stress?	✗	✗	✓	✓	✓	✗	✗
Apocope?	n/a	n/a	✓	✗	✗	n/a	n/a

Ambel

| tu^3n | 'moon' | tun | 'thorn' | | |
| ka^3bom | 'widow' | $kabo^3m$ | 'bone' | $kata$ | 'cape' |

Maʹya (Kawe)

| su^3 | 'breast' | $-su^{12}p$ | 'bathe' | su | 'flower' |
| $ʹmana^3$ | 'light' | $maʹna^3$ | 'grease' | $maʹna^{12}$ | 'mucus' |

Matbat

| ba^{41} | 'hit' | ba^3 | 'grandfather' | $ba^{12}p$ | 'father' |
| ba^1 | 'remain' | ba^{121} | 'stiff' | ba^{21} | 'to flow' |

(van der Leeden 1993; Remijsen 2001, 2007; Arnold 2018; own fieldwork)

When?

Raja Ampat-South Halmahera

- South Halmahera ....
- Raja Ampat
  - Maʹya-Salawati
    - Maʹya
      - Waigeo Maʹya — Kawe / Laganyan / Wauyai — Biga
      - Salawati-Misool Maʹya — Salawati Maʹya / Misool Maʹya
    - Salawati-Batta
      - Salawati — Butlih / Fiat / ?Kawit / Rajau / Tepin / Wail
   - Batta
  - Matbat
- Ambel
- As

- **Tone changes conditioned by vowel height**
  1. pMS *High > pM *Rise / V[-high]
  2. pM *High > pWM *Rise / ɪ, ʊ
  3. pSB *High > Bat. Rise / V[+high] Low / V[-high]
  4. pA tonogenesis:
     Syllables with *V[-high] > *High

- **Word-prosodic changes conditioned by apocope**
  - Conditions for apocope
    1. Penultimate stress
    2. Open final syllable
    3. Identical penultimate and final vowel
       e.g. Maʹya (Laganyan)

| $ʹtal[a^3]$ | 'banana' | $ʹmin[i^3]$ | 'bird' |
| $ʹlufi^3$ | 'lime' | $ʹwono^3m$ | 'six' |

  1. pM $ʹσ.σ^3$ > pSMM $ʹσ^{12}$
     e.g. pM $*ʹtolo^3$ 'egg' > pSMM $*to^{12}l$
  2. pMS $ʹσ.σ^3$ > pSB $ʹσ^{12}$
     e.g. pMS $*ʹyini^3$ 'fish' > pSB $*yi^{12}n$

And why?

- **Tone and vowel height:**
  - Diachronic relationships between vowel height and tone are rare worldwide (Michaud & Sands 2020, Hyslop 2022)...
  - ...but common in Austronesian (Yerisiam, Kamholz 2014; Cèmuhî, Rivierre 2001)
  - Intrinsic fundamental frequency (IF0): high vowels /i, u/ have a higher F0 than low vowels /a/ (Whalen & Levitt 2005)
  - IF0 differences in Salawati and Biga up to 2.8 ST: nearly double the mean cross-linguistic average (1.65 ST; Arnold et al. 2023)
  - Large IF0 > phonologisation as tone
  - Is this a trend in Austronesian/Melanesian languages more generally?

- **Word prosody and apocope:**
  - Syllable loss as a source of tonal developments not very common; typically leads to low/falling tone (Hyslop 2022)
  - Raja Ampat: apocope > final syllable loss > retiming of High pitch target to former penultimate syllable
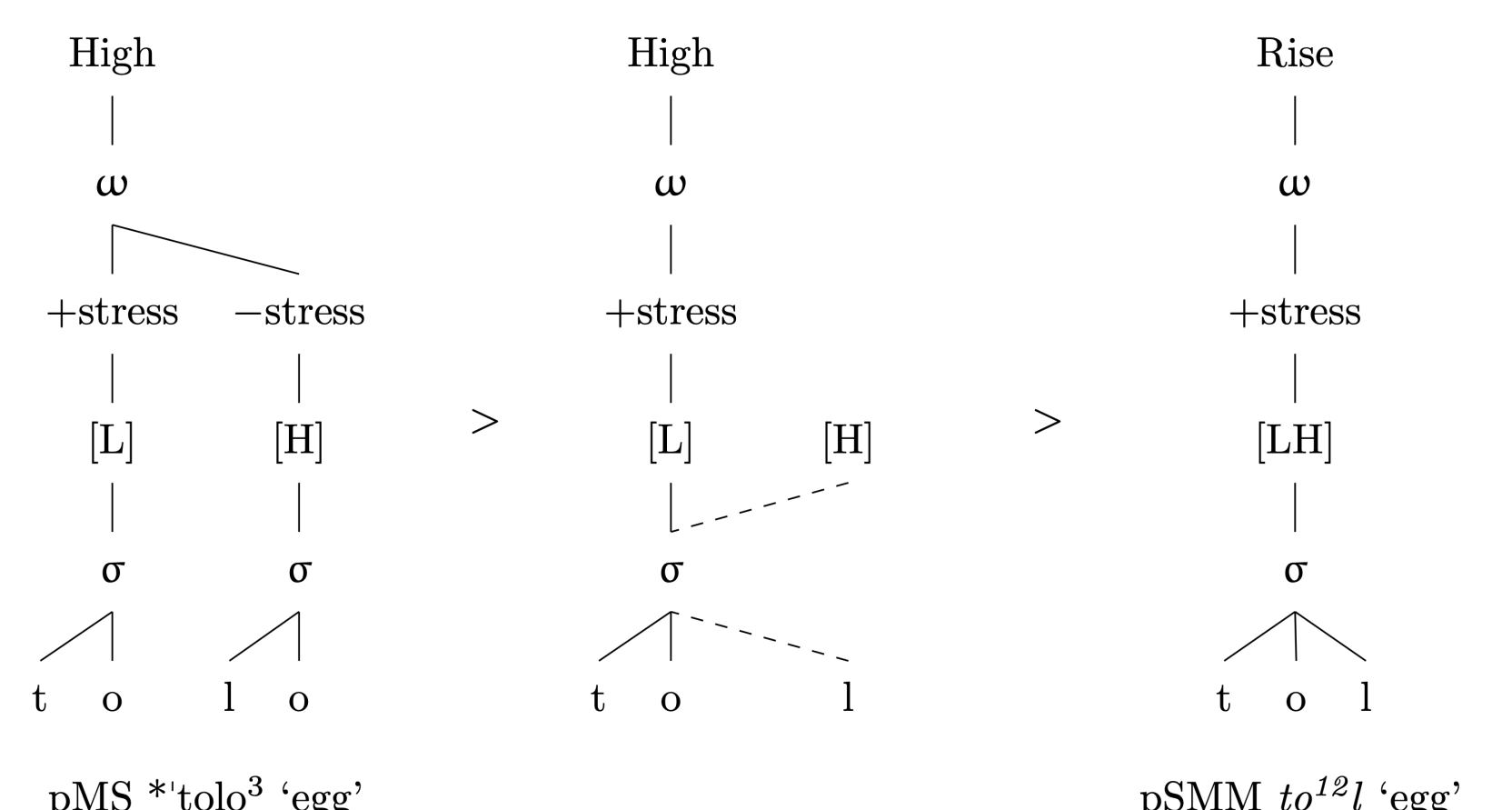
QR codes

More data: References:

Acknowledgements