

*Workshop on Intonational phonology: Understudied or
Fieldwork languages, Aug.5, 2007, Saarbrücken, Germany*

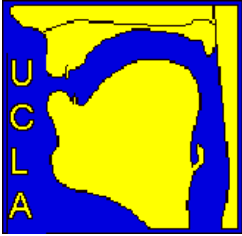
Intonational Phonology of Georgian

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Chad Vicenik &

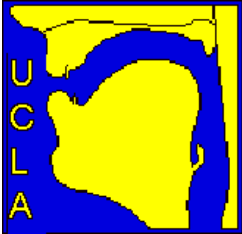
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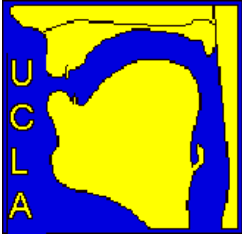
Introduction: Georgian

- Also known as Kartuli ena. The national language of Georgia, a country located in the Caucasus
- A member of the South Caucasian lg. group
- Spoken by over 4 million people
- Free word order, but prefer SOV in declarative



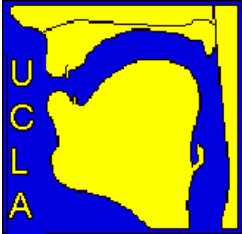
Introduction: Georgian stress

- Robins & Waterson (1952): in a word in isolation data, one speaker.
 - Stress is weak and realized in high pitch
 - 2 syll word: stress on 1st syll
 - 3 syll word: stress on 1st or 2nd syll
 - 4 syll word: stress on 2nd or 1st & 3rd syll
 - 5 syll word: stress on 1st & 3rd or 2nd & 4th syll
 - 6 or more syll word: stress on 1st & antepenult (primary)
- Aronson (1990):
 - stress on 1st & antepenult in words of 5 or more sylls.
 - stress on 1st or antepenult in words of 4 or fewer sylls.



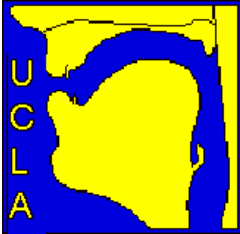
Method

- Speaker MB's (female in her 40s) production was collected through 20 weeks of fieldwork (one hour per week).
- She produced at least twice of 575 sentence types (154 declaratives, 49 yes/no-questions, 153 wh-questions, 185 focus sentences, and 34 others (e.g., list, vocative, tag Q)).
- Three more speakers (two females and one male) read selected sentences from MB's data, at least twice each: 30 declaratives, 15 yes/no-questions, 40 wh-questions, and 30 focus sentences.
- Recording: Subject wore a head-mounted microphone connected to a laptop computer. Recorded directly into a laptop at 11 or 22 kHz sampling rate, in a quiet room.
- Word boundaries and sentences were segmented and pitch was analyzed using *PitchWorks* (Scicon R&D).



Results: stress

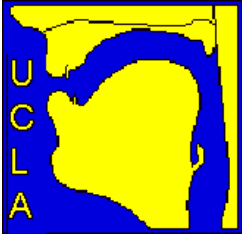
- Not every word has a prominent syllable.
- But if it has, **1st syllable** is prominent (large amplitude and longer duration, but various pitch)
- Antepenult of a word can be prominent when the word is the only word or the last word of an Accentual Phrase (AP); See next page for the definition of AP.
- Antepenult of an AP can be prominent; this is not necessarily the antepenult of a word. High pitch on antepenult and Low pitch on penult => H+L phrase accent of an AP



Results: Model

Prosodic Structure: IP > ip > AP > word

- **Accentual Phrase (AP):** one or more words. Has one pitch accent (L^* , H^* , $L+H^*$, or L^*+H) on AP-initial syllable, a possible phrase accent ($H+L$) on antepenult of an AP, and a boundary tone (Ha , La , $L+Ha$). => $[T^* (H+L) Ta]$
- **Intermediate phrase (ip):** one or more APs. Marked by a boundary tone ($H-$, $L-$, $L+H-$) on ip-final syllable, which is slightly lengthened.
- **Intonation Phrase (IP):** one or more ips. Marked by a boundary tone ($H\%$, $L\%$, $LH\%$, or $HL\%$) on IP-final syllable, which is substantially lengthened.



Results: Declaratives

- Default:
 - Each word forms one AP, rising pitch [L* Ha], with a lowered peak of Ha over a sentence.
 - L% boundary tone at the end of a sentence.
- Syntactic/semantic group often forms one ip.
 - {[AP1][AP2][AP3]H-}
 - AP1 can have Ha or La, but AP2 often has La.
 - When AP has La, its pitch accent is often H*.
In a sequence of APs with H*, non-initial H* is downstepped, i.e., !H*
 - H- peak is higher than Ha peak
 - La is also common in focus and questions.

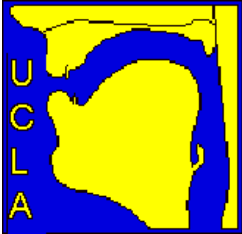
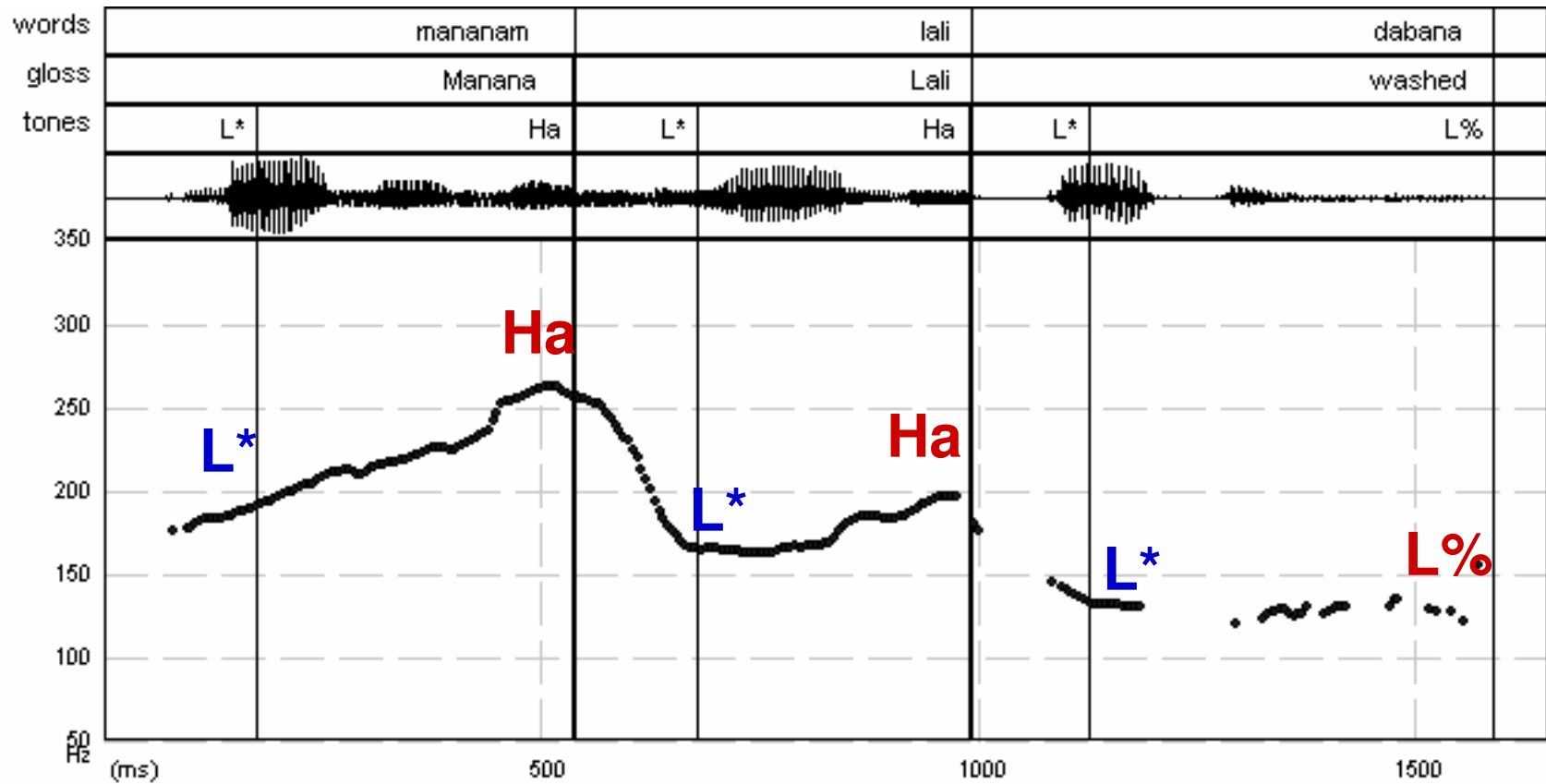


Fig.1: example of simple declarative
 ({[Subj] [Obj] [Verb]})
 “Manana washed Lali”



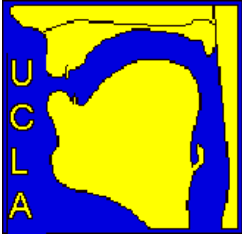
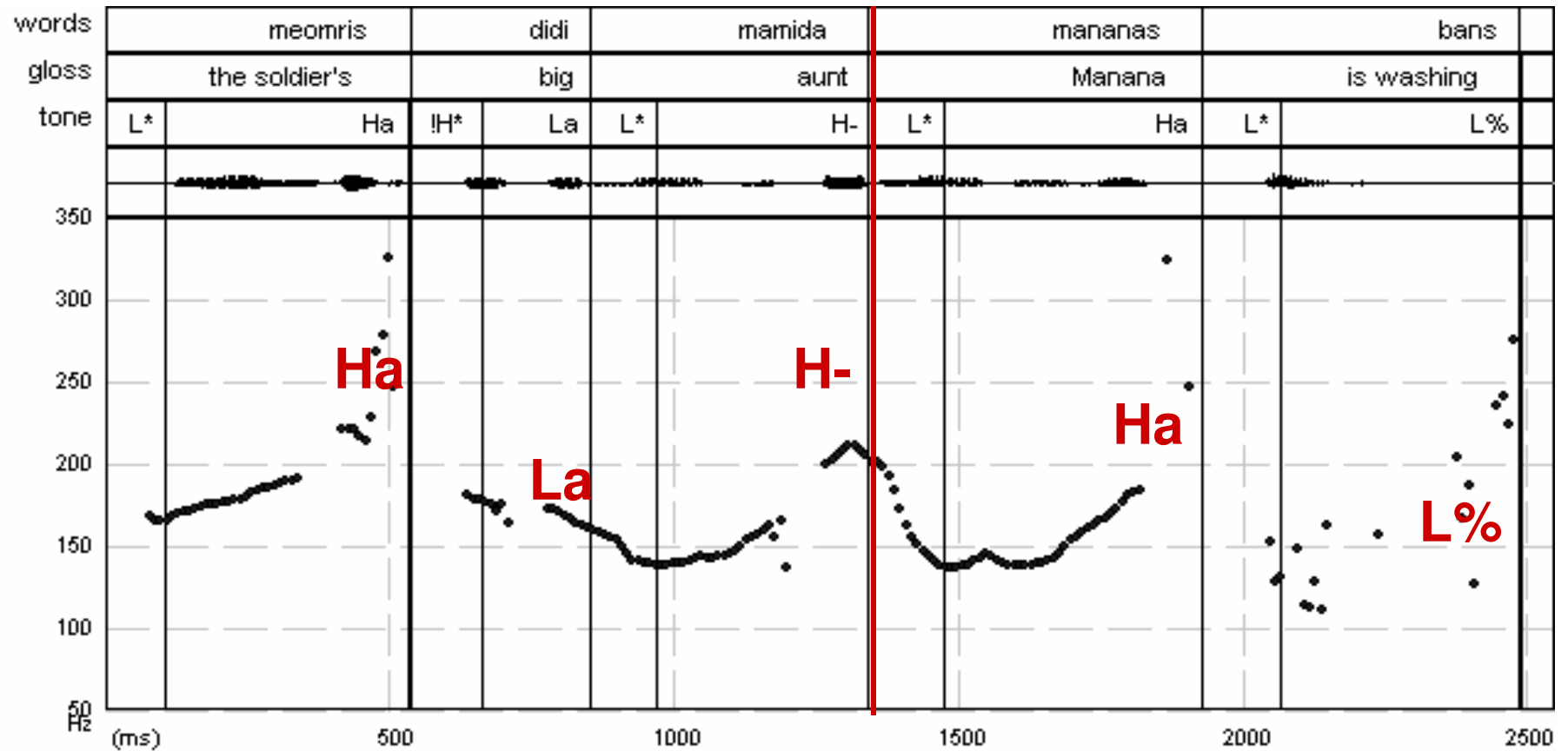


Fig.2: example of complex declarative I:
 ({[Poss.][Adj][Noun]}) {[Obj][Verb]}
 “The soldier’s big aunt is washing Manana”



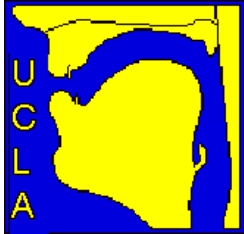
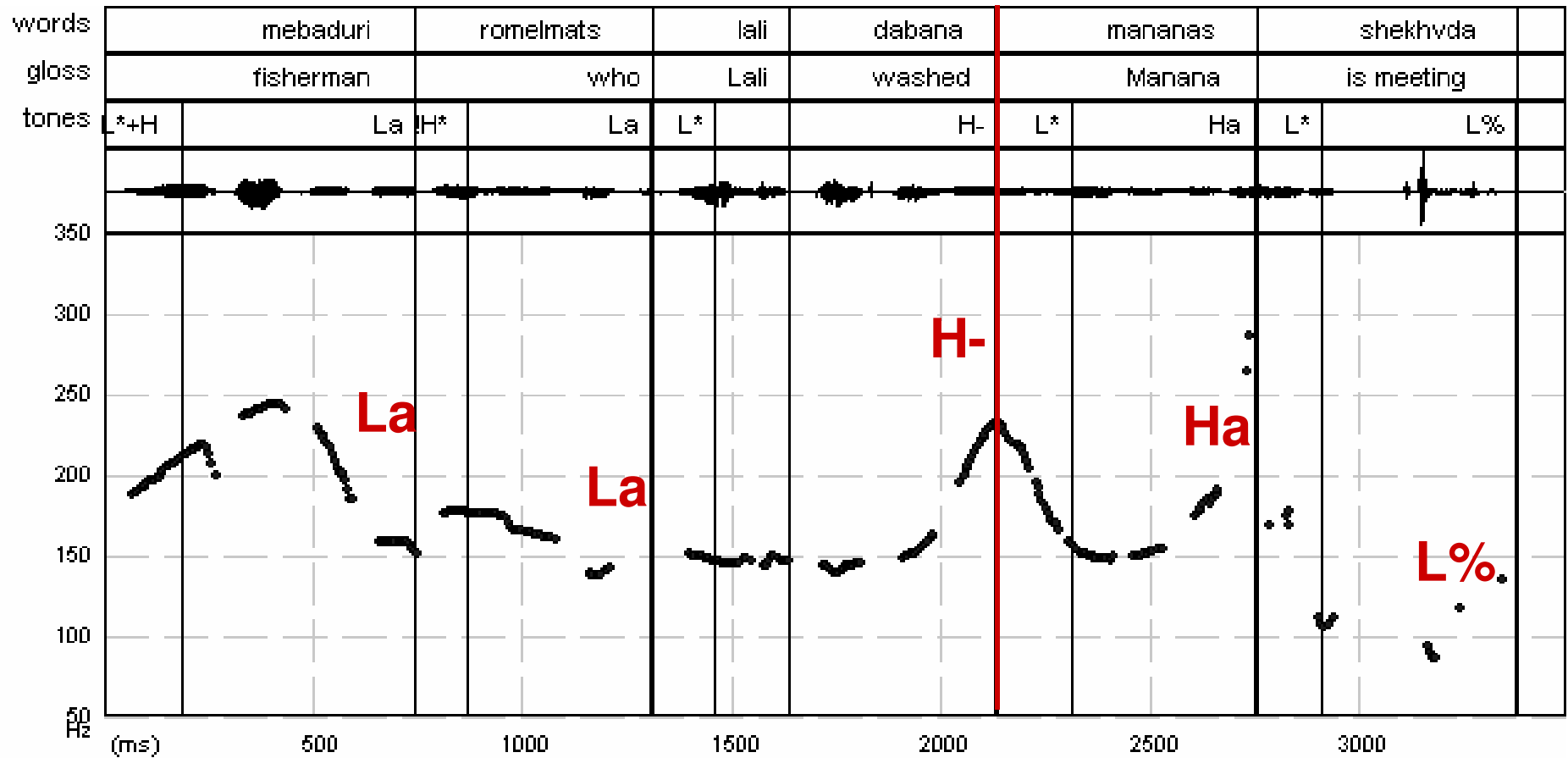
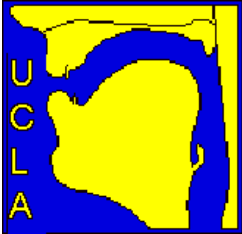


Fig.3: example of complex declarative II:
 ({{[Subject][Rel.Cl.who][Lali-washed]}} {{[Obj][Verb]}})
 “The fisherman who washed Lali is meeting Manana”





Results: Yes/No-questions

- Simple sentence: **sentence-medial verb; a big prosodic break after V.**
 - Subject + Verb // complement phrase
 - the boundary tone after Verb can be H- or L-
 - 1st AP's boundary tone is in general La
 - Sentence final boundary tone is H% or HL%
- When an AP is longer than 4 syllables, phrase accent H+L on antepenult of AP.
 - => {[H* La][T* **H+L H-/L-**]} {[T* **H+L H(L)%**]}
- Post-verbal phrase can have no phrase accent. In this case, L+H% boundary tone, i.e., High on final & Low on penult.
- When Subj is heavy (NP+Rel.cl), Verb comes after Obj.

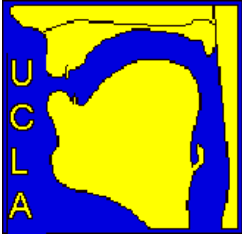
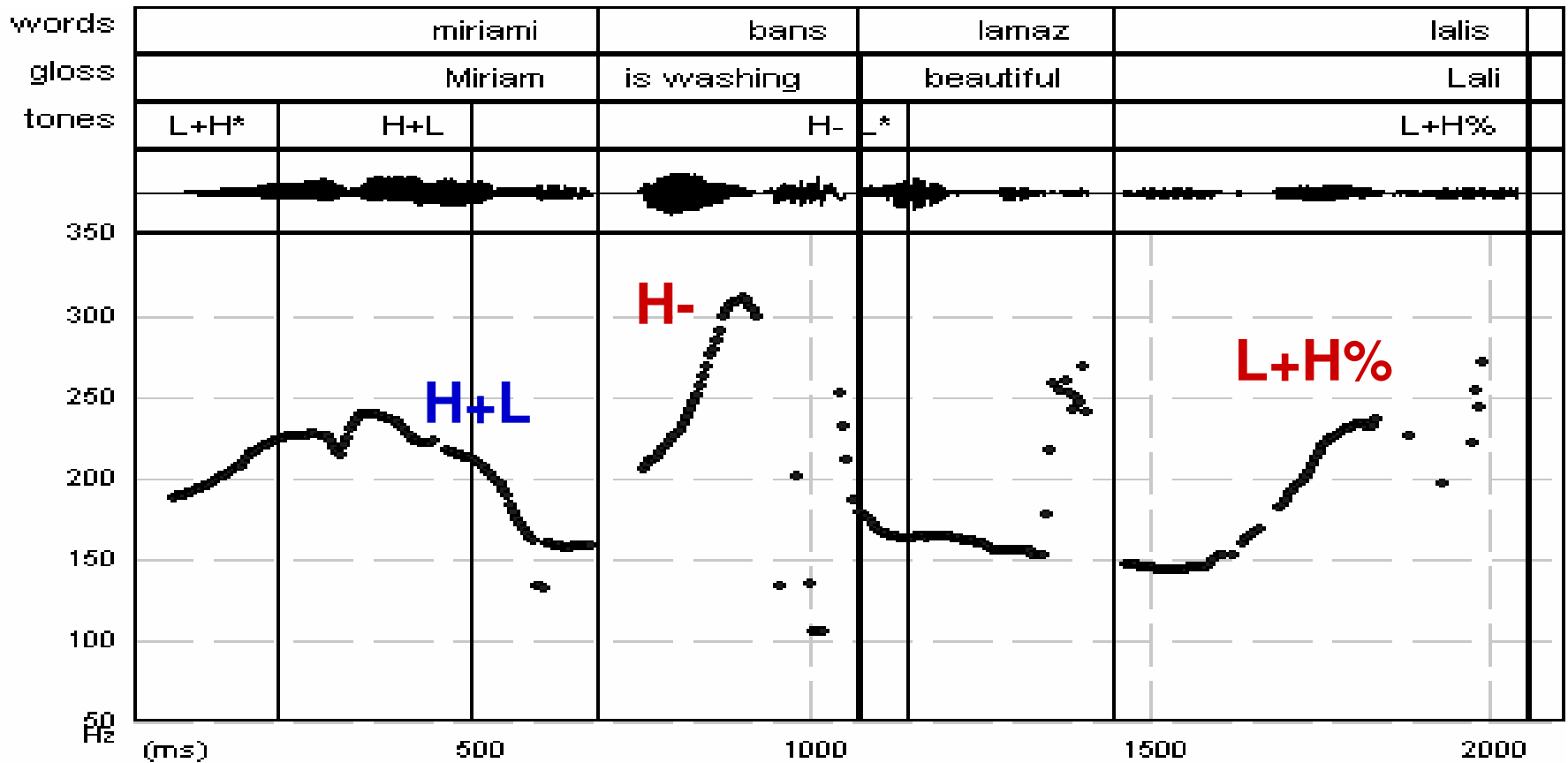


Fig.4: example of simple Y/N-Q

“Is Miriam washing beautiful Lali?”

{Subj+V} {Adj+N}

=> shows H+L phrase accent on antepenult of an AP



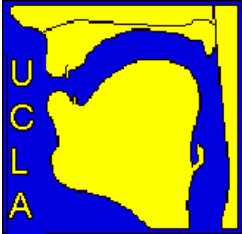
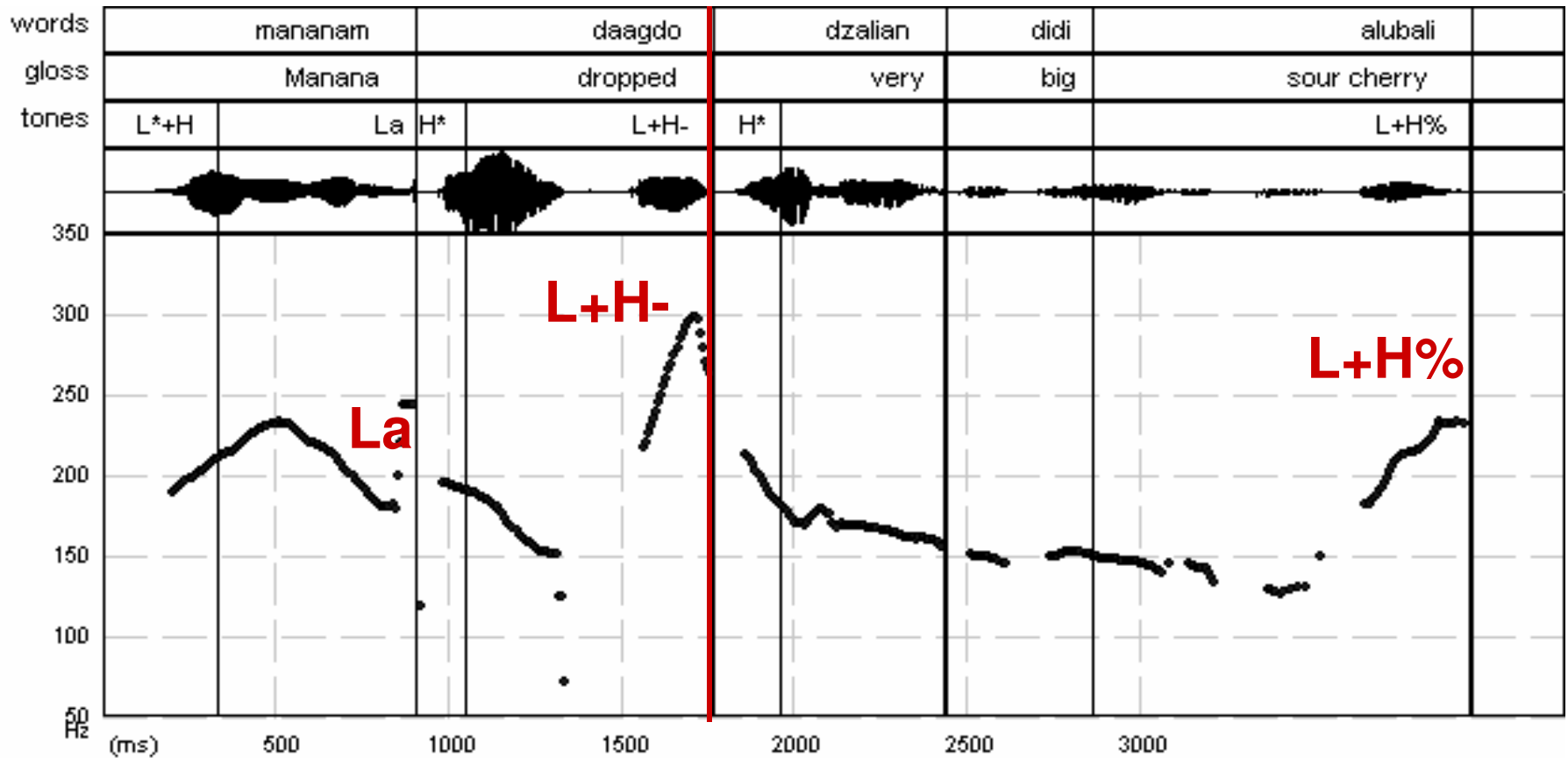


Fig.5: Ex. of Subj. and heavy Obj. Y/N-Q
 “Did Manana drop very big sourcherry?”
 => shows L+H- on Verb and L+H% at the end.



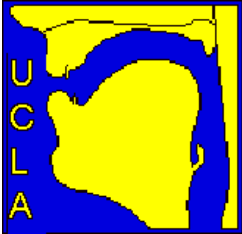
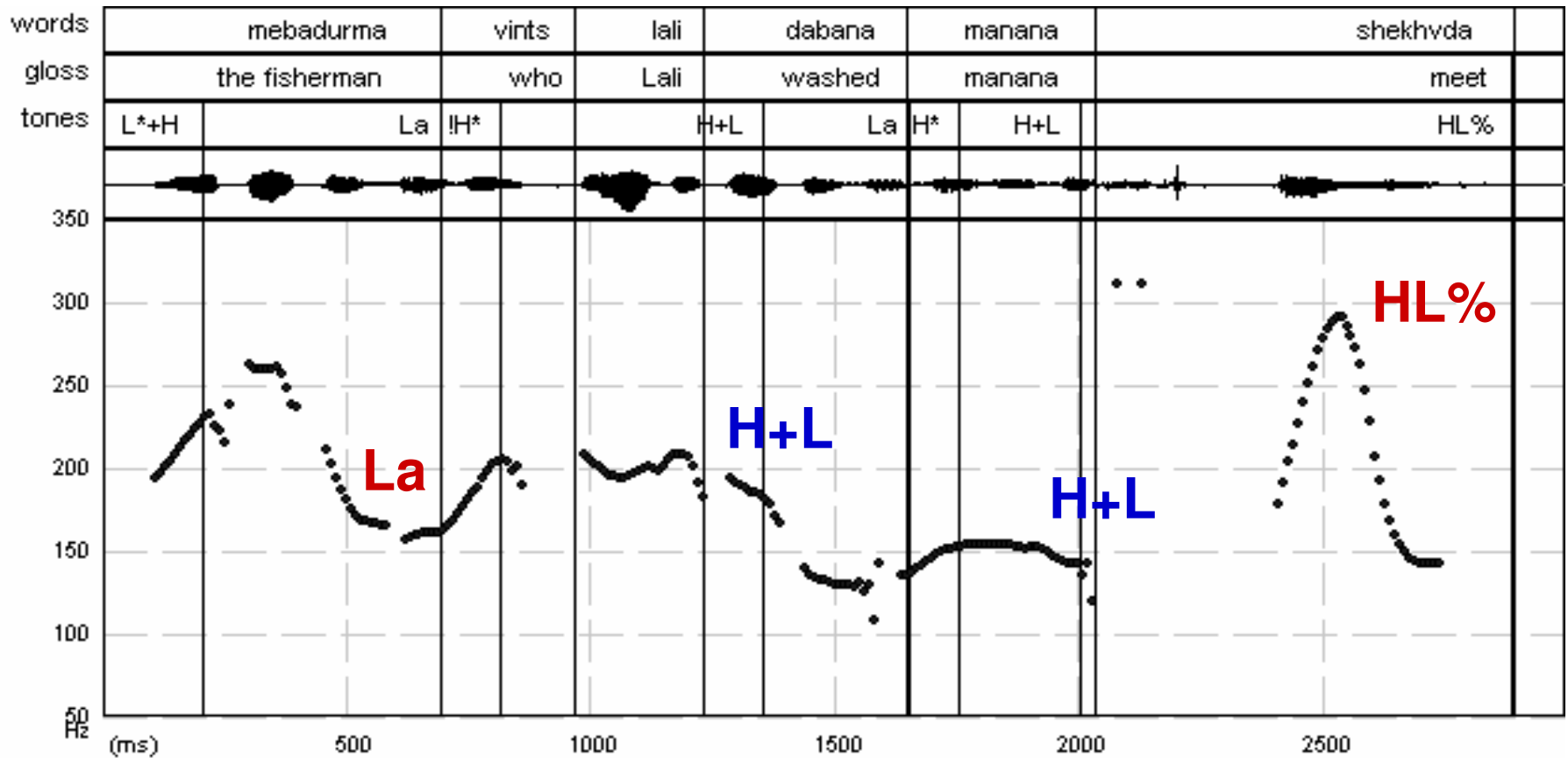


Fig.6: Ex. of complex Subj. Y/N-Q

“Did the fisherman who washed Lali meet Manana?”
 => shows SOV order. Two H+L phrase accents



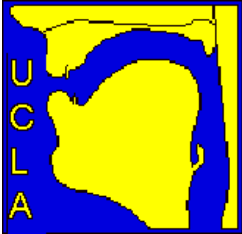
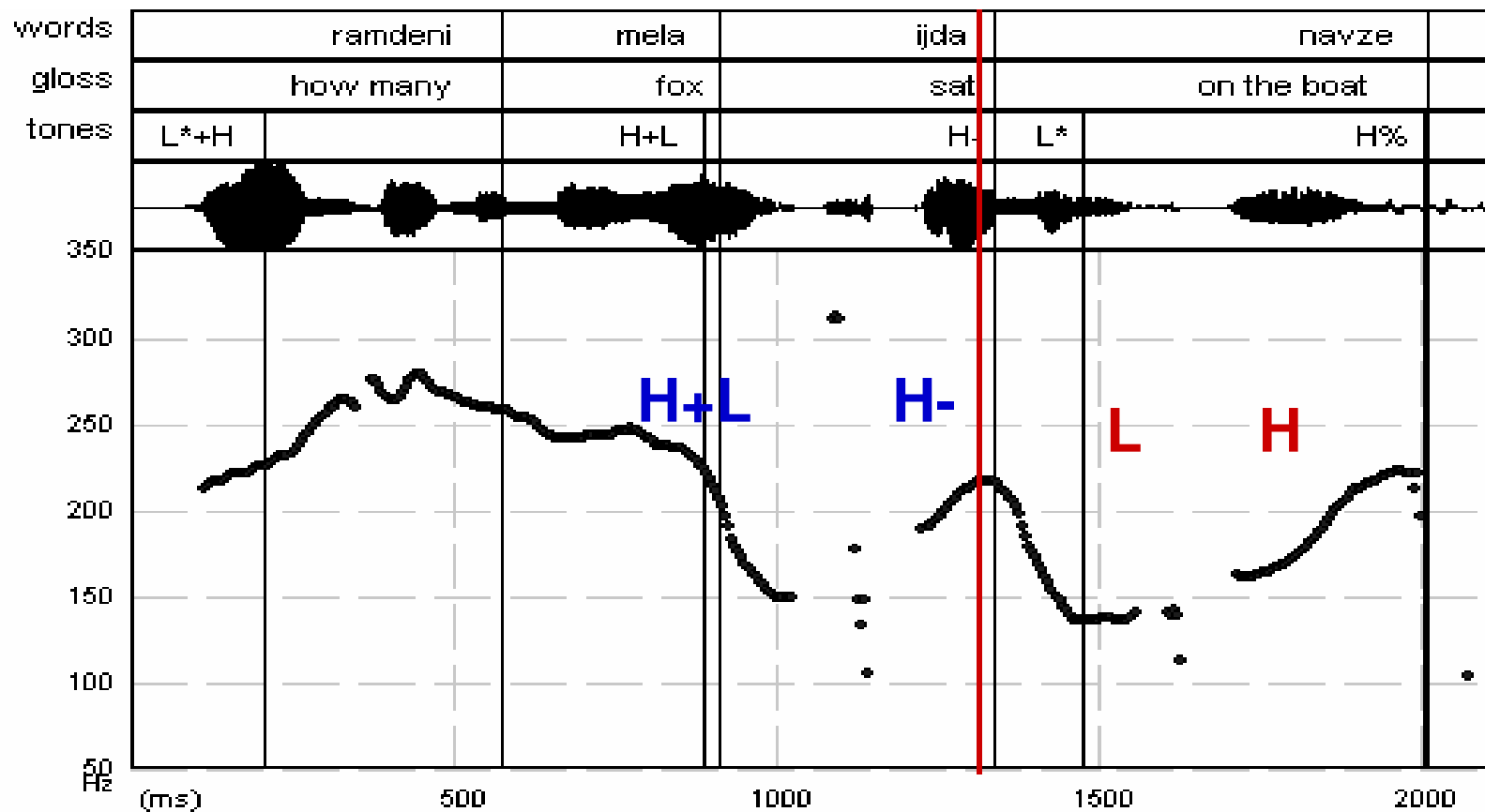


Fig.7 Ex. of Wh-Q with 2 syll post-verbal phrase.

“How many foxes sat on the boat?”

=> shows L H contour in the post-verbal phrase.

also shows 1st ip has H+L phr. accent & H- boundary.



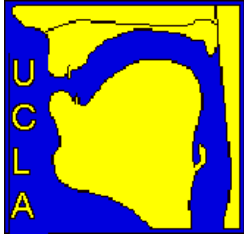
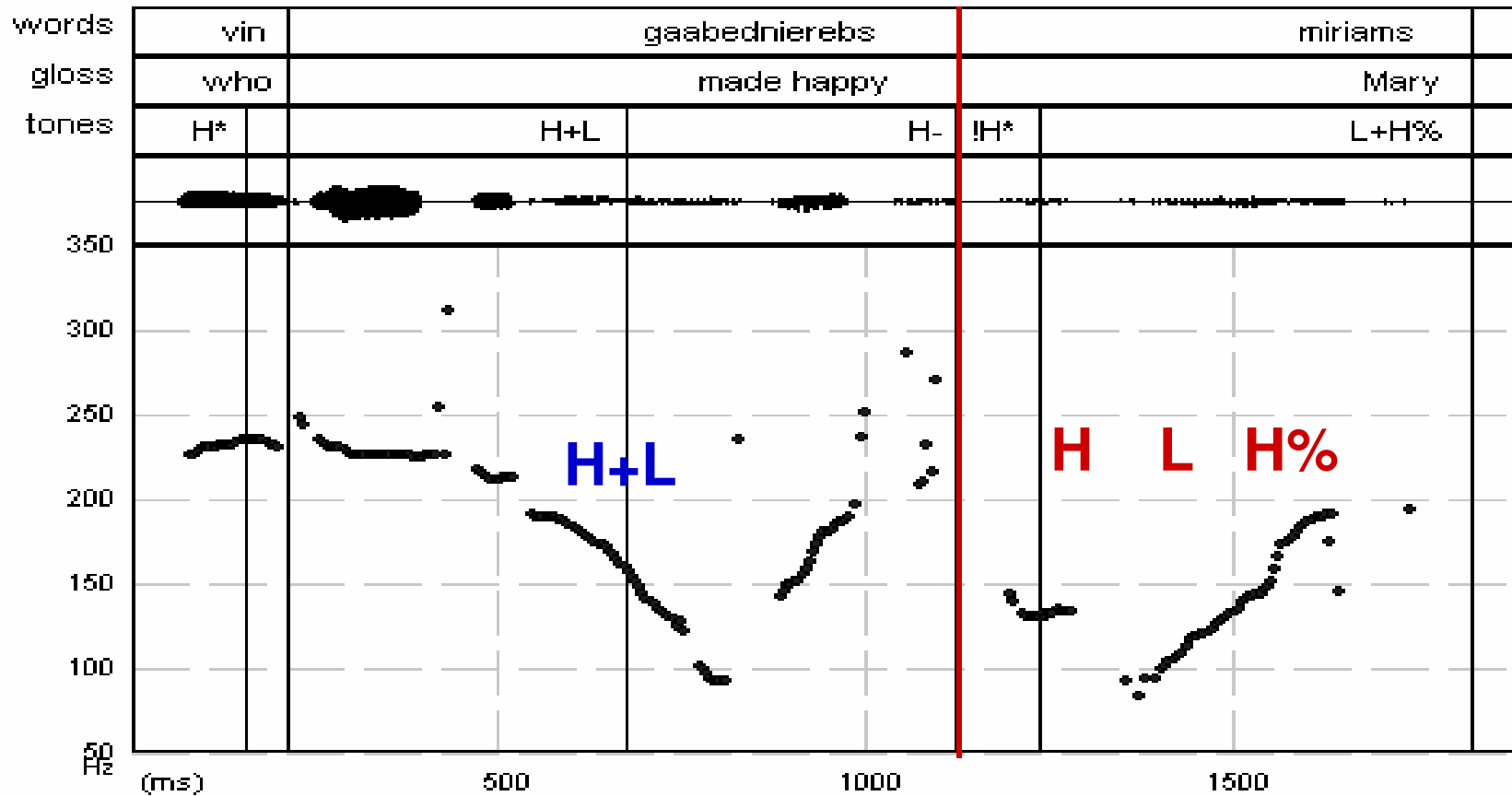


Fig.8 Ex. of Wh-Q with 3 syll post-verbal phrase.

“Who made Mary happy?”

=> shows H L H contour in the post-verbal phrase



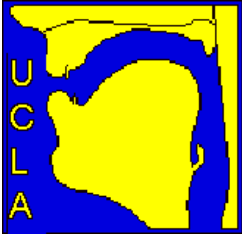
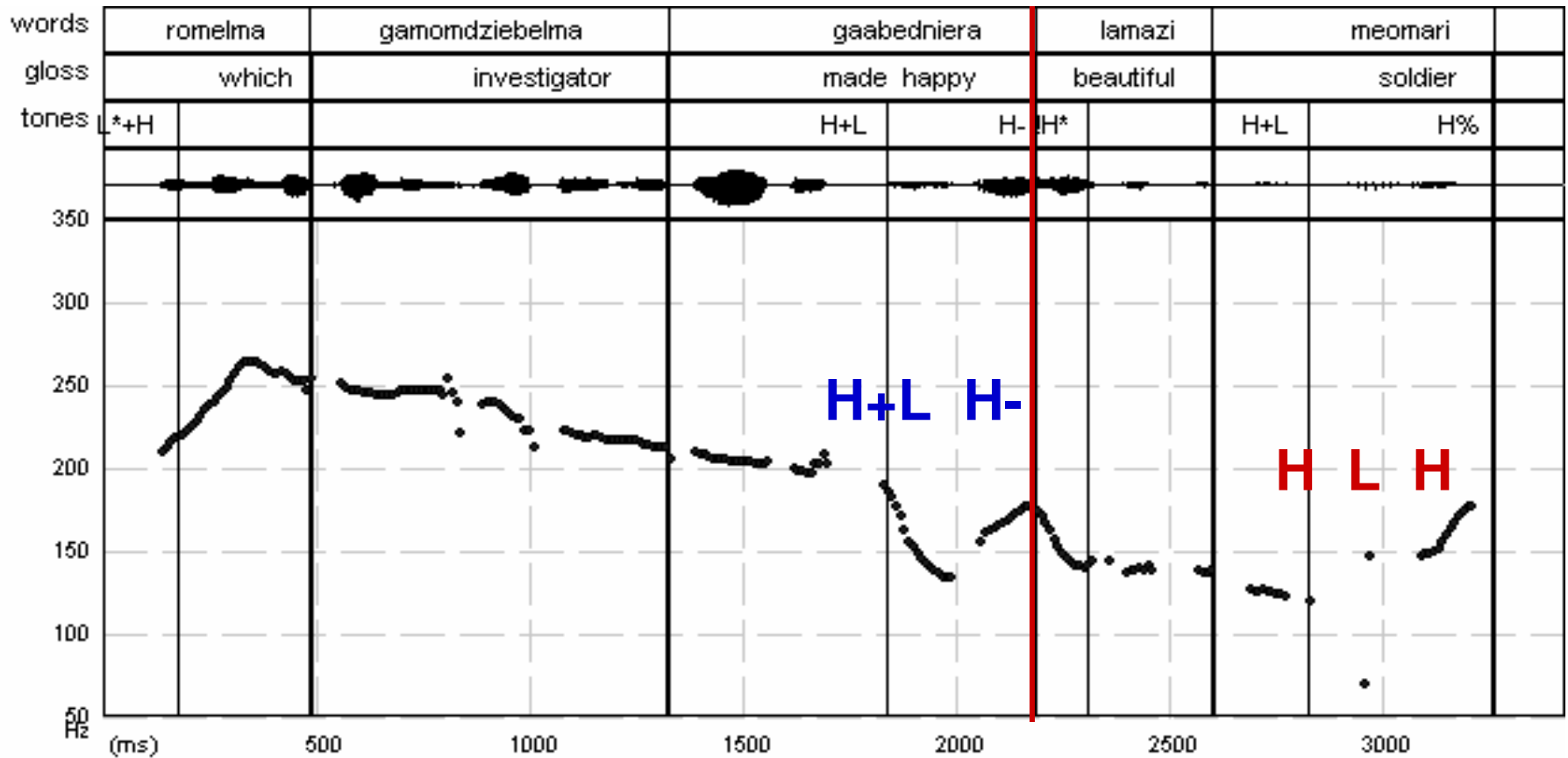
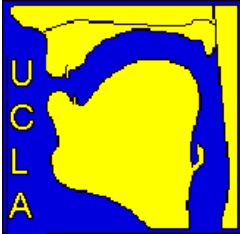


Fig.9 Ex. of Wh-Q with 7 syll post-verbal phrase.
 “Which investigator made the beautiful soldier happy?”
 => H-L-H contour at the end of post-verbal phrase.





Results: Focus

- Default: high pitch accent, $(L+)H^*$, on the focused word and no prosodic boundary after the focused word, i.e., **dephrasing**
 - the post-focus word is either deaccented/dephrased (Fig.10) or attaches to the focused word and carries H+L phrase accent (Fig.11).
- But, focus on sentence-final Verb has little effect.
- Focused word begins a big phrase, and does not affect Yes/No-Question boundary contour (Fig.12)
=> compare with Fig.6

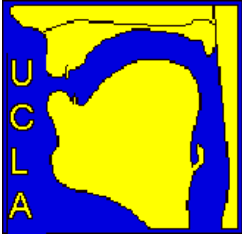
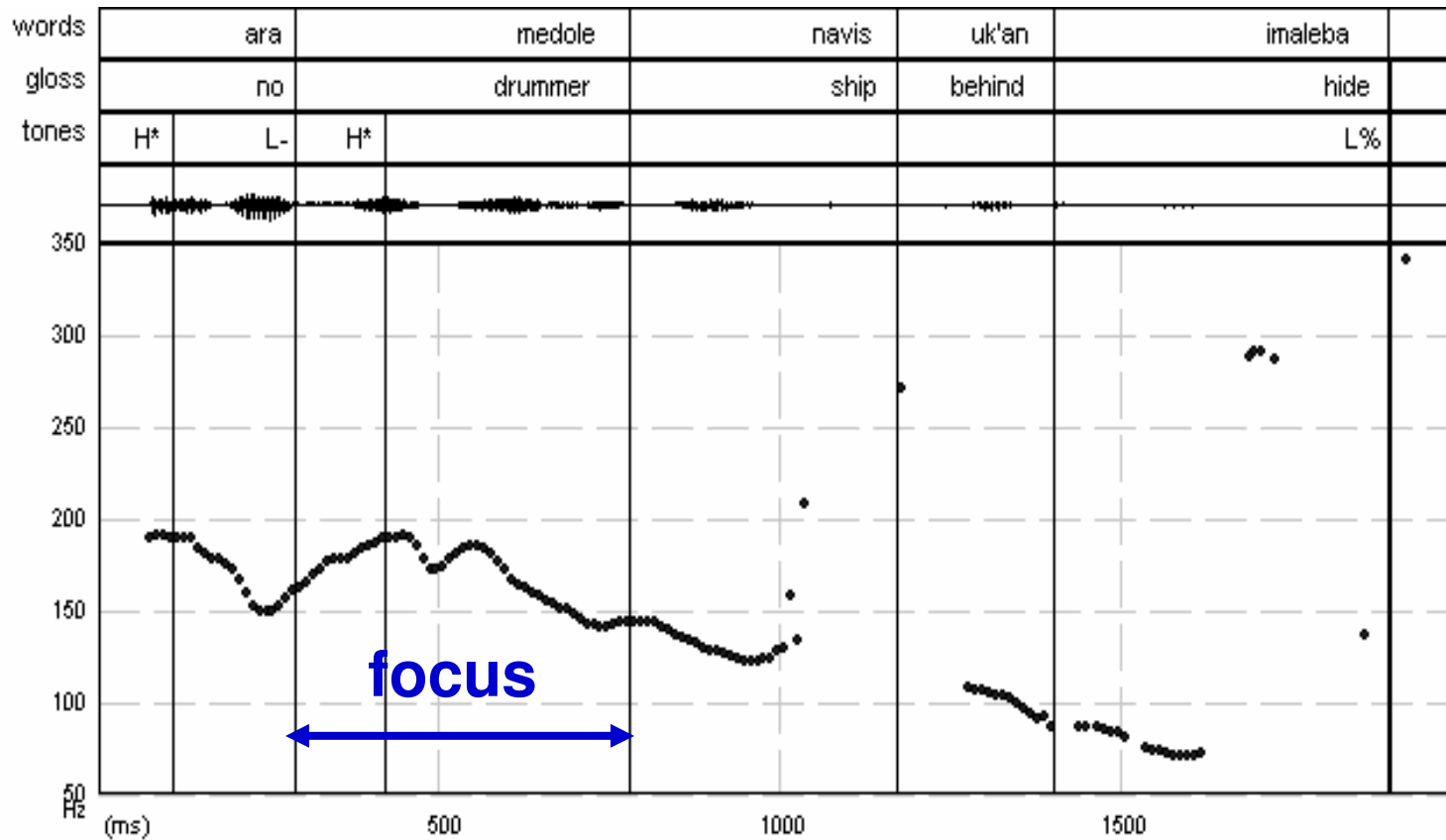


Fig.10: corrective focus on Subject

“(No.) DRUMMER is hiding behind the ship”
 => no accent/boundary after Subj. till the end of S.



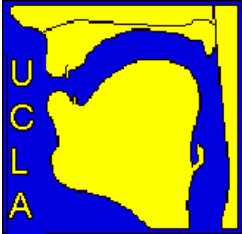
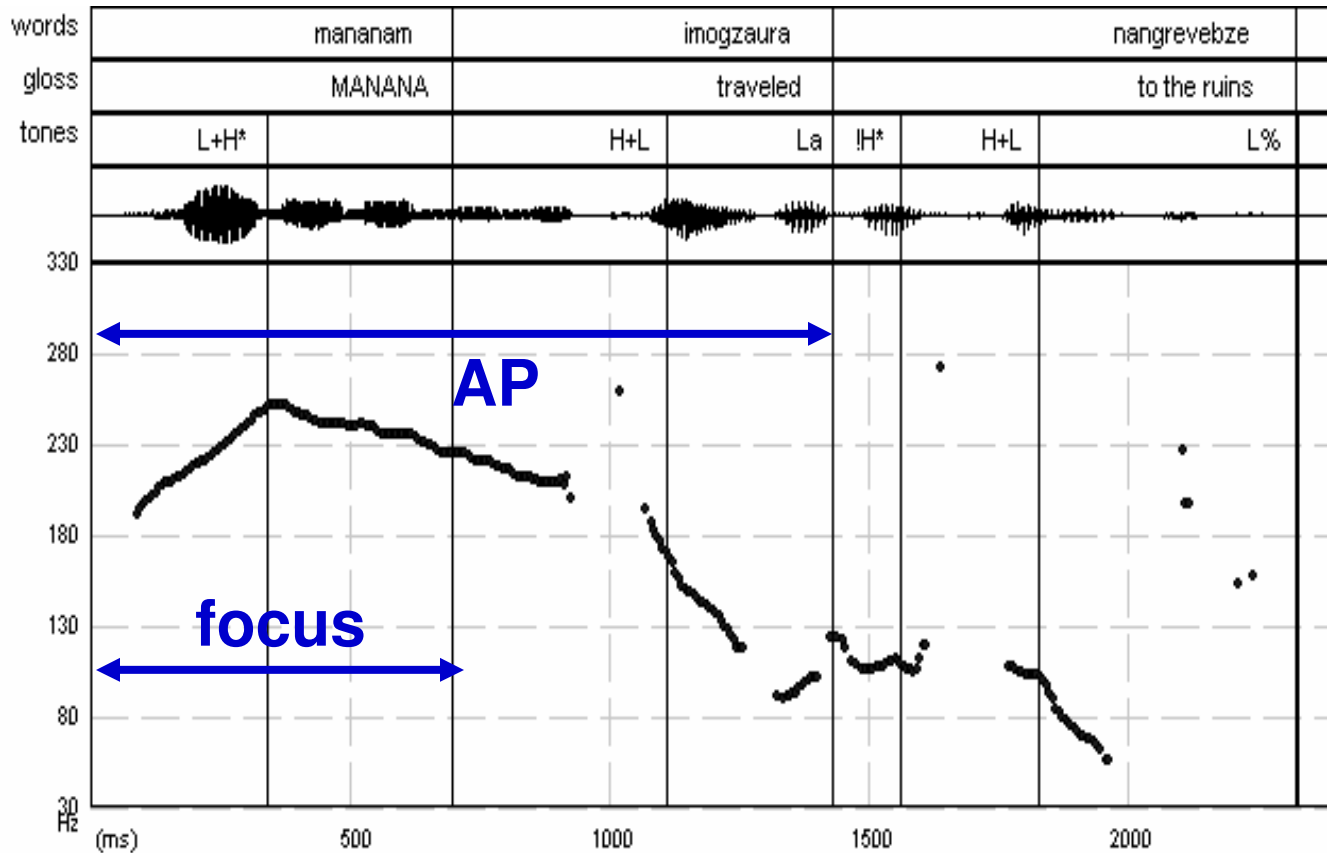


Fig.11: Answer to “*Who traveled on the ruins?*”
 => (*MANANA traveled*) forms one AP.
 Each AP has a “High plateau + fall” contour.



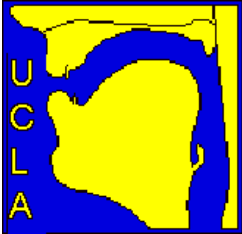
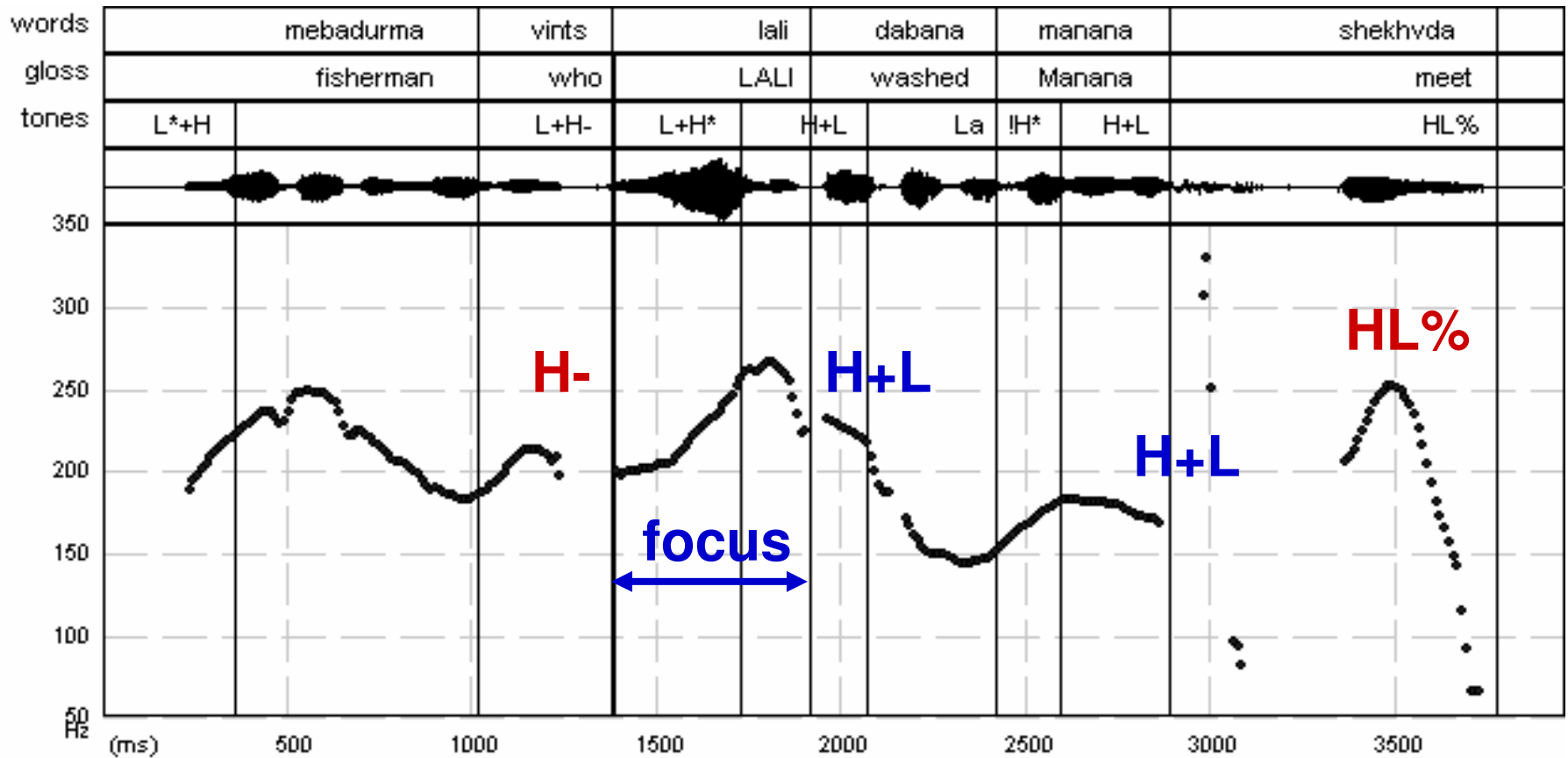
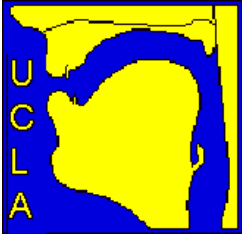


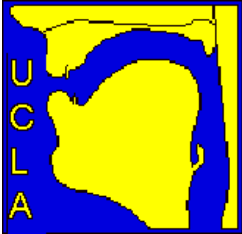
Fig.12: Focus on Subj. of an embedded clause
 => an ip break before focused word.
 The tonal contour of Y/N-Q (H L HL%) is not affected





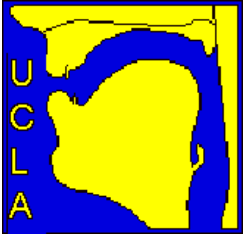
Summary

- Georgian prosody
 - Three prosodic units above Word: IP, ip, AP.
The edge of each unit is marked by a boundary tone.
 - **AP** has post-lexical pitch accent and phrase accent
 - Close connection between syntactic/semantic grouping and prosodic phrasing
 - Sentence type has a preferred Wd order/pitch contour
 - Declarative: SOV order; rising [L* Ha] AP contour and L%
 - Yes/no-Q: SVO order in simple sentence; falling [H* La] AP contour Subj. An ip break after S-med verb (can be L- or H-), H+L phrase accent possible, and sentence-final HL% (or H%).
 - Wh-Q: SVO order; (L+)H* on wh-word followed by H+L phrase accent. Sentence-final has H% (or HL%).

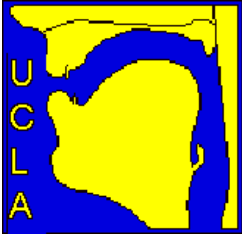


Inventory of tones

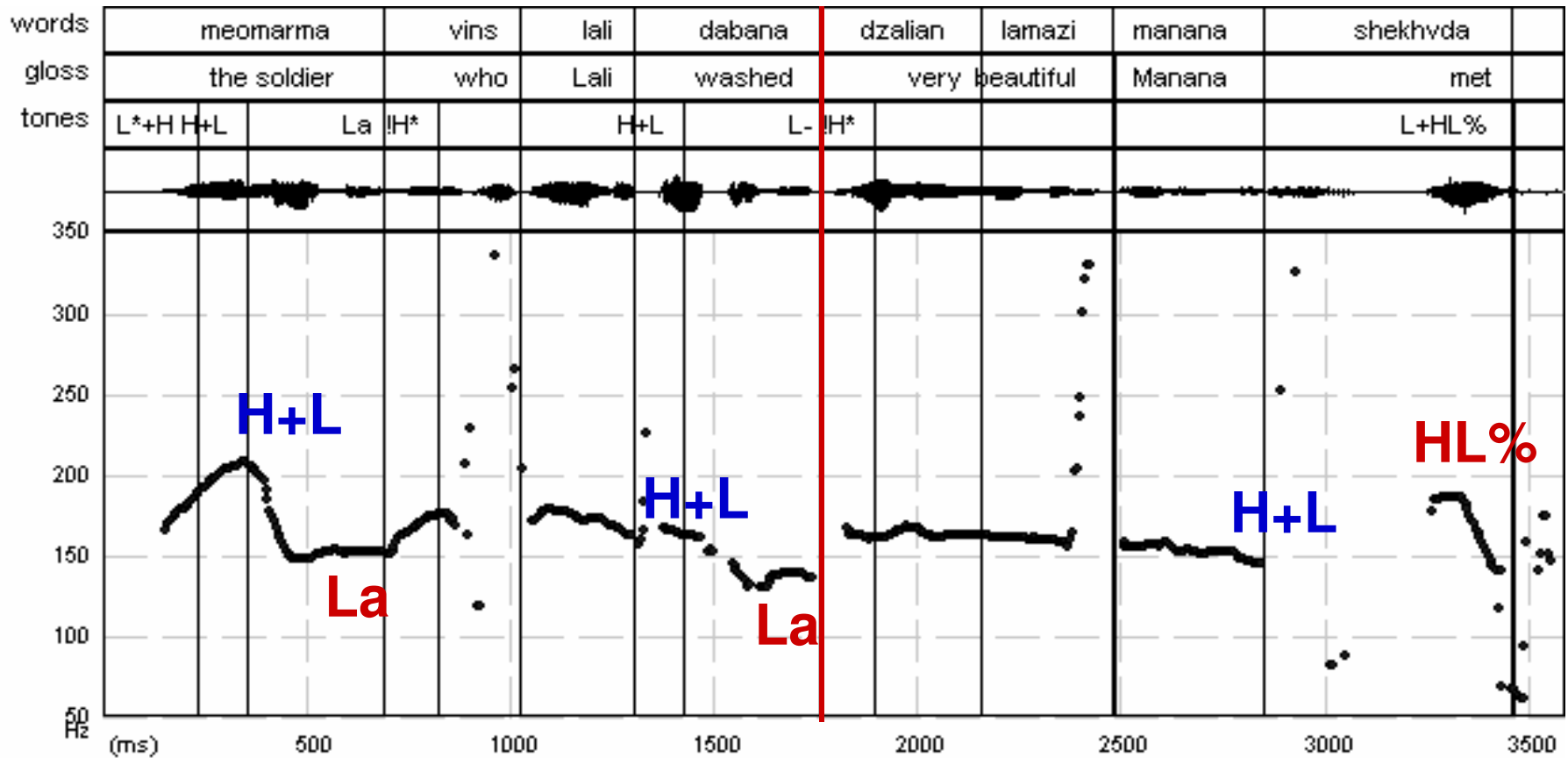
- AP pitch accent
 - L^* , L^*+H (longer word): common in declaratives
 - H^* , $L+H^*$ (longer word): common in focus & questions
- AP phrase accent: $H+L$ (on antepenult of AP)
- AP boundary tones
 - Ha : common after L^*
 - La : common after H^*
 - $L+Ha$: common after L^*+H
- ip boundary tones
 - $L-$, $H-$, $L+H-$
- IP boundary tones
 - $L\%$: common in declaratives
 - $H\%$ and $HL\%$ and rarely $LH\%$: in questions

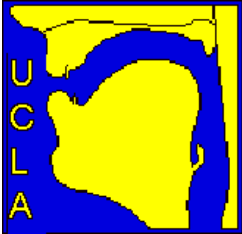


Extra Figures

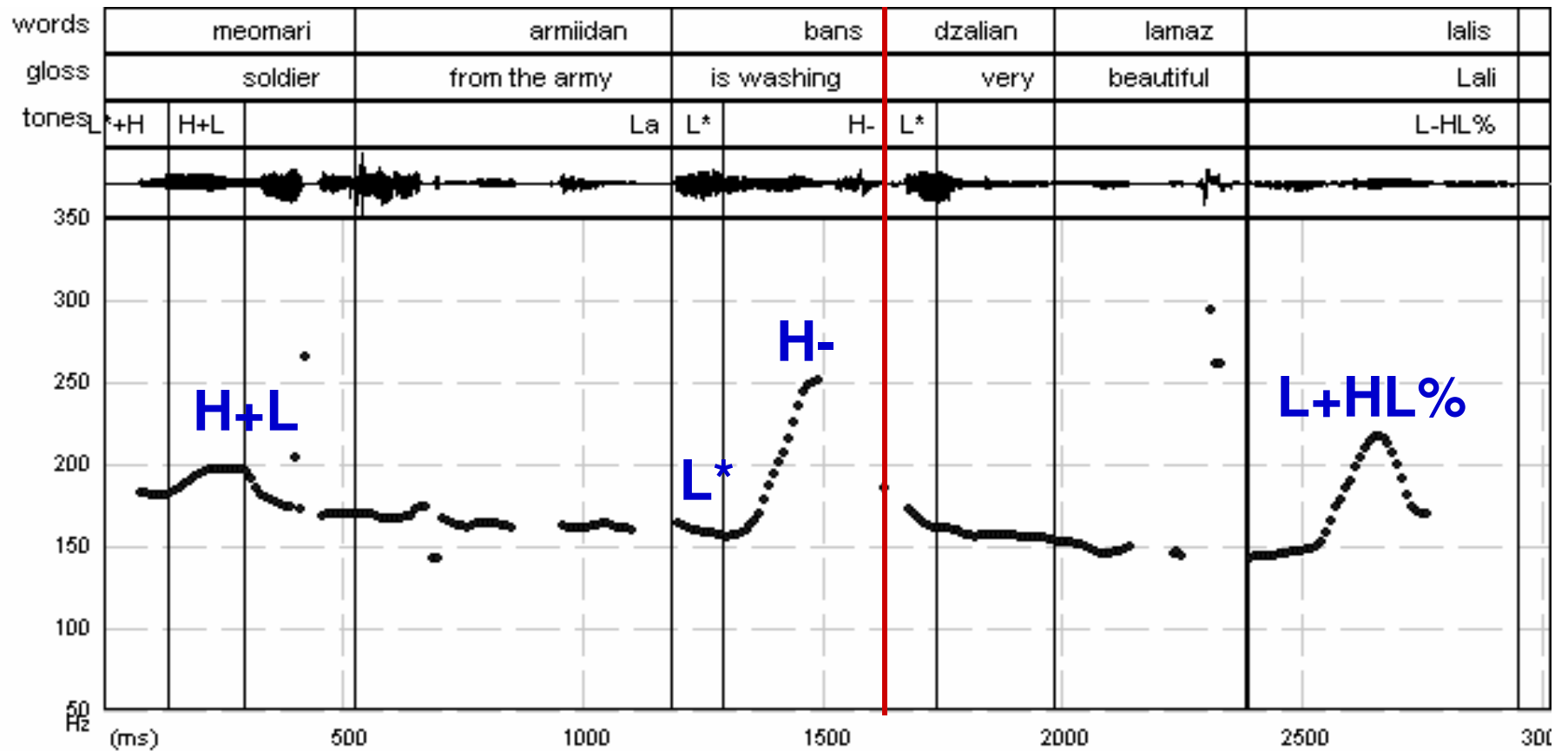


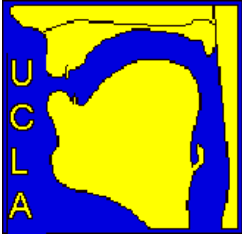
Extra ex. of heavy Subj. & heavy Obj. Y/N-Q
 “Did the soldier who washed Lali meet very beautiful Manana?” Shows 3 “hat” patterns.



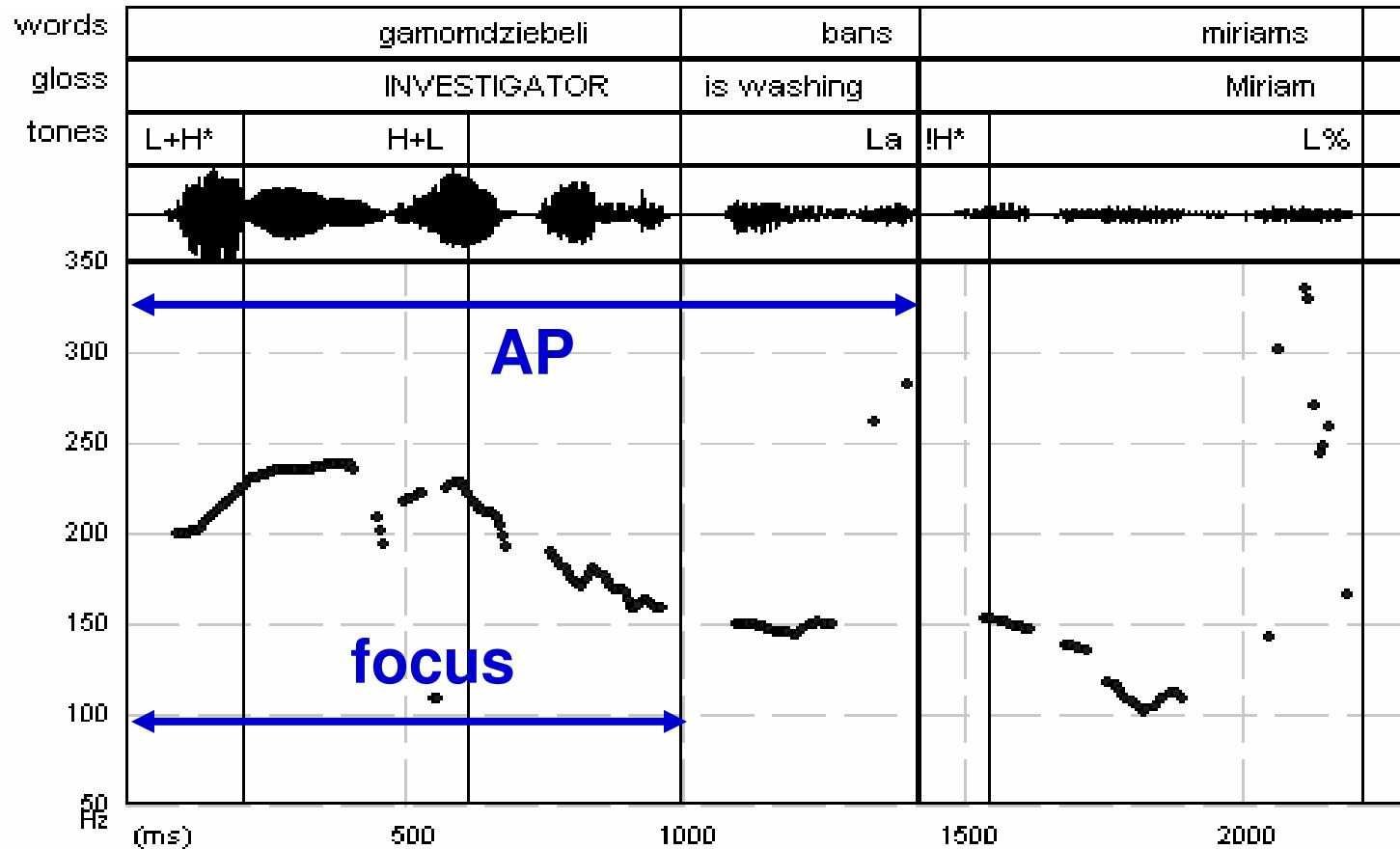


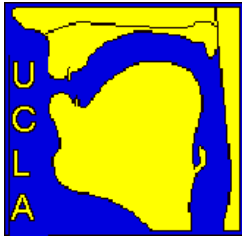
Extra ex. of heavy Subj. & heavy Obj. Y/N-Q
 “Is the soldier from the army washing very beautiful Lali?”



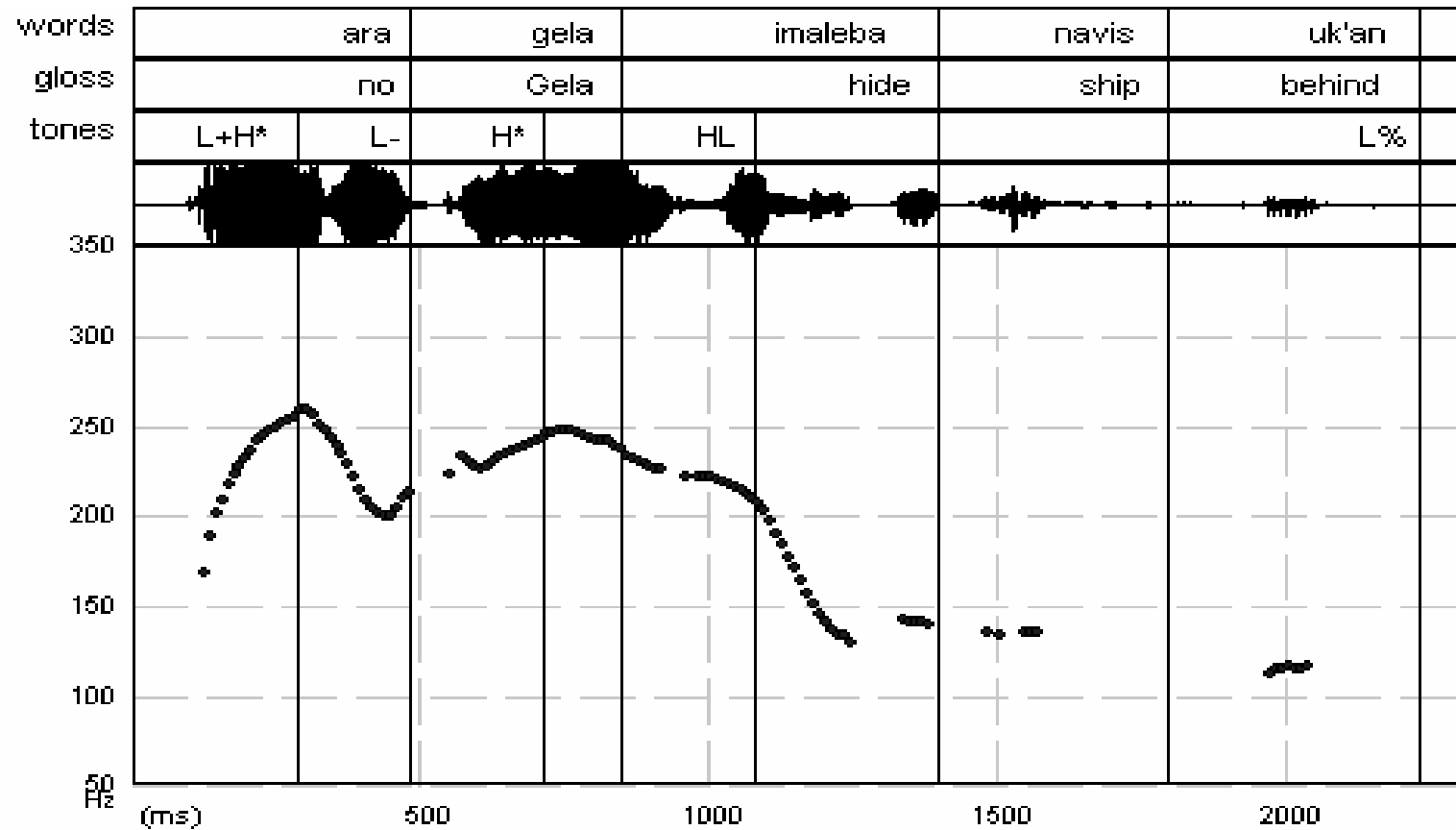


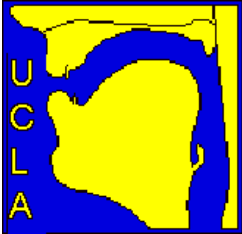
Extra figure on focus: corrective focus on Subject
 “(No.) INVESTIGATOR is washing Miriam”
 => no boundary after Subj. but an AP break after V.



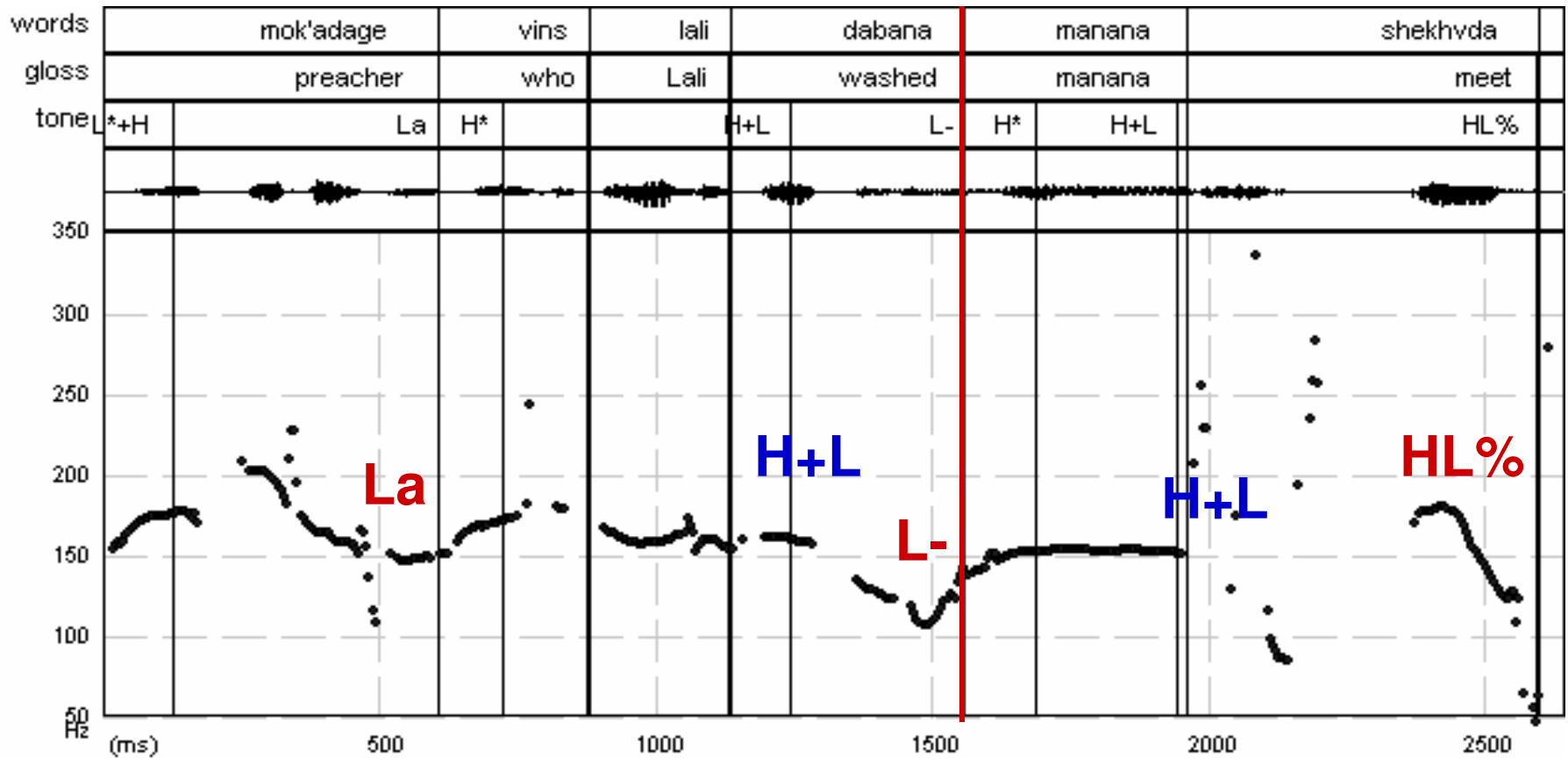


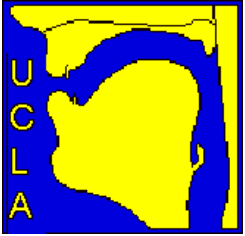
Focus ex. showing H* HL on focused word.
 “No, GELA is hiding behind the ship.”





Extra ex. like Fig.6: Ex. of complex Subj. Y/N-Q
 “Did the preacher who washed Lali meet Manana?”
 => shows H+L phrase accent and L-





Ex. focus an item within the subordinate clause: “The soldier who washed the *SCOUNDREL* met very beautiful Manana” => (the scoundrel-washed) forms one AP and the following phrases are all in reduced pitch range.

