

Contact-related variation in tone and tone-alignment patterns

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Background:

- Descriptions of contact-related prosodic re-organization often invoke typology of “tone languages” vs. “stress languages”
- There are descriptions even of “hybrid” systems ...
 1. Saramaccan characterized by Good (2006) as having both lexical tone (on words of identifiably West African origin) and accent (on words of identifiably European origin).
 2. Curaçao variety of Papiamentu characterized by Remijsen & van Heuven (2005) as having both stress and lexical tone.
- Gooden (2006): “Given what we know about the grammatical systems of these languages, it is not unreasonable to suggest that these prosodic systems are the result of contact-induced change rather than internal development.”

Synopsis

Questions:

- How can we differentiate variability due to “organic” language-internal change from variation related to contact-induced change?
- Is the traditional typology of “tone languages” vs. “stress languages” adequate for this purpose?

Recasting in the AM framework:

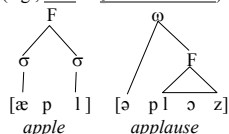
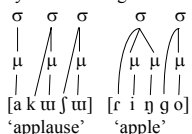
- Are pitch contours composed primarily of tones that are specified in the lexicon, or are pitch shapes pragmatic morphemes?
- What are the constraints on text-tune alignment at the bottom of the prosodic hierarchy?

Aims:

- Review some of the phenomena that have prompted this recasting.
- Show how the AM typology of prosodic systems illuminates several cases of contact-induced variation.

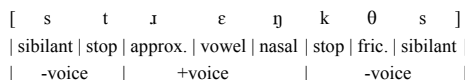
Autosegmental-Metrical framework

- **Metrical:** Refers to the intersecting rhythms or layered prosodic constituents projected away from the content features that are licensed at different positions. For example, ...
 1. in many languages, **syllable** defined by alternation between more sonorant features licensed to at the head and less sonorant features licensed to occur only at the edges
 2. in English, German, etc., syllable with a least sonorant head, such as [ə] or syllabic [l], must group with a more sonorant syllable in a higher constituent (e.g., **foot** or **prosodic word**)



Autosegmental-Metrical framework

- **Autosegmental:** Refers to specification of content properties that are autonomously segmented — i.e., project as strings specified on independent tiers rather than being bundled together in association to the metrical positions that license them. For example, in English words such as *strengths* ...
 1. manner specifications maximally define 8 (auto)segments
 2. [±voice] specifications define only 3 (auto)segments



- **Association:** The relationship between an autosegment and the metrical position that licenses it.

Association: 3 grammars for [+red] to mark ■ vs. ◆



[+red] = head; [-red] = edge



[+red] = head; edge unmarked

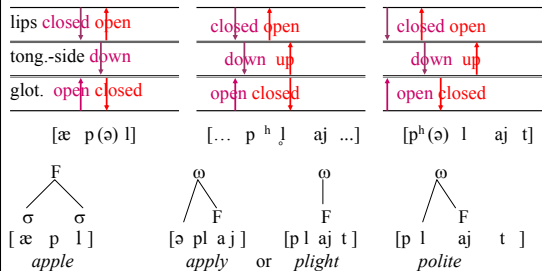


head unmarked; [-red] = edge

- **Parsing ambiguities** especially likely in language contact, where speakers of varieties with similar inventories of autosegments but different association grammars parse content features correctly but misinterpret the metrical structures that they cue.

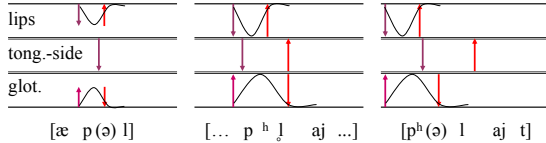
Realization of association relationship in time (and space)

- **Alignment:** The temporal relationship between dynamics of autosegments from different tiers that are (partially) co-produced because of association to the same metrical position.



Realization of association relationship in (time and) space

- **Sonority scaling:** The autosegments that mark syllable structure are ordered on a continuum from the most open vowels (loudest/longest periodic sounds) to the most obstruent-like consonants (voiceless stops, which have a period of silence followed by sharp transient burst)

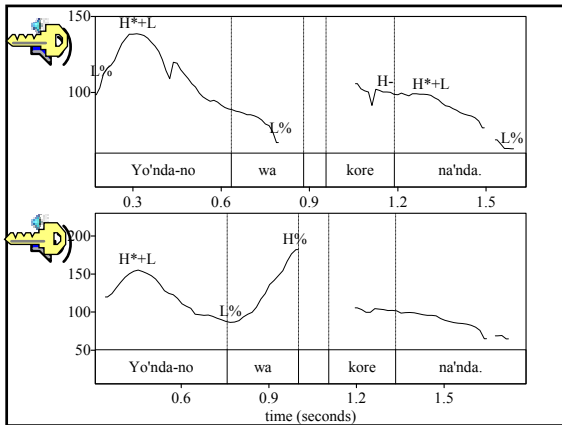


Son. maxima: [æ],[ɑ] > [i/j],[u/w],[ɪ] ... scaled up at “bigger” heads

Son. minima: [p],[t] < [l],[n],[ɹ] ... scaled down at “bigger” edges

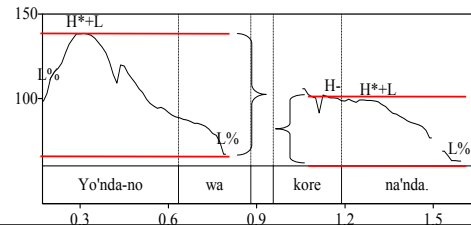
Tones in the AM framework

- **Tones:** The local specification of pitch features as relatively short (i.e., about syllable-length) autosegments independent of the vowel and consonant autosegments with which they are aligned.
- **The phonetic scale:** Tone specifications are inherently arranged in a scale from low pitch (L) to high pitch (H).
- **Tone association:** Tones differ from other types of autosegments in typically associating to a wide range of metrical positions across and within languages.
 1. Like vowel features, tones can associate to syllables or moras (i.e., head positions in syllables).
 2. They can also associate to the edges of higher-level constituents.
- **Boundary tone:** A tone or sequence of tones that marks the edge of the higher level constituent that licenses it.



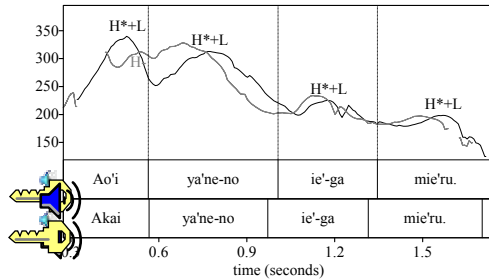
Pitch range

- **The phonetic scale:** Tone specifications are inherently arranged in a scale from low pitch (L) to high pitch (H).
- **Pitch range:** Grammars also specify pitch features for larger constituents, typically referring to parameters of the pitch range — i.e. top and/or bottom values of the tone scale as a whole.



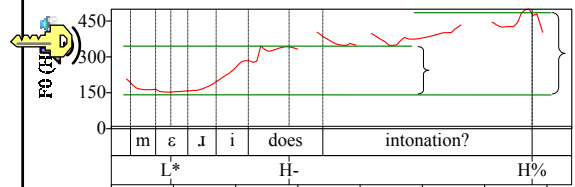
Pitch range “rules” — reduction

- **Downstep:** the phonologically triggered compression of pitch span or lowering of the ceiling of the pitch ranged: for example, in Japanese, triggered by “accent” H*+L



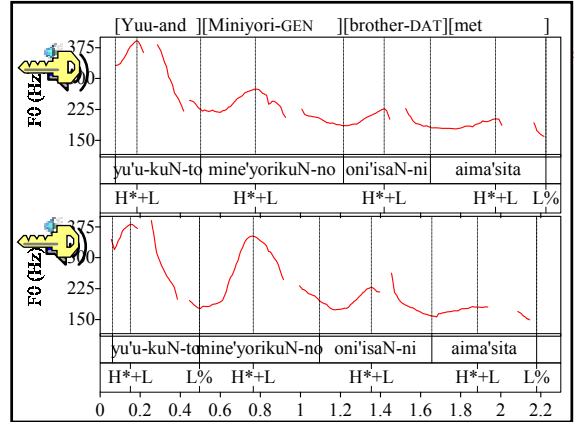
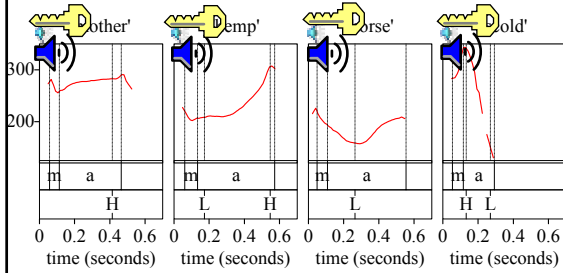
Pitch range “rules” — enlargement

- **Upstep:** the phonologically triggered expansion of pitch span or raising of the floor of the pitch range: for example, in English, triggered by H- “phrase accent”



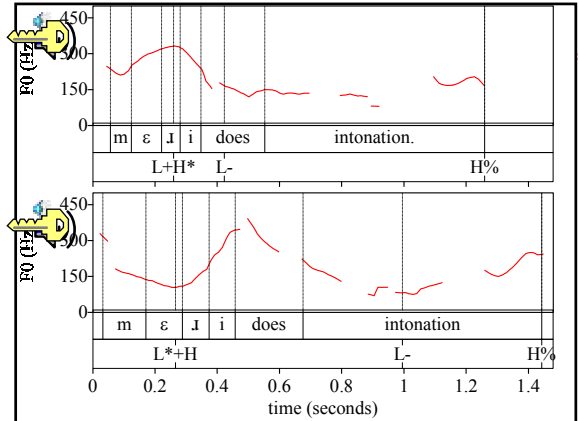
Tone scaling

- As with sonority scale, relevant acoustic property that defines the tone scale (i.e., F0) can be manipulated to cue higher-level metrical structure and to convey different morphosyntactic functions.

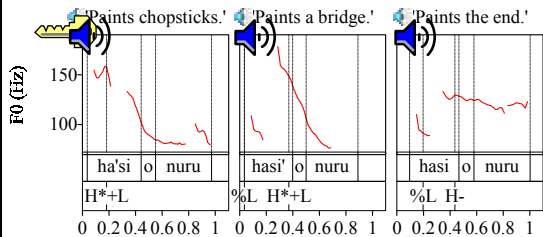


Morphosyntactic functions of tone

- Demarcative:** Some tones function sometimes to demarcate lower or higher-level prosodic units. For example, in Japanese ...
 - %L H- marks the beginning of the "accentual phrase" (AP)
 - L% vs L% H% vs L% HL%, etc., mark the end of the "intonational phrase" (IP)
- Morphological contrast:** Some tones distinguish different morphemes, ...
 - by contrasting tone shapes (e.g., Mandarin Chinese H vs. LH vs. L vs. HL or English H* vs. L* vs. L+H* vs. L*+H etc.)
 - by contrasting placement (e.g., of H*+L "accent" in Japanese)



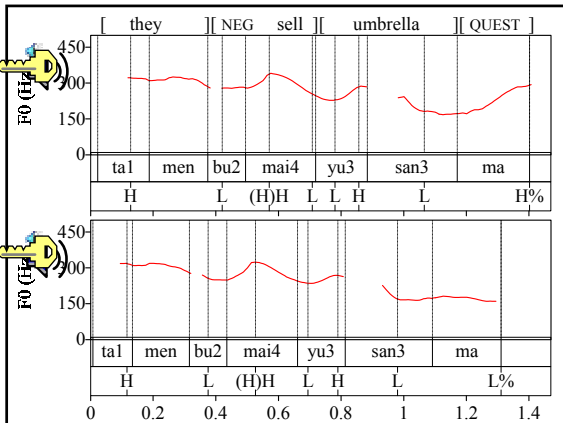
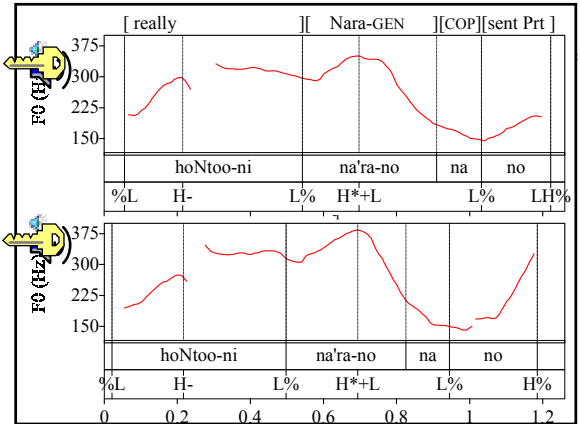
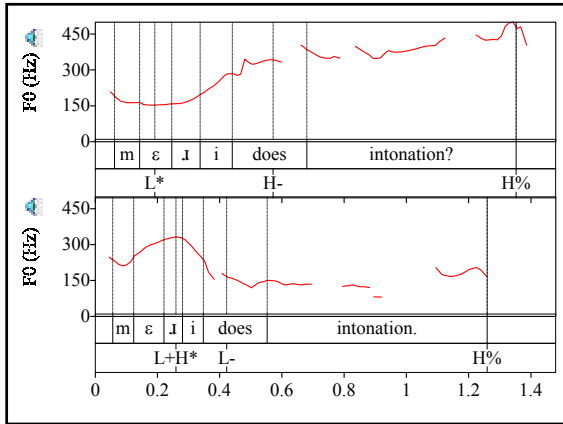
アクセント ('accent') in Japanese



- Lexical contrast in Japanese includes "no accent" as a possible value, so disyllabic words have three possible patterns, trisyllabic words have four, etc.; so utterances with no culminative syllable.

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- Morphological contrast:** Some tones distinguish different morphemes, ...
 - by contrasting tone shapes
 - by contrasting placement
- Source of contrast:**
 - lexicon (e.g., Mandarin word tones, Swedish word accents)
 - information structure (e.g., pitch accents in English & German; IP boundary tones in many languages, including English & German, Mandarin Chinese, Japanese, ...)



Tones and "tone languages"

- Traditional typologies emphasize **source of contrast** in classifying languages as "tone languages" or "intonation languages" (or "intonation-only languages").
- But the ways in which languages use tones as pragmatic morphemes vary widely. For example, ...
 1. in English, pitch accents invoke degree of commitment, scalar implicature, scope of focus, etc. (e.g. Jannedy, 2002)
 2. in Japanese, boundary tones interact with phrasing to convey some of these same function (e.g. Venditti et al., in press)
- And the ways in which a language can be a "tone language" are even more varied. For example, ...
 1. in Mandarin, morpheme-by-morpheme tone shape choice
 2. in standard Swedish placement and shape of pitch accent
 3. in Japanese, presence and (if present) placement of a fixed pitch accent shape

Variation in the traditional typology

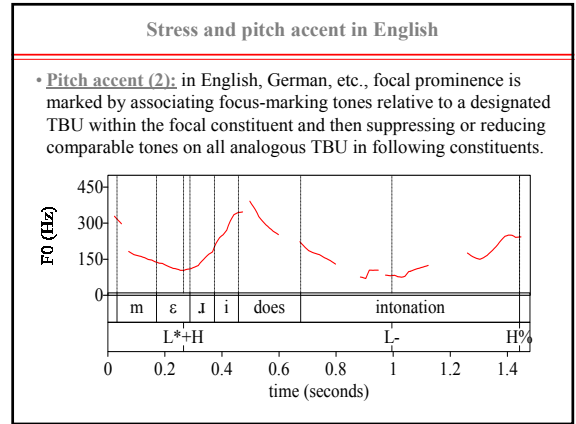
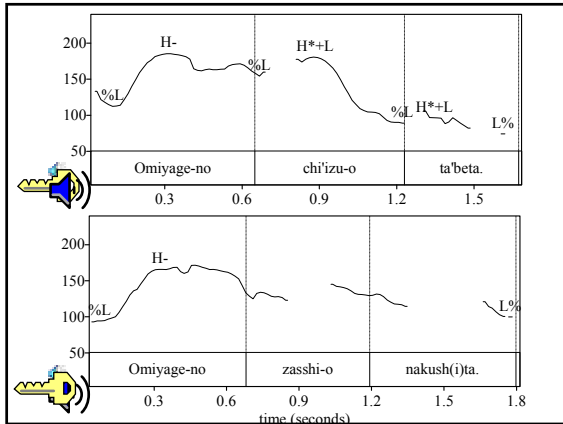
- Because traditional typology emphasizes function of contrast **within the lexicon**, it groups dissimilar languages together and distinguishes among varieties that differ only minimally — e.g. ...
 1. Limburgian Dutch is a "tone language" but standard Dutch is an "intonation language"
 2. Kyungsang Korean is a "tone language" but standard Korean is an "intonation language"
 3. Panjabi and some dialects of Hindi spoken on the border with Panjabi-speaking areas are "tone languages" but "standard" (Delhi) Hindi is an "intonation language"
 4. Some dialects of Basque are "tone languages" and others have reinterpreted high tone as "stress" (cf. Hualde et al., 2002).
- By emphasizing the formal description of tone shape, tone association, tone scaling, etc., the AM framework gives a more illuminating taxonomy of tonal functions, including focus

Strong edges, "dephrasing", and focal prominence

- **Strong edges**: pitch range reset at beginning of IP in Tokyo Japanese often coincides with hyperarticulation of segments.
- **Marking focal prominence**: these characteristics exaggerated at beginnings of constituents that are in focus in the discourse.

F0 (Hz) plot for the sentence "triangular [roof-GEN] [smackcenter-LOC] [put]" and "sa'Nkaku-no ya'ne-no maNnaka-ni okima'su". The plot shows a tone contour with labels H*L, L%H*L, L%, H-, L%, and H*L L%.

- **Pitch accent (1)**: This is **not** "accent" in sense of having H*+L in word

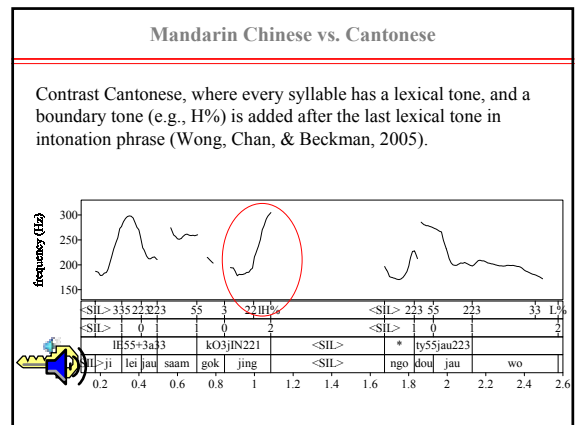
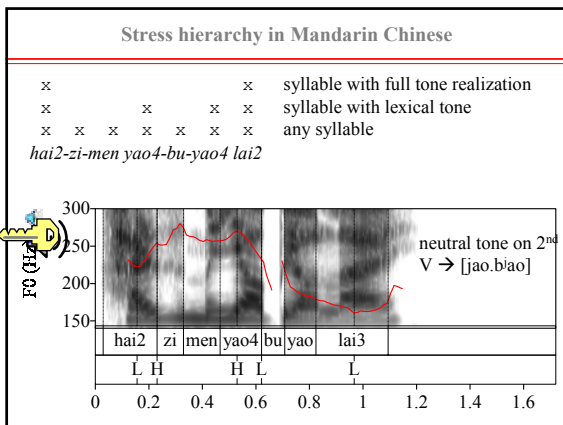
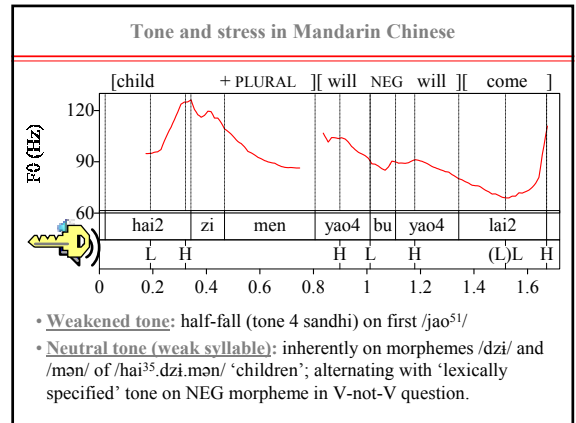


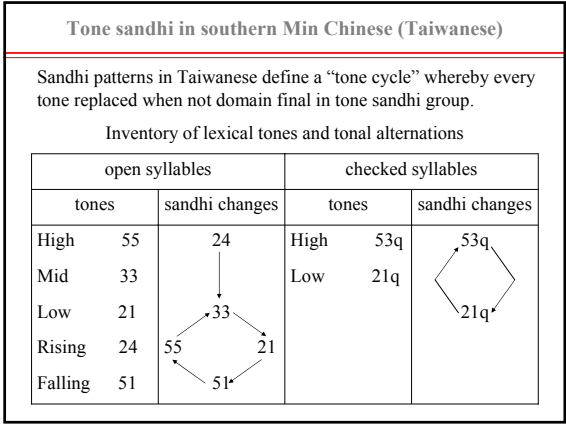
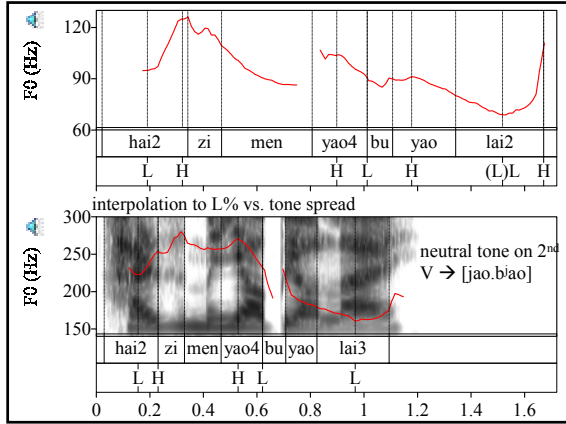
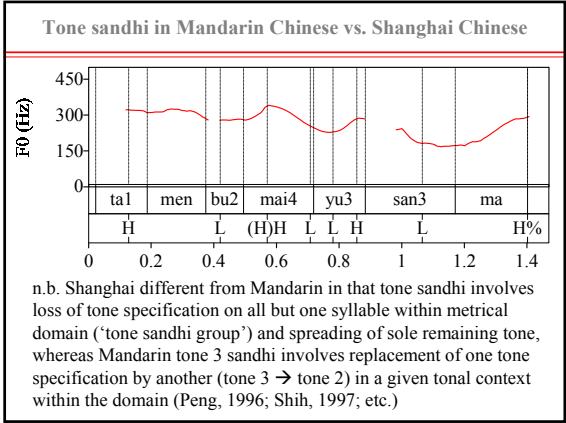
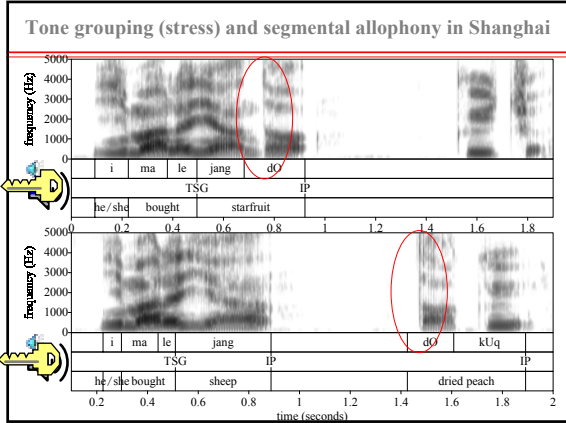
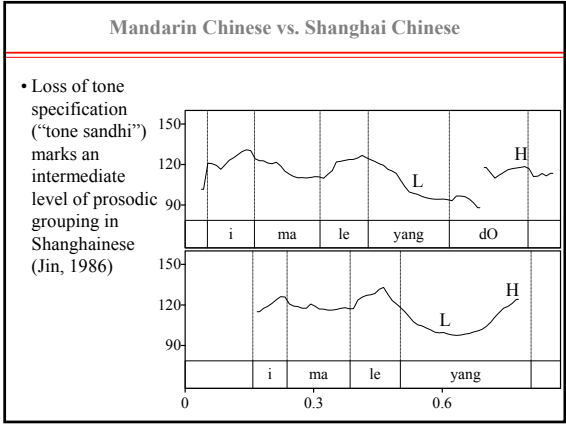
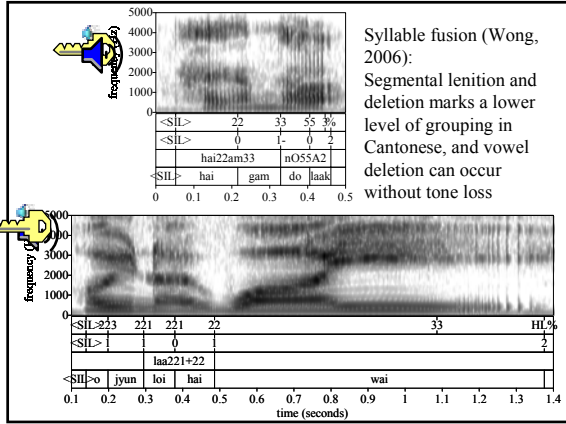
Stress hierarchy in English

- When markers of prominence are associated to some syllables but not others in this way, the language has a stress system.
- The stress markers must be arranged in an implicational scale such that presence of the prominence marker at one level implies presence of prominence markers at all lower levels (cf. Ladefoged & Vanderslice, 1972; Bolinger, 1981; Beckman & Edwards, 1994).
- Conversely, lack of prominence at one level precludes the prominence markers at all higher levels.

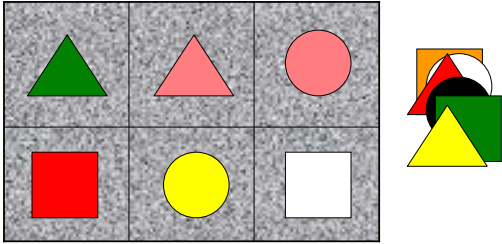
x									last accent before phrase accent
x									any syllable with a pitch accent
x	x	x							strong syllable
x	x	x	x	x	x	x	x	x	any syllable

Mary does intonation





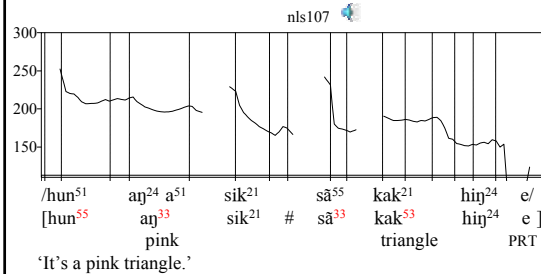
The Shapes Game (design by Y. J. Fon) spontaneous speech



- Two participants communicate over headphones and mic and are recorded onto separate tracks of a DAT recorder.
- Dialogues transcribed and participants asked to read list of transcripts of randomized selected sentences.

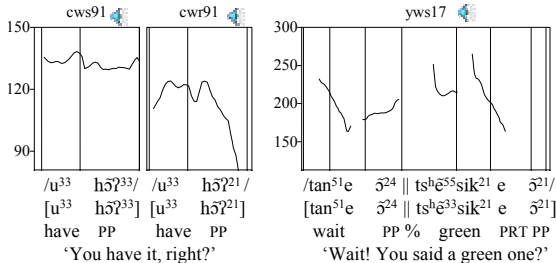
Taiwanese tone sandhi group (Chen 1987, Peng 2003)

- distribution of base tone versus sandhi tone for syllables with tone specification — e.g., /sā⁵⁵/ ‘3’ vs. [sā³³kak⁵³hiŋ²⁴]



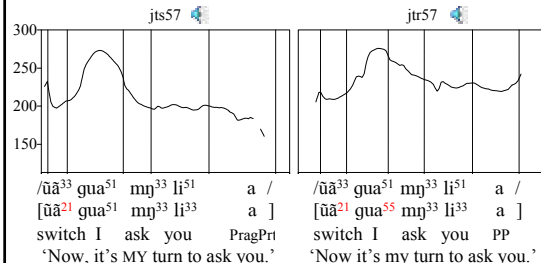
Other (phonetic) correlates of Tone Sandhi Grouping

- Peng (1997) shows a small amount of final lengthening and
 - a somewhat expanded pitch range on the final (base tone)
- less than at intonational phrase edge, marked by boundary tone



Taiwanese tone sandhi and focal prominence

- sandhi tones not just word-medially — e.g., (in both utterances) /üā³³/ ‘switch’ → [üā²¹], (in jtr5) /gua⁵¹/ ‘switch’ → [gua⁵⁵]
- emergence of sandhi tone in later case marks edge of focus domain (i.e., “accentuation” device, cf. Shanghai and Japanese)

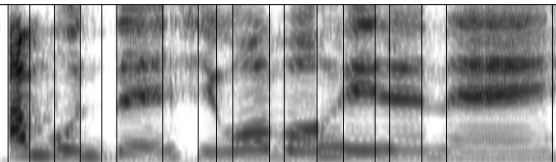


Taiwanese ‘neutral tone’

/l/ = “d/”

/het.e/ → [he.le]

yws19



/a bun³³ te²⁴ si³³ gūā⁵¹ bo²⁴ het²¹ e nē /
 [a . b u n . t e . s i . g ũ ā . b o . h e . l e . n ē]
 PP problem is I not that one PragPrt
 ‘Well, the problem is that I don’t have that one.’