Intonational Phonology of Samoan

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1. Goal: Describe Samoan intonational phonology using the Autosegmental-Metrical (AM) framework. (e.g. Pierrehumbert 1980, Beckman and Pierrehumbert 1986, Ladd 1996).

2. Background

2.1 Samoan

- Austronesian language in the Nuclear Polynesian branch.
- From the Independent State of Samoa and the (U.S.) Territory of American Samoa.
- 370,000 speakers in all countries (Gordon 2005).
- Some previous work on Samoan intonation, most notably a brief section in the reference grammar of Mosel and Hovdhaugen (1992).

2.2 Stress Assignment (Zuraw et al. 2008 and refs. therein).

- Stress is assigned in Samoan by building moraic trochees from the right edge of a word.
- Long vowels are bimoraic.
- Thus, primary stress falls on the final vowel if it is long (naná:) or a diphthong (leléi) and otherwise on the penult (manógi)

Samoan is a head marking language (i.e. has stress-driven pitch accents)

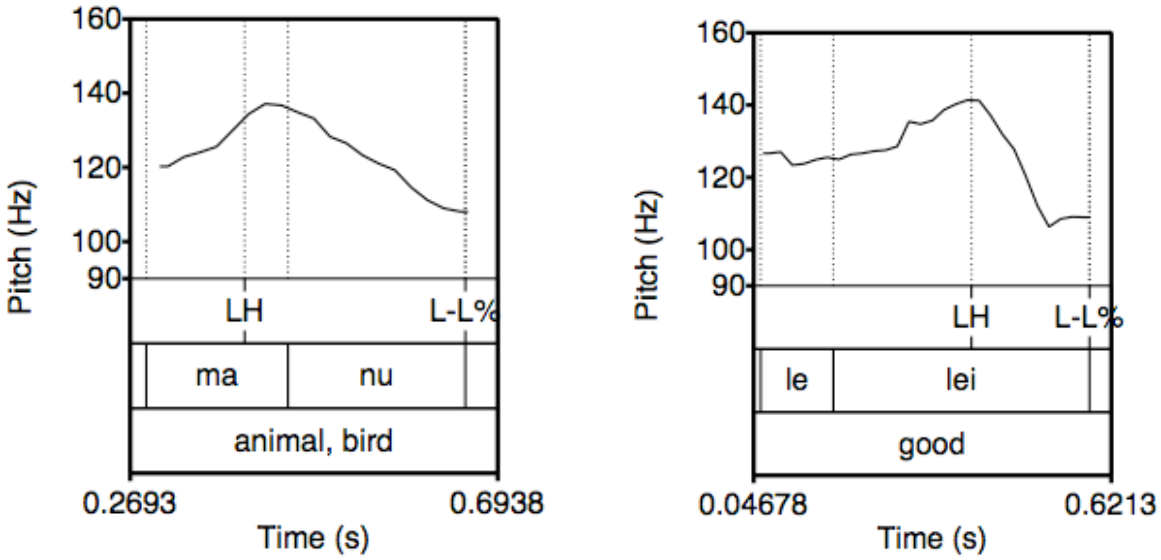

Figure 1. Pitch tracks for isolated words. *(mánu)* (LL) shows a LH pitch accent over the penultimate mora; *le(léi)* (LH) shows a LH pitch accent over the final, bimoraic diphthong.

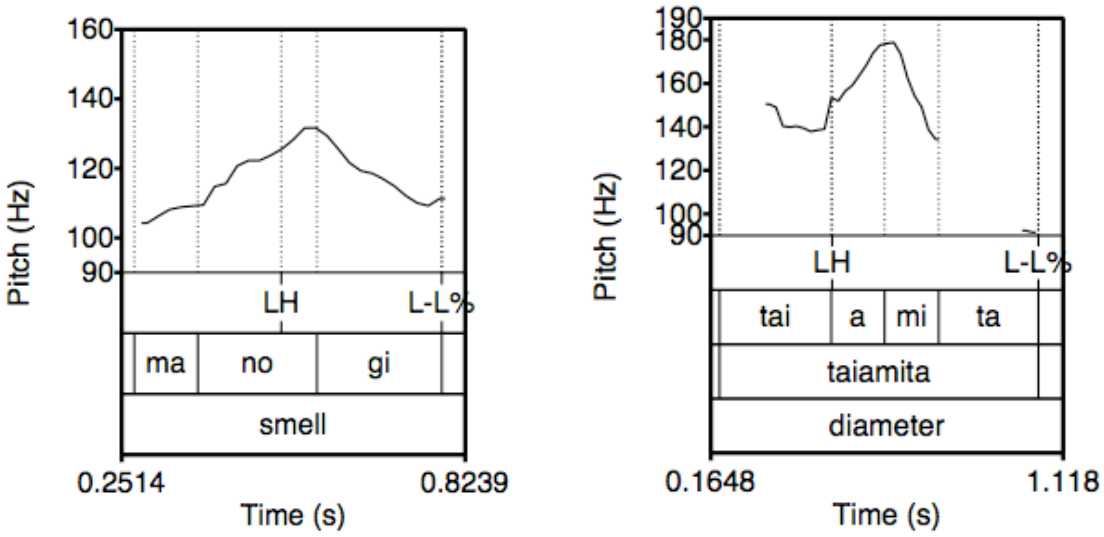

Figure 2. Pitch tracks for isolated words. *ma(nógi)* shows a LH pitch accent over the penultimate mora; *taiámita*, a loanword with irregular stress, shows a LH pitch accent over the stressed mora.

3. Methods

- Consultant is JF, a 21-year old male from Apia, Western Samoa.
- Collected in 2 hour sessions once a week during the period between November 2007-April 2009.
- Recordings were made in a soundbooth at UCLA with a head mounted microphone at 22Hz, and analyzed in Praat (Boersma & Weenink 2008).
- Elicitations were conducted in *tautala lelei* (formal register).

4. Tone Inventory

4.1 Pitch Accents

LH : Basic pitch accent realized as rise over primary stressed mora.

- Obligatory, contra Mosel and Hovdhaugen, 1992 (M&H).
- Tonal association unclear:
  - The low (L) is often aligned with the onset of the stressed mora.
  - H can be delayed into the following mora. Otherwise, the high peak occurs within the stressed mora.

H* : Secondary stress in content words may receive a H* pitch accent.

- Inconsistent realization.

!H* : Replaces LH as nuclear pitch accent in interrogatives (Y/N and Wh)

4.2 Boundary Tones

- The ToBI instantiation of the Autosegmental Metrical framework includes two hierarchical levels of boundary tones (often called ip vs. IP). These levels can be

distinguished by the size of the prosodic break and the presence of pitch reset, or by cases where different tones (H vs. L) are associated with each boundary.

- Thus far, we have found evidence for an L and H boundary tone in Samoan, but cannot conclusively separate out two levels of boundary tones, or decisively say whether the boundaries we have identified are ips or IPs.
    - Final lengthening is present following boundary tones. Some breaks appear to be larger than others, which may suggest two different sizes of boundary, but further work is necessary.
    - Some evidence exists for pitch reset following certain boundary tones.
    - No evidence to date of a complex (H-L% or L-H%) boundary tone.

L- : Declarative and Interrogative final boundary tone.

H- : Boundary tone occurring both as tonal morpheme and in pragmatically conditioned environments (cf section 7)

5. Sentential Intonation

Declaratives

Basic declarative form:

(1) Na lagona e Ioane le maile
past hear ERG John LE dog
'John heard the dog.'

Clefted declaratives

(2) `o le maile na lagona e Ioane
`O LE dog past hear ERG John
'It is the dog that John heard.'

- Post-verbal scrambling possible
- Ergative and non-ergative verbs mark their arguments differently.

Intonation

- LH rises (obligatory, contra M&H)
- Final L- boundary tone.

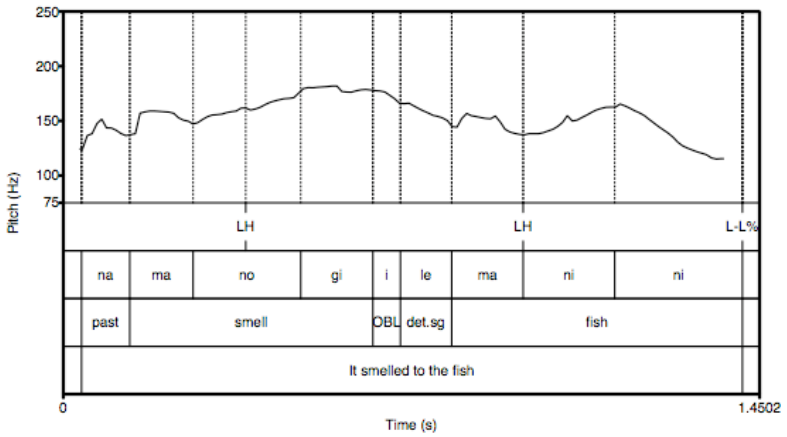

Figure 3a. Basic declarative with an oblique argument. LH rises appear over the primary stressed moras; the final boundary tone(s) are low.

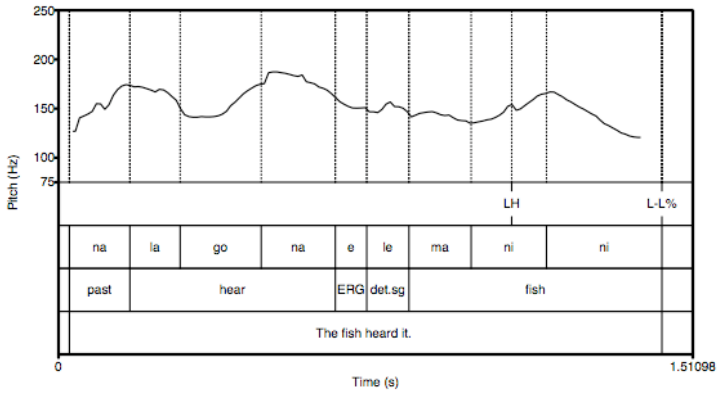

Figure 3b. Basic declarative with an ergative argument. LH rises appear over the primary stressed moras; the final boundary tone(s) are low.

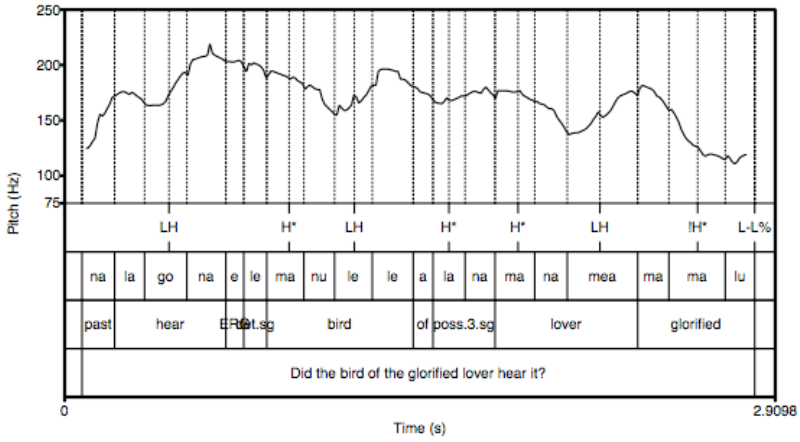

Figure 4. Basic declarative showing realization of secondary stress. Secondary stress or stress on grammatical morphemes is inconsistently realized with an H*, as in the pitch track above on ***mà****nuléle*, ***lá****na* and ***mà****naméa*.

Interrogatives

- Different nuclear pitch accent (NPA). Both Y/N and wh-interrogatives have a !H* NPA, different from the declaratives LH.
- Contra M&H lack of NPA.

- **Y/N Interrogatives**
  - Identical word order to basic declarative.
  - Typically higher pitch range.
- **Wh Interrogatives**
  - Parallel structure to clefted declarative.

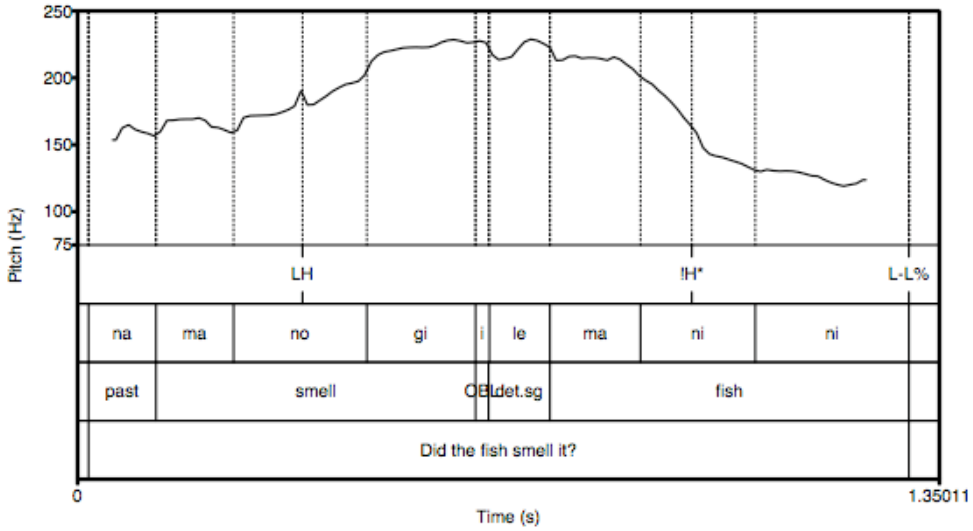

Figure 5a. Y/N question with an oblique argument. The nuclear pitch accent is a !H*, a downstepped high. The pitch staying high between the LH and the !H* is related to the utterance being fairly short.

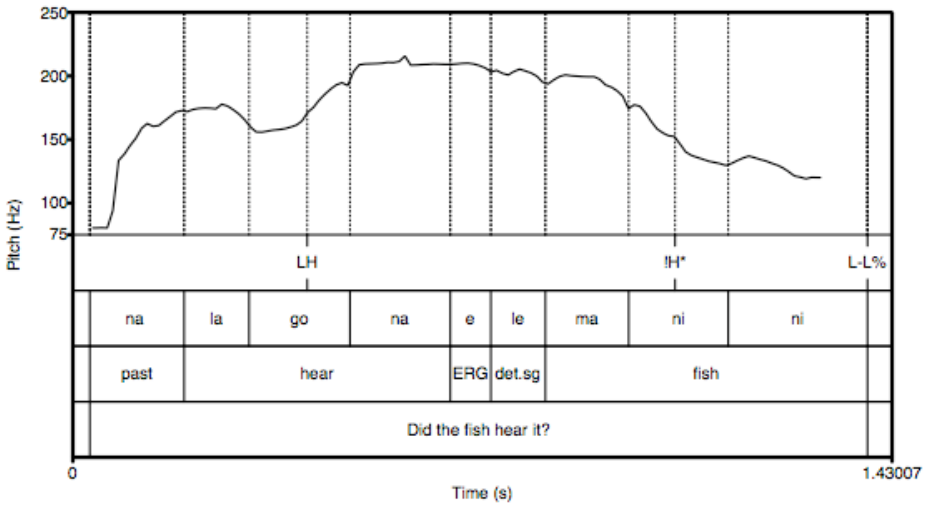

Figure 5b. Y/N question with an ergative argument. The nuclear pitch accent is a !H*, a downstepped high. The pitch staying high between the LH and the !H* is related to the utterance being fairly short.

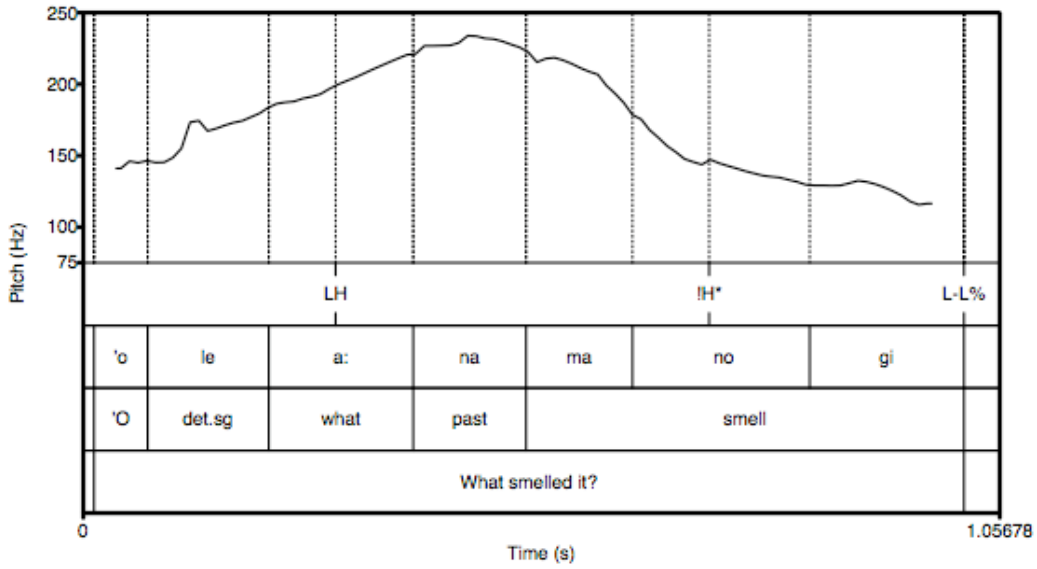

Figure 6a. wh-interrogative with an oblique argument. The nuclear pitch accent is a !H*, a downstepped high.

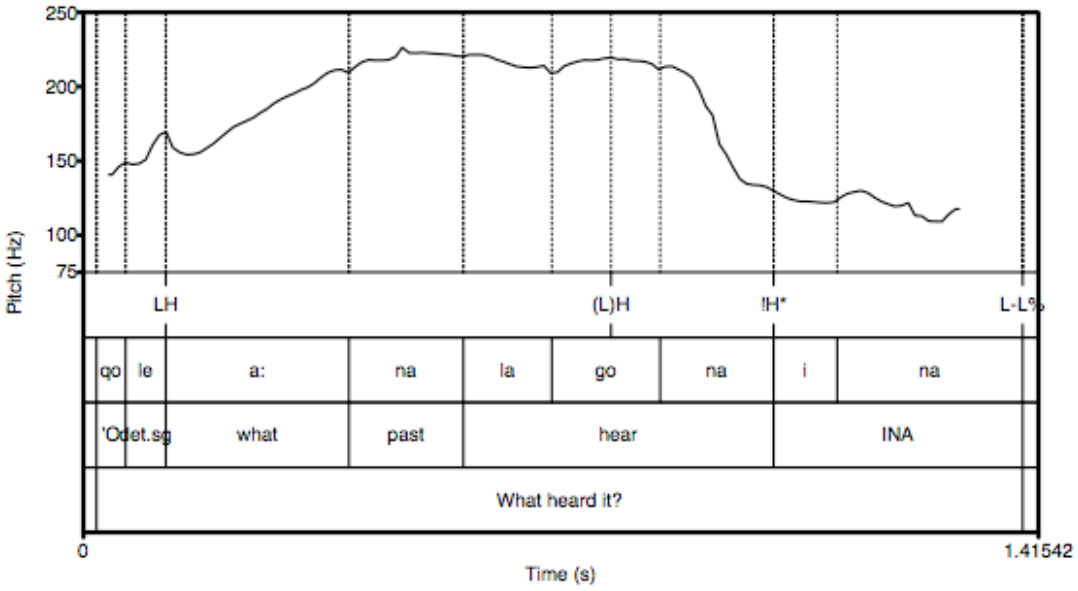

Figure 6b. wh-interrogative with an ergative argument. The nuclear pitch accent is a !H*, a downstepped high. The pitch staying high between the LH and the !H* is related to the utterance being fairly short.

Uncertainty

- Found in disbelief contexts, echo questions, and tag questions.
  - For the disbelief and echo questions, the tones realized in the contour is the same, regardless of what is being doubted: the entire proposition, a single argument, etc.
- Marked by final H- boundary tone.
- Other than this boundary tone, the intonation of the rest of the sentence patterns like that of other sentences discussed above.

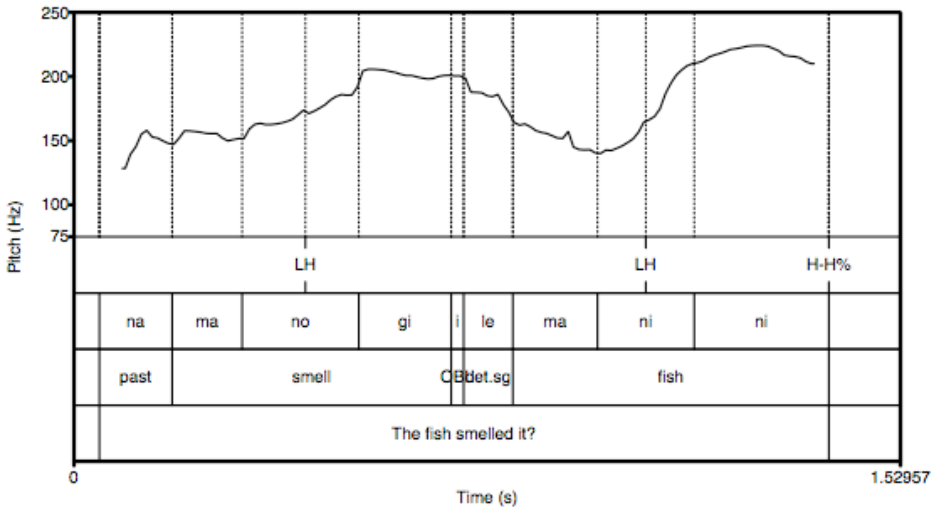

Figure 7a. Uncertainty context with oblique argument; the speaker doubts the proposition that the fish smelled it. The final boundary tone is high.

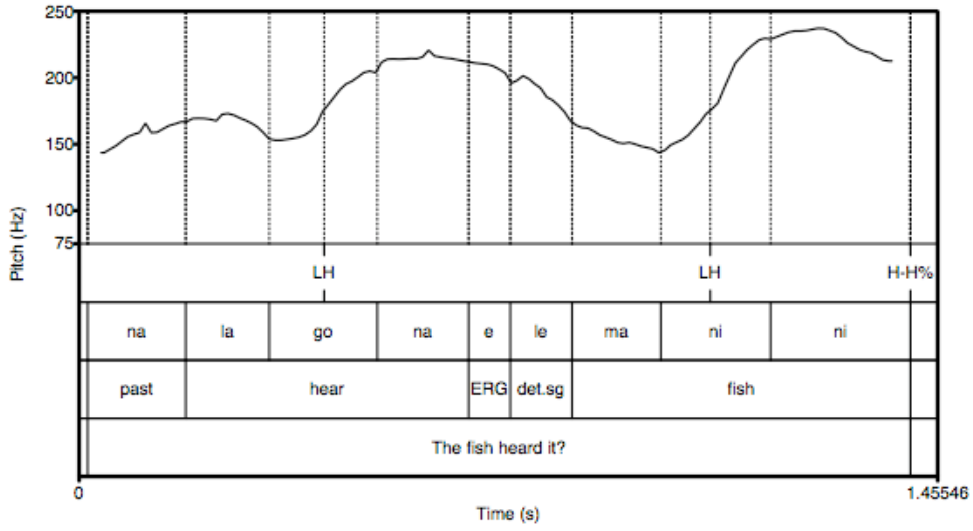

Figure 7b. Uncertainty context with ergative argument; the speaker doubts the proposition that the fish heard it. The final boundary tone is high.

6. Comparison to Mosel and Hovdhaugen 1992

	Mosel and Hovdhaugen	**Us**
prominence realization	head-marking/stress-driven	✓
domain of pitch accent assignment	(quantity sensitive) syllable	mora
nuclear pitch accent - regularity of appearance - location	obligatory in declaratives only declaratives-penultimate syllable	obligatory in all utterances assigned on mora receiving primary stress in final word
optionality of pitch accent assignment	prenuclear pitch accents are not obligatory	pitch accents are (typically) realized on all content words
pitch accent type	tone raising	✓ (LH)
basic interrogatives - nuclear pitch accent - utterance-final contour	absent random: "usually the tone is pretty low on the two to three last syllables" (42)	present, but different type than in declaratives predictable: !H* on final word linked to mora with primary stress

7. More on High (H-) Boundary Tones

- Distribution of H- tones described below is not prosodically conditioned.

<u>Clefted Declaratives</u>
- H- occurs between the left periphery and the T domain.

<u>Lists</u>
- H- occurs after each listed item as right-aligned boundary tone.

<u>Coordination</u>
- H- occurs as boundary tone right aligned to the conjunct, before conjunction.

<u>Absolutive</u>
- H- occurs at left edge of absolutive argument, as a case marker.

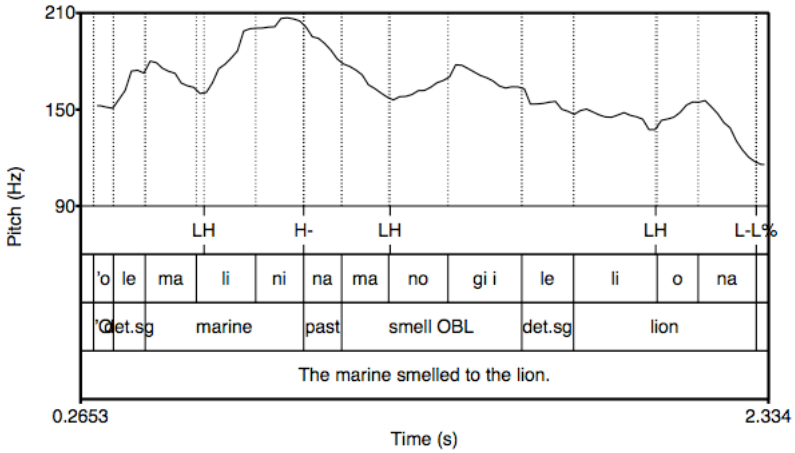

Figure 8a. Clefted declarative with a simple DP in the left periphery. An H- occurs at the boundary between the left periphery and the T domain, after *malini*.

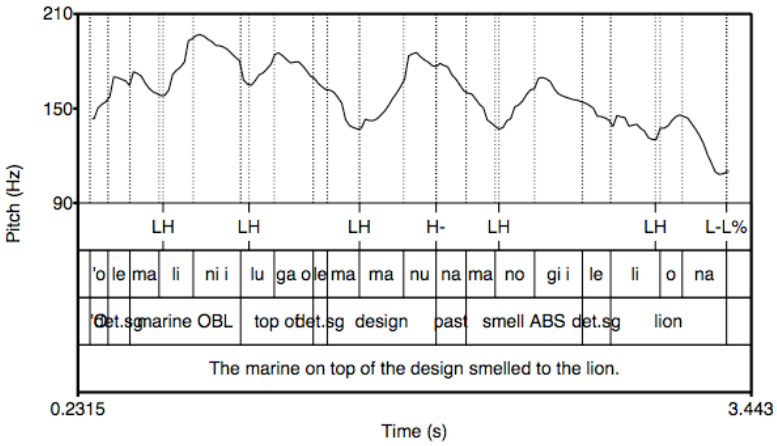

Figure 8b. Clefted declarative with a longer DP in the left periphery. An H- occurs at the boundary between the left periphery and the T domain, after *mamanu*.

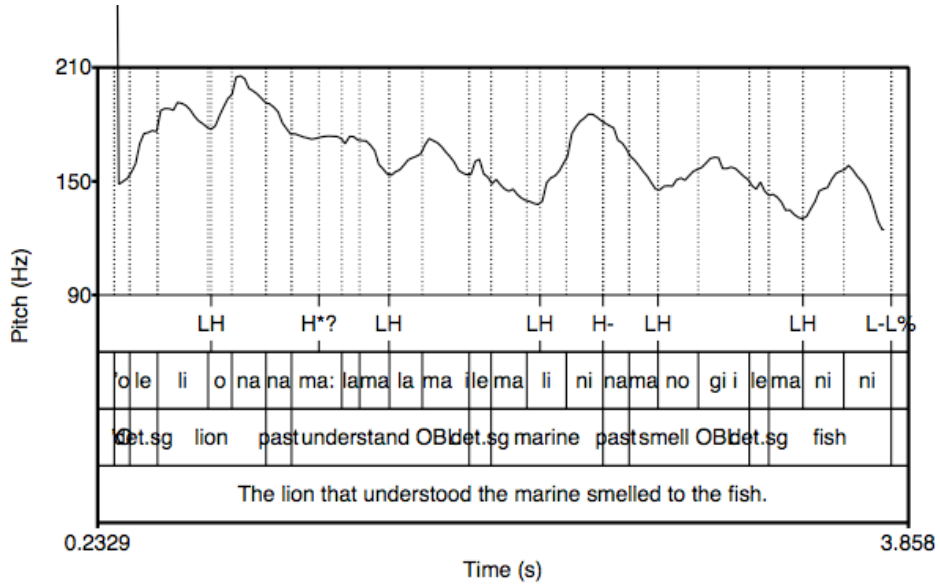

Figure 8c. Clefted declarative with an even longer DP (with a relative clause) in the left periphery. An H- occurs at the boundary between the left periphery and the T domain, after *malini*.

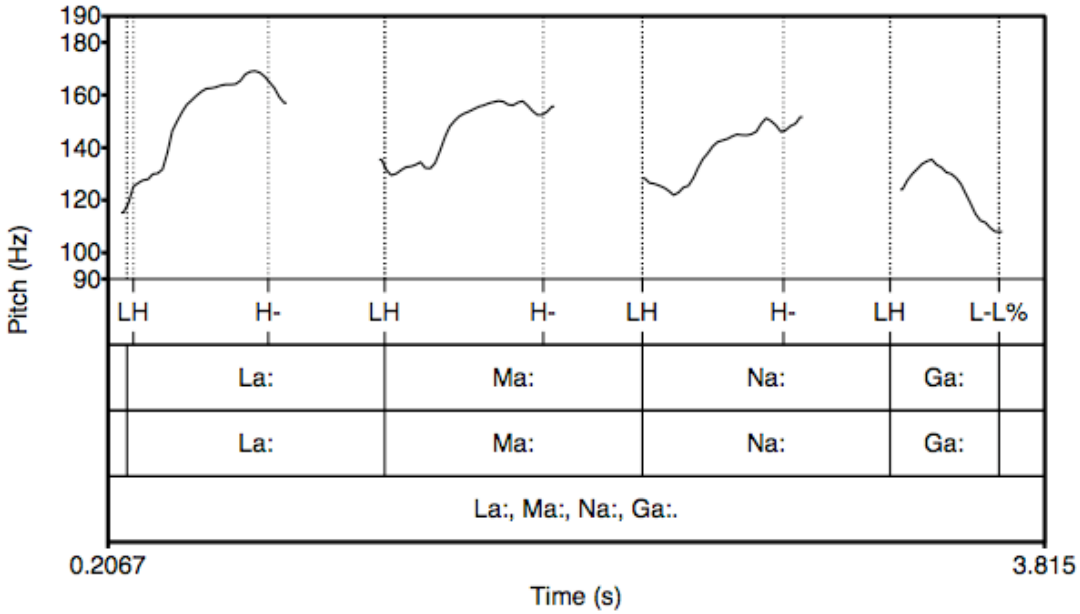

Figure 9a. A list with listed items. Even for these short words (the minimal length word in Samoan), the H- right-aligned to list items appears. The listed items are lengthened and followed by pauses.

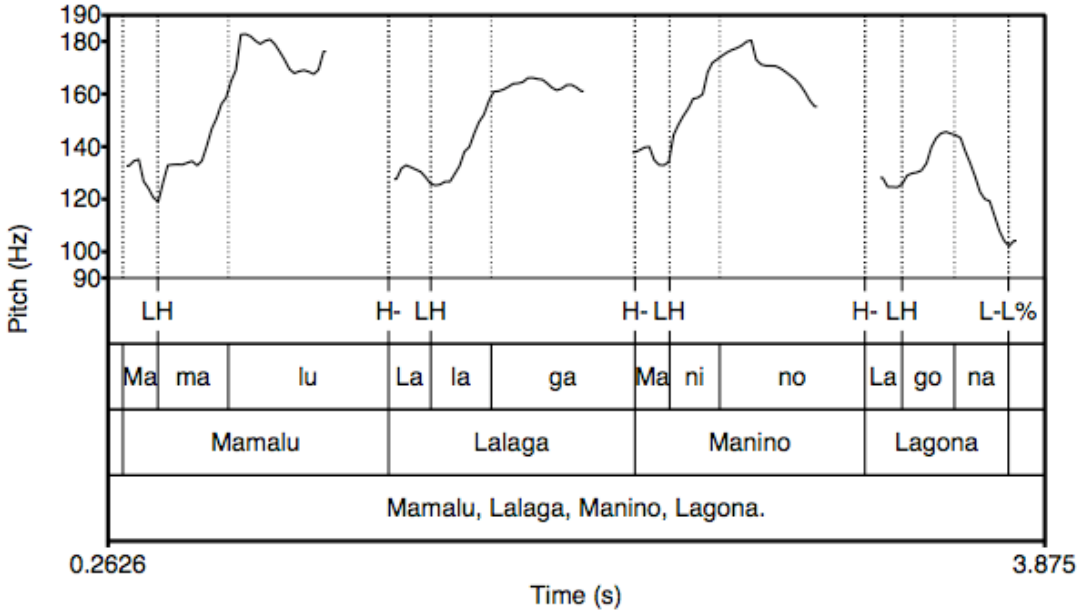

Figure 9b. A list with listed items. The H- appears right-aligned to the 3-mora list items. The final mora of listed items is lengthened and followed by a pause.

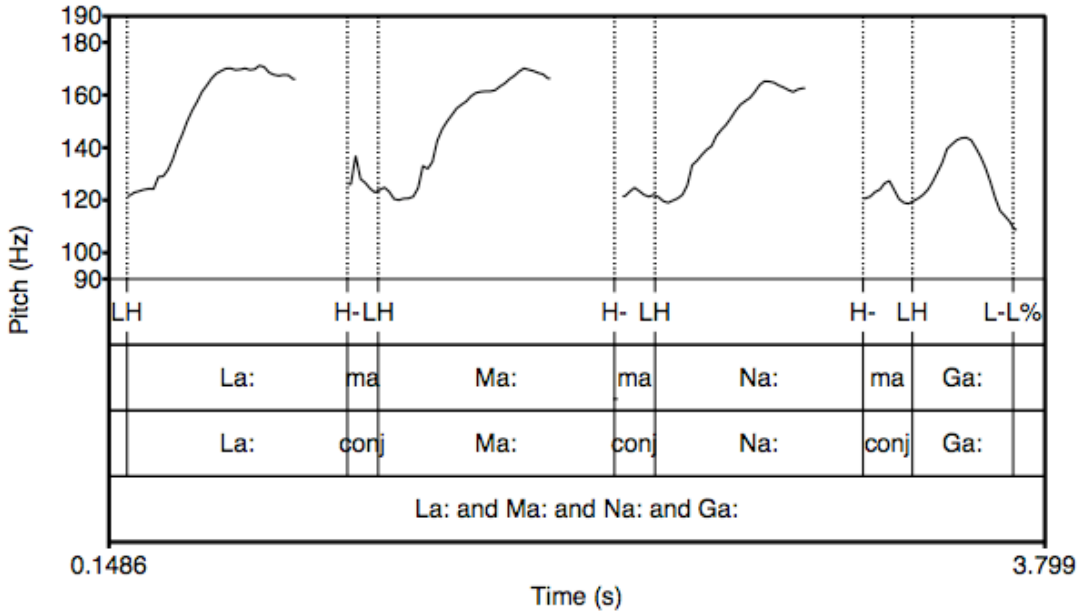

Figure 10a. A list of coordinated items, showing the coordination H- right aligned to the listed item. Compare to Figure 9a: the pitch contours are very similar. The items are lengthened and followed by a pause.

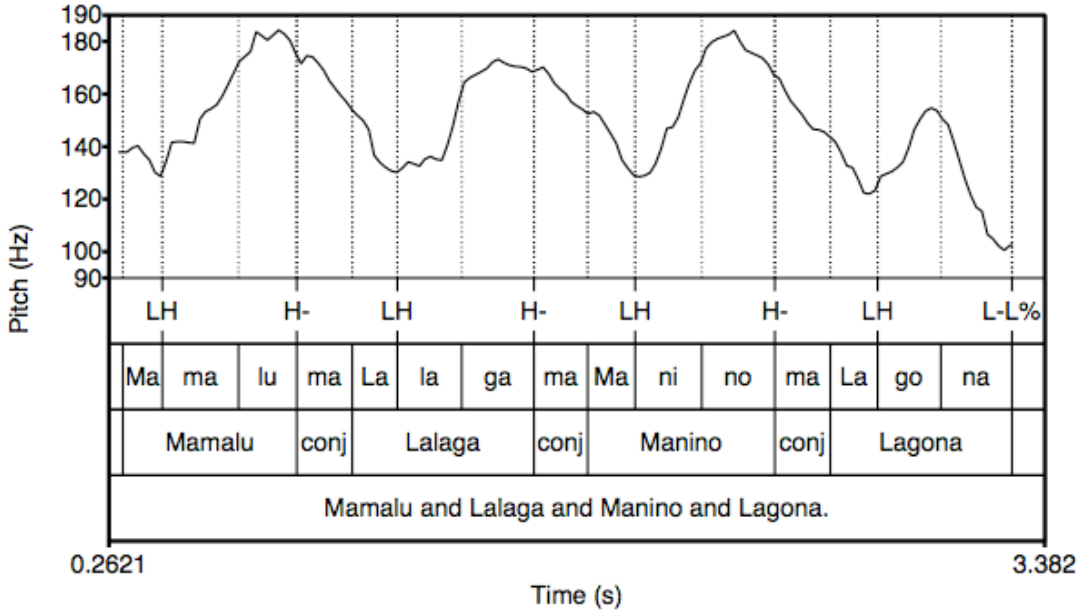

Figure 10b. A list of coordinated items, showing the coordination H- right aligned to the listed item. Compare to Figure 9b: the pitch contours are very similar. This utterance does not show pauses after the final moras of the listed items.

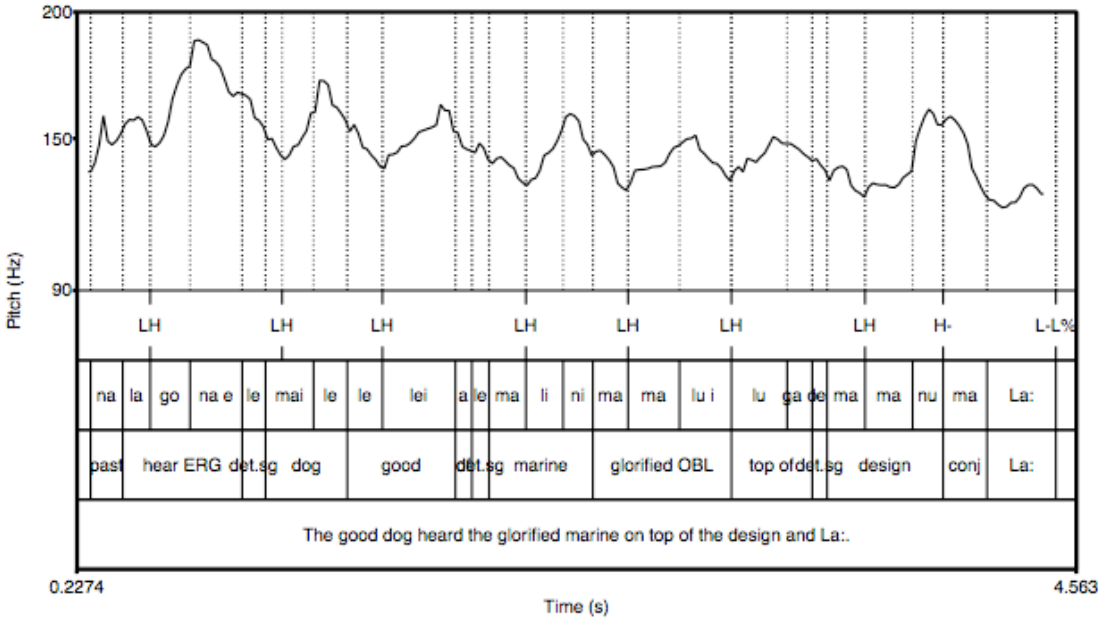

Figure 10c. A long sentence, a basic declarative, where the only sentence-medial boundary tone, the coordination H- appears right before the final short word *La:* in the sentence, supporting that this H- is not prosodically conditioned: it must always appear with coordination, regardless of prosodic factors.

8. Future Work and Speculations

- Medial point on the prosodic continuum, showing characteristics of both tone languages and intonational languages, even within just the H- boundary tone.
    - Lexically assigned H- versus pragmatically conditioned H-.
- Origin of tonal morphemes: perhaps a historical remnant of grammatical tonal system cf. Chickasaw, Bantu.
- Comparison to intonation of other Austronesian languages.
- Extension to *tautala leaga* (informal register).

References

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