

Tone and phonation in Green Mong song

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Introduction

- Tone languages vary in restrictions on tone placement in musical text setting
 - Cantopop**: tight tone-melody alignment constraints
 - Mandopop**: looser tone-melody alignment constraints

(Ho 2006)



- Hmong speakers report the ability to “hear the words” being played on traditional instruments
- What tone-melody alignment restrictions occur in Green Mong?

(Mareschal 1976, Falk 2004)

Corpus

- San Diego Hmong Language Project**:
 - Collaboration with Lao-Hmong Family Association of San Diego
 - White Hmong and Green Mong
 - So far, 6 speakers from Laos, currently living in SD and elders of the community.
 - Recordings can be found at <http://hmong.ucsd.edu>

Data & Measures

- Lug txaj**: traditional folk song used during courtship, weddings, Hmong New Year, etc.
- Data here from one male speaker of Green Mong in his 70s
- Over 10 minutes of unscripted singing
- Song was transcribed, then segmented in Praat
- Words analyzed by:
 - Lexical tone
 - Adjacent tones
 - Phrasing (preceded or followed by breath)
- Acoustic analysis over latter half of word done in VoiceSauce (Shue et al. 2011):
 - F0 (STRAIGHT), converted to semitones
 - H1*-H2*
 - HNR < 500 Hz

Green Mong Tone

Tone description (Andruski 2006)	Musical note (Catlin 1997)	Tone letter
High (55)	Highest	-b
High-falling (52)	Lowest	-j
Mid-falling breathy (32)	Mid-low	-g
Mid (33)	Mid-high	Unmarked (“x” in graphs)
Mid rising (24)	Highest	-v
Low (22)	Lowest	-s
Low-falling creaky (21)	Mid-low	-m

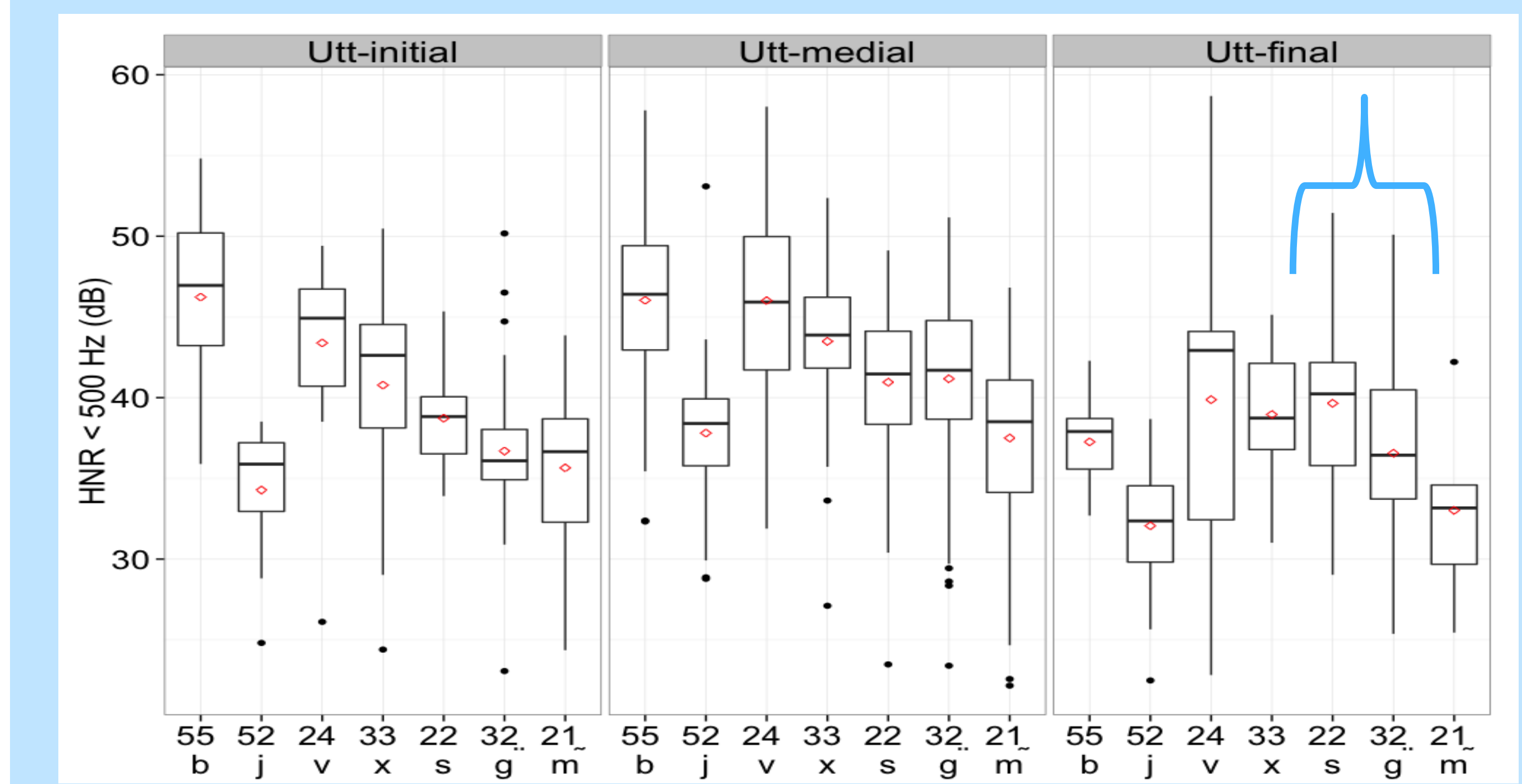
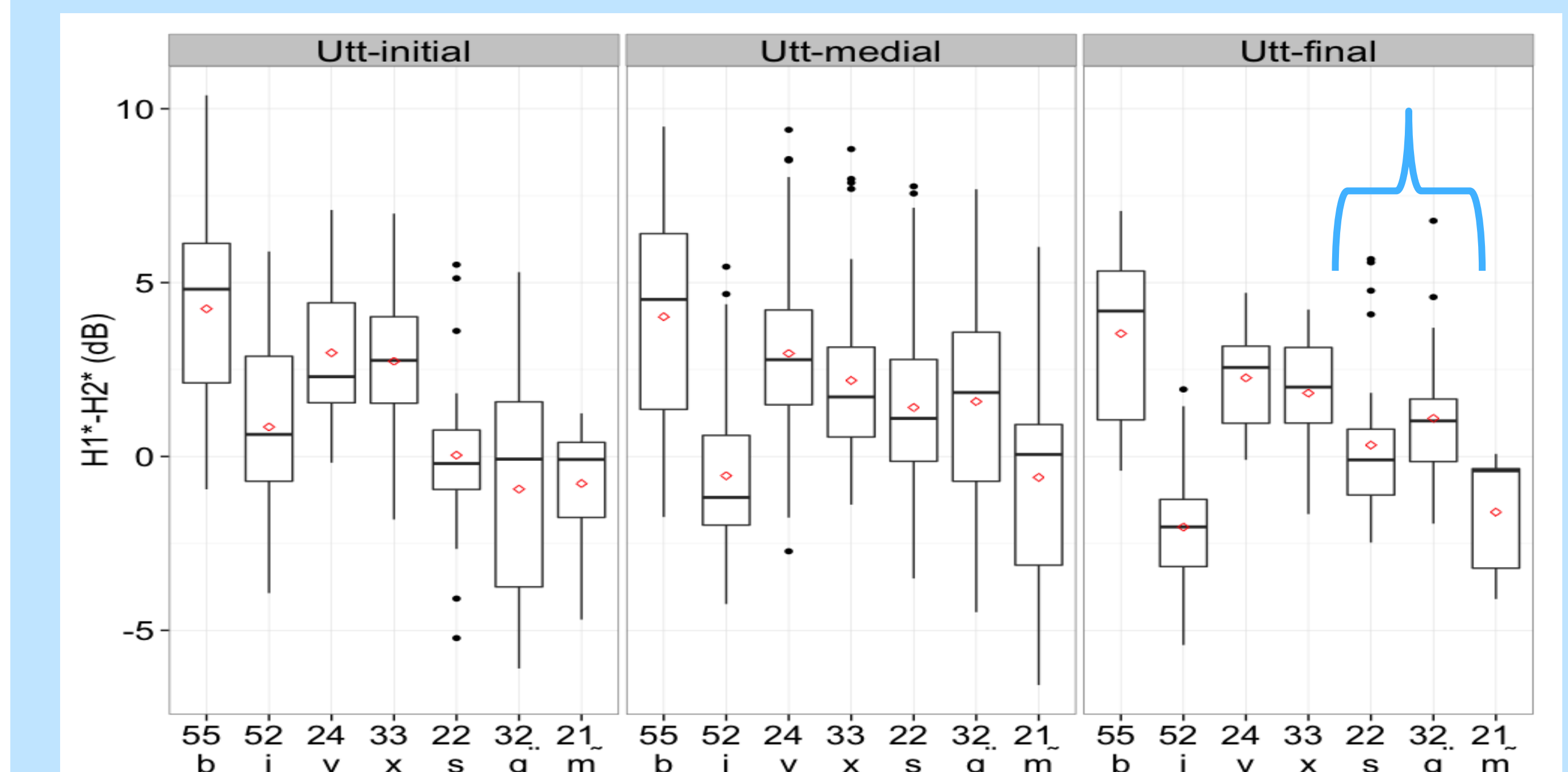
- Four-note system (usually sol-mi-re-do), **no preservation of phonation**
- Tones with high musical notes derive from proto-Hmong-Mien words with *T in onsets; tones with low notes from *D.

Hypotheses

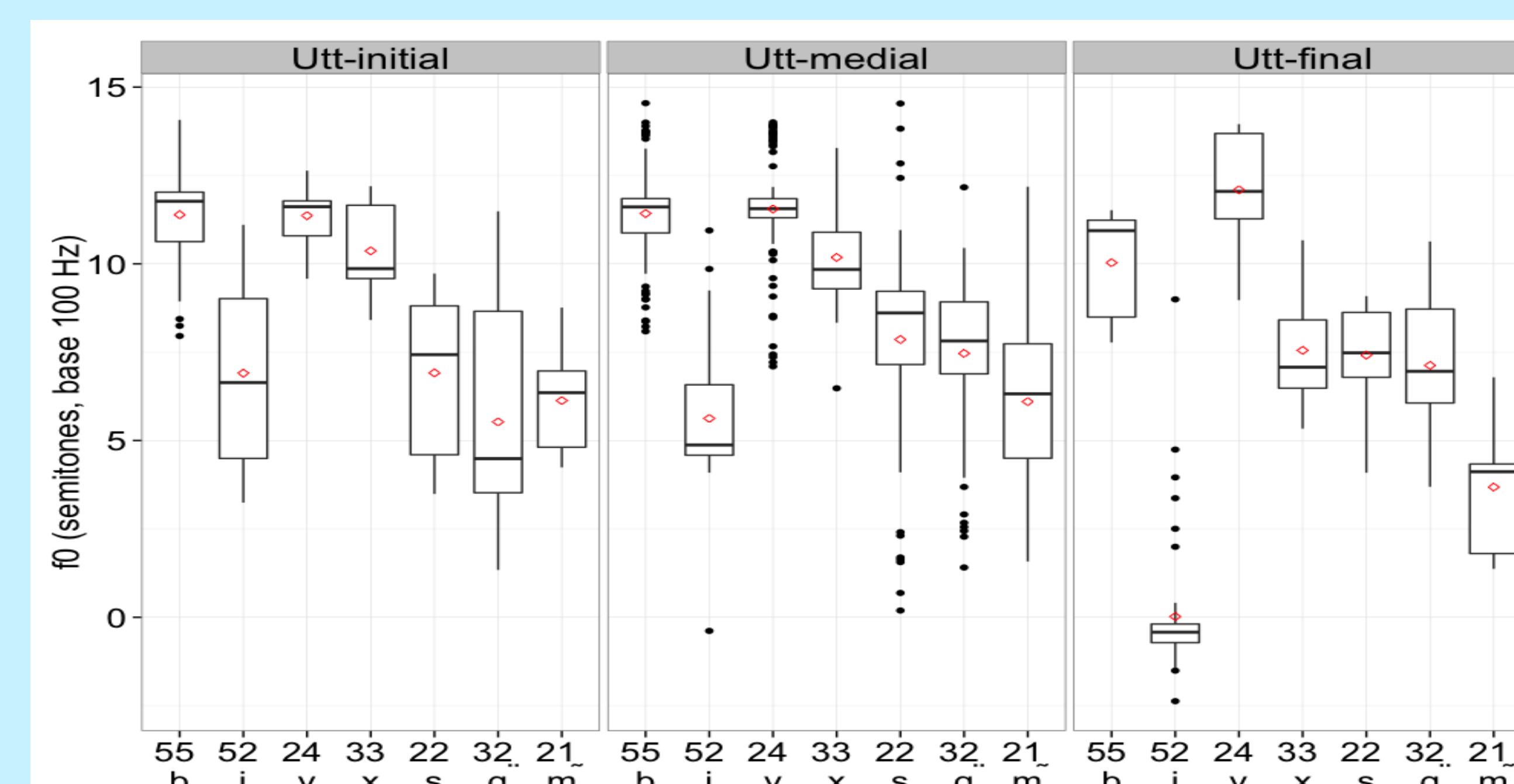
- Tones should map on to four notes (Catlin 1997).
- Following Catlin 1997, no phonation should be preserved.
- But if there is preservation of phonation differences:
 - Breathy -g tone:
 - higher H1*-H2*, lower HNR (relative to low -s tone)
 - Creaky -m tone:
 - lower H1*-H2*, lower HNR (relative to -j tone)

Is phonation preserved?

- Phonation primarily influenced by pitch, not tone.
- BUT** mainly Utt-finally, the -g (32) tone appears breathier than the -s (22) tone, even though they share the same note in all phrasal positions:



Tone-Melody Correspondence



- Likely four pitch targets per octave, as described by Catlin 1997
- Utterance-initial:
 - Restricted pitch set
- Utterance-medially:
 - Greatest tone-pitch mapping variability
- Utterance-finally:
 - Largest pitch range (and set)
 - Bimodal distribution of the -j (52) tone