

Intonation and Prosody in Australian English and New Zealand English

Janet Fletcher

University of Melbourne

Acknowledgements

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- Patricia Vermillion
- Helen Ainsworth

Australian English & New Zealand English

- Considered to be typologically similar in terms of their sound system
- Major differences are in the vowel systems of each variety
- Intonational system – generally considered to be similar
- Rising varieties – rises associated with syntactic declarative utterances

Some examples of Australian English & New Zealand English tunes

AuE: declarative fall

NZE: fall-rise followed by fall

AuE: fall then fall-rise

NZE: high rising terminals (syntactic declarative utterances)

AuE: series of continuation rises

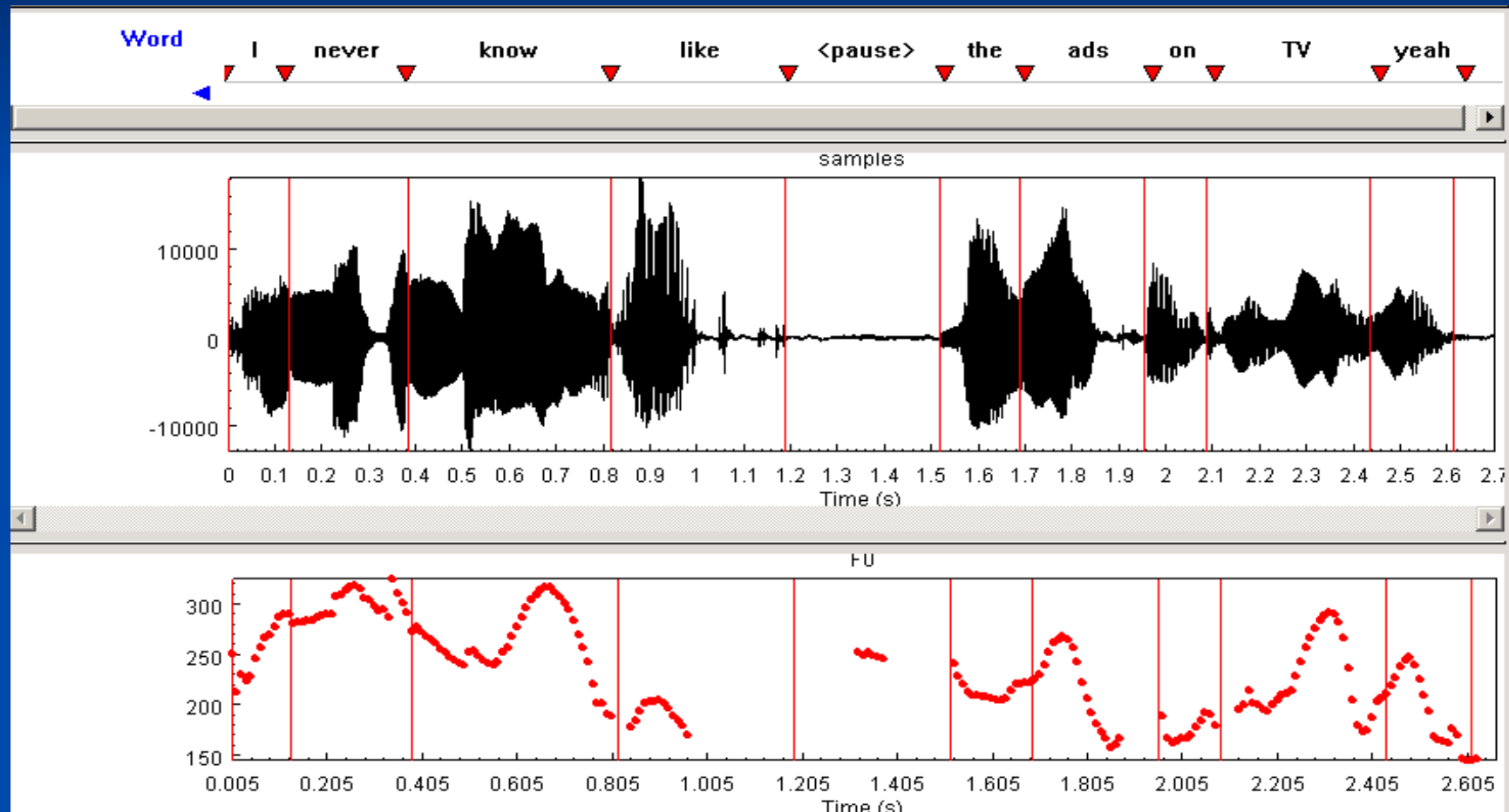
AuE: Question Rise (yes/no)

4 key components to intonational model underlying E-ToBI

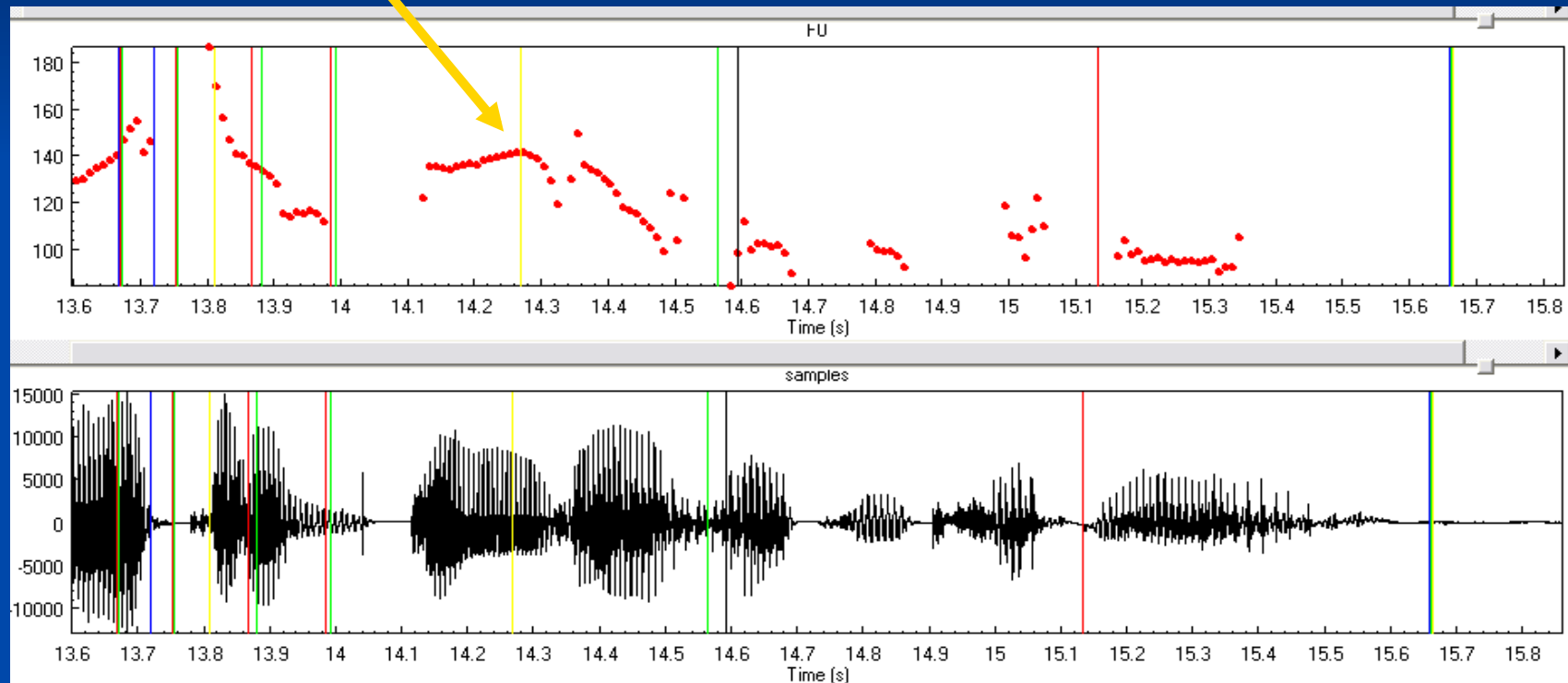
- Stress and accent
- Phrasing
- Tune or melody
- Pitch range

Spot the pitch accents

“I never know like the ads on TV yeah”

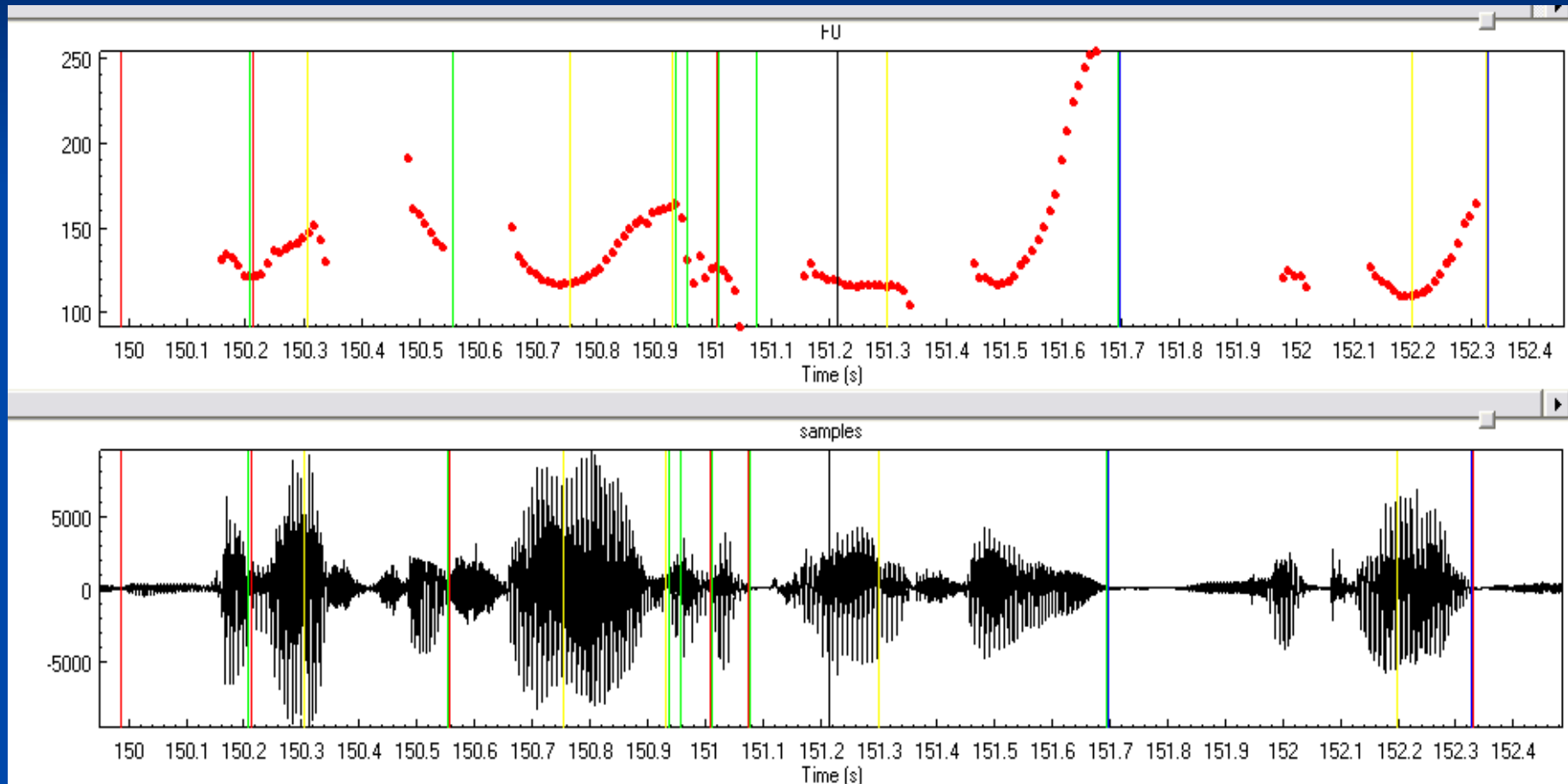


Which words are accented?



No've gotta dingo open cut mine

How many intonational phrases?



The western side of the pine tree okay

One representation

Nuclear accented words

The western *side*

of the *pine-tree?* *Ok.*

Intermediate phrase

intermediate phrase

intermediate phrase



Intonational phrase

Intonational phrase

intonational phrase

TUNE

- characteristic melody of an utterance
- A tune is broken down into component low (L) or high (H) tone targets
- Radically different annotation of tune from the British School of Intonation models (e.g. Halliday, O'Connor and Arnold; Crystal) that were generally applied to Australian English and New Zealand English

The composition of a tune in Australian & New Zealand English

- Pitch accents:
 - high or low tones, including bitonal (e.g. H^* , $L+H^*$, L^* , L^*+H)
 - the tone marked by * is locally aligned with primary stressed syllable of accented word
 - pitch accent inventory is SAME in nuclear and pre-nuclear contexts
- Phrase Accents:
 - high or low tones ($H-$, $L-$)
 - describes pitch between nuclear accented syllable and **intermediate phrase** edge
- Boundary tones:
 - high or low tones ($H\%$ $L\%$)
 - locally aligned with right edge of **intonational phrase**

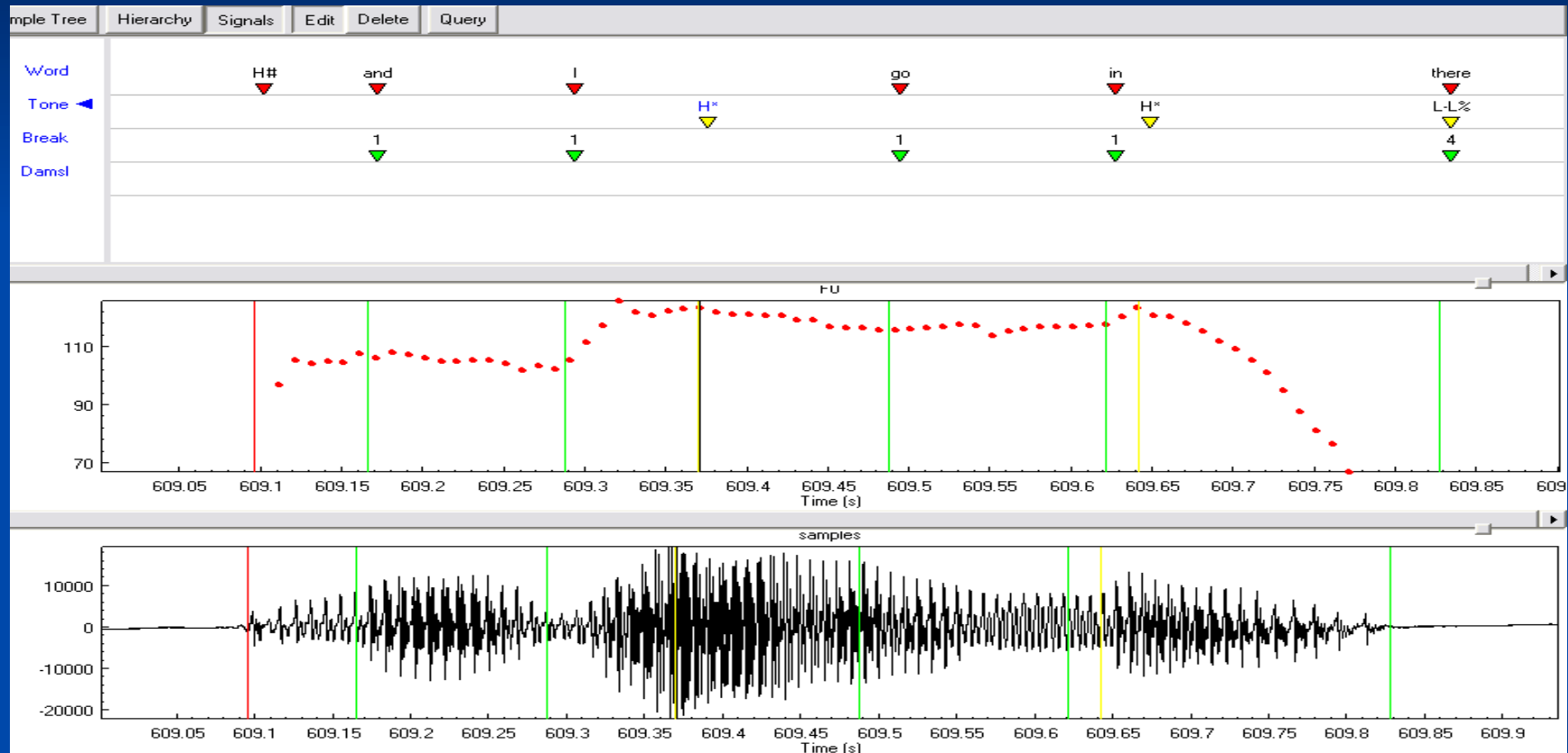
The ToBI Tone tier inventory (simplified from Pierrehumbert, 1980)

Pitch accents	H^* L^* $L+H^*$ L^*+H	$!H^*$ $L+!H^*$ $L^*+!H$ $H+!H^*$
Phrase tones, or phrase “accents”	$L-$ $H-$	$!H$
Boundary tones	$L\%$ $H\%$	

ToBI transcription of Common Tunes in AuE and NZE

- Declarative hat pattern with final fall $(H^*) H^* L-L^{\circ}$
- Continuation rise or fall-rise $(H^*) H^* L-H^{\circ}$
- Low rise $L^* L-H^{\circ}$
- Rise-fall (“I assert this”) $L+H^* L-L^{\circ}$
- Yes-No question H^* or $L^* H-H^{\circ}$
- High Rising Terminal (statement high rise)
 $L^* H-H^{\circ}$ or $H^* H-H^{\circ}$ or $L+H^* H-H^{\circ}$
- Rise-fall-rise (emphatic) $L^*+H L-H^{\circ}$
- Stylized rise / or plateau $H^* H-L^{\circ}$

H* accents - Australian English

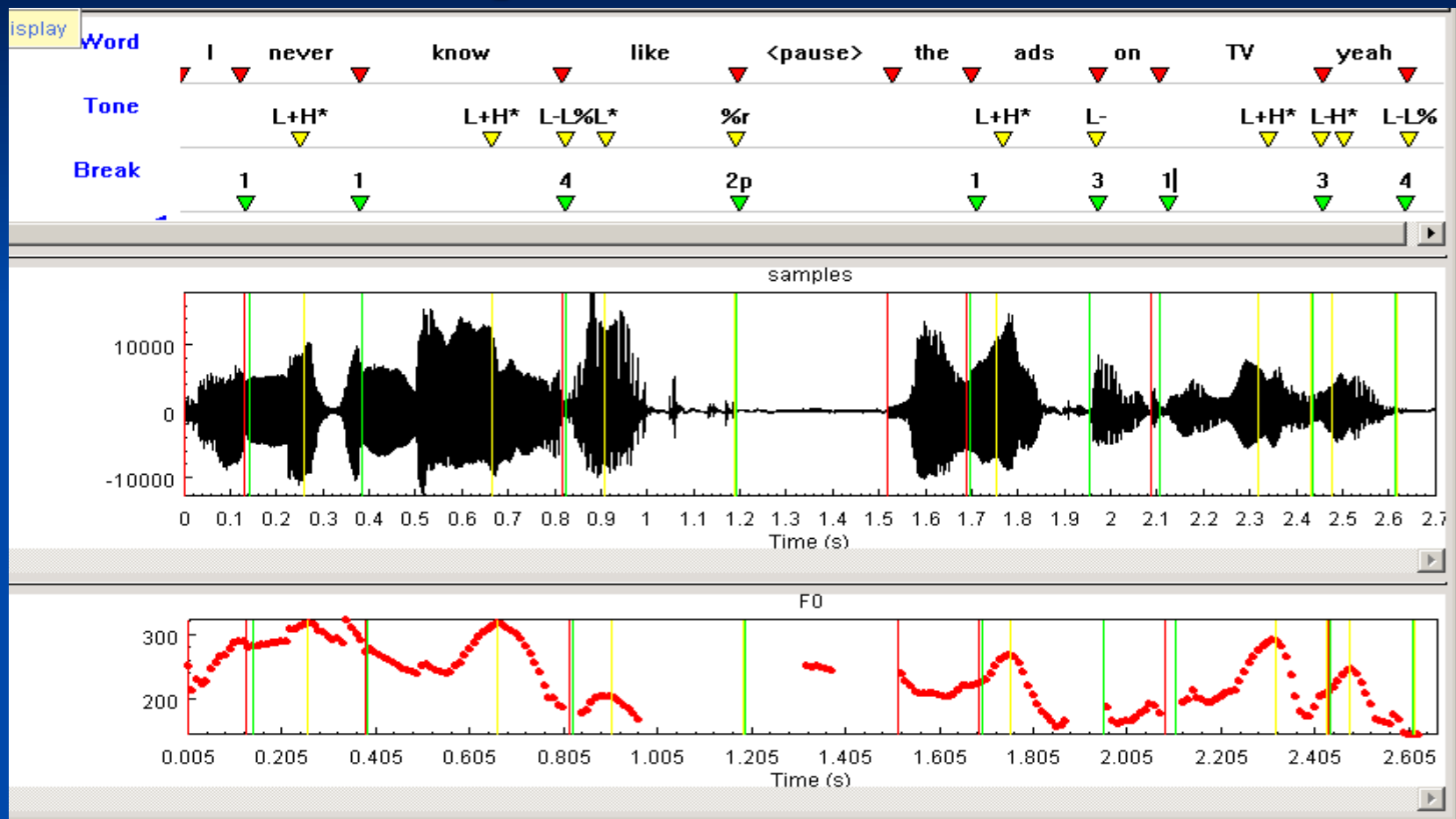


And I go in there

H*

H*

L* pitch accent



"I never know like the ads on TV yeah"
 L+H* L+H* L* L+H* L+H* L+H*



Bitonal Accents

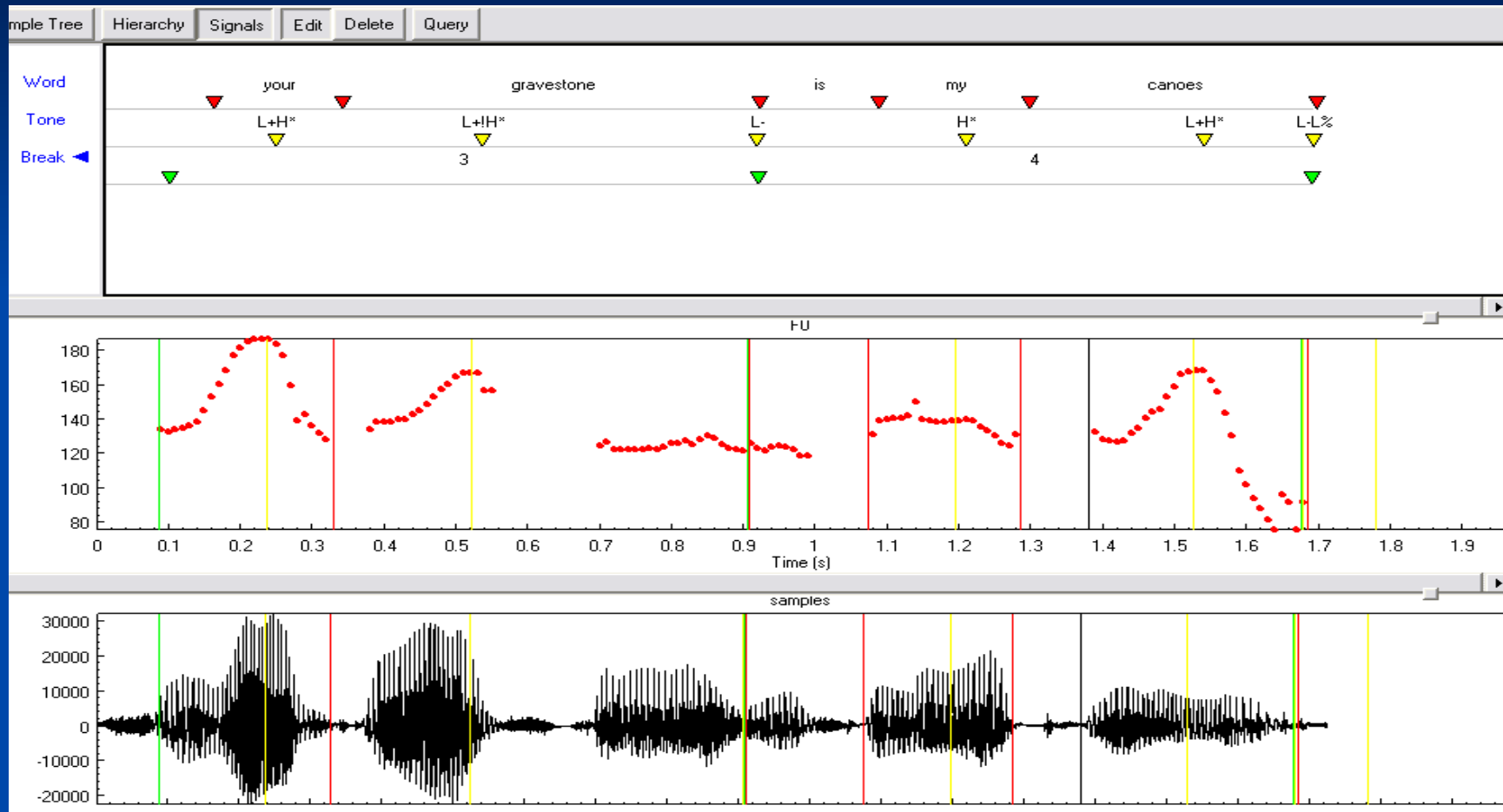
■ L+H*

- The H* tone target is preceded by a rise from a low part of the speaker's range
- “I assert this”

■ L*+H

- A more “emphatic” accent
- a L* tone target is followed by a rise to the mid to upper pitch range – sounds like a “scooped” accent.
- relatively rare compared to H* or L+H* accents.

L+H* pitch accents in AuE



So your gravestones, is my canoes".

L+H*

L+!H*

H*

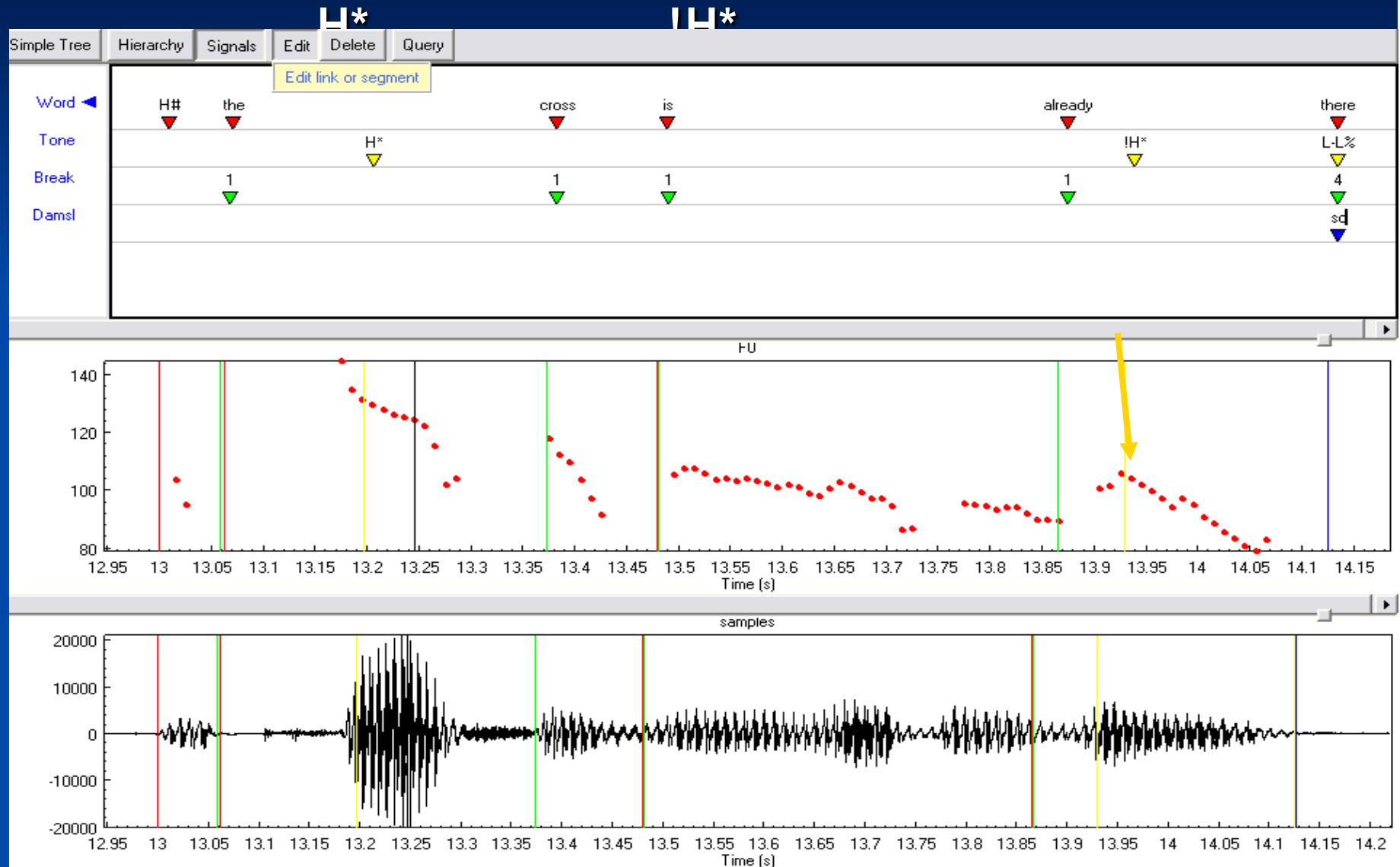
L+H*

Downstep

- “Phonologically triggered compression of the pitch range that lowers the F0 targets for any (subsequent) H tones” (Beckman & Ayers, 1994:2.8)
- The tone target has a somewhat lower pitch than the preceding “trigger” tone, or tone combination
- indicated by a “!” on the downstepped H tone
- Pitch accents can be downstepped
e.g. !H*, L+!H*, L*+!H, H+!H*
- Phrase tones can be downstepped
e.g. !H-, !H-L%, !H-H%
- Trigger tones can be bitonal accents
e.g. L+H*, L*+H

Example 1

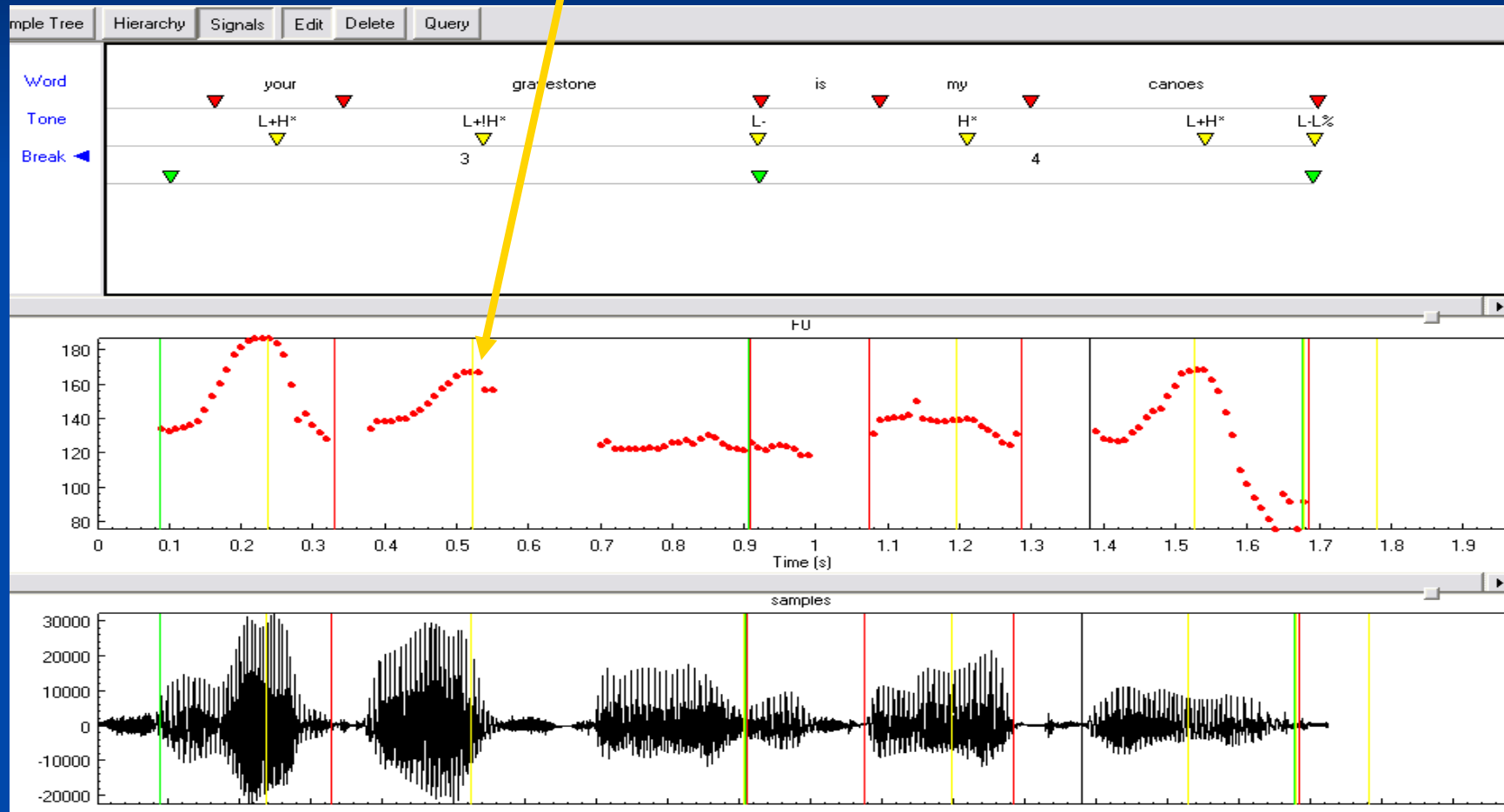
The cross is already there.



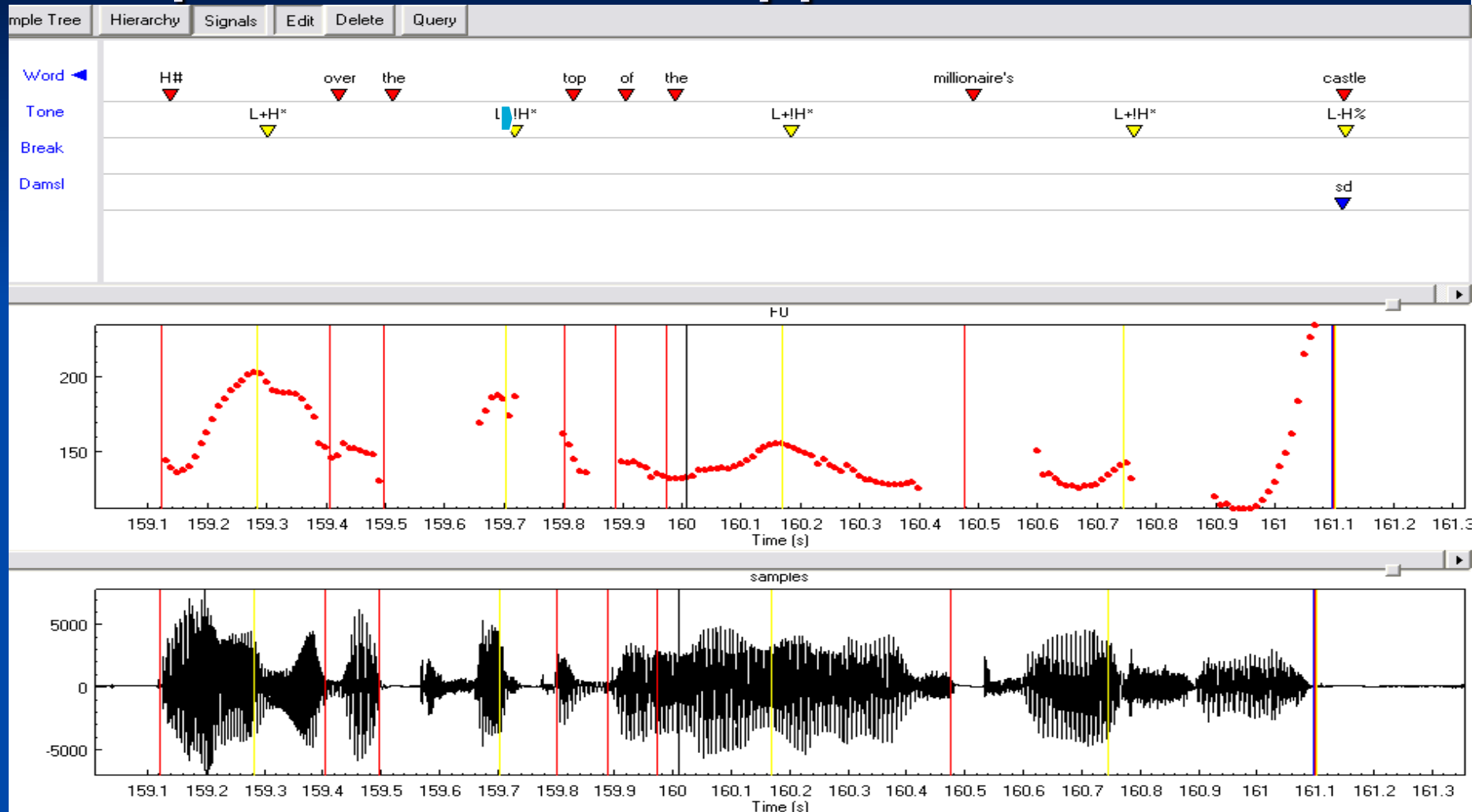
Example 2.

So your gravestones, is my canoes".

$L+H^*$ $L+!H^*$ H^* $L+H^*$



Example 3. AuE A “catathesis” chain – sequence of downstepped L+H* accents



Over the

L+H*

top of the millionaire's

!H*

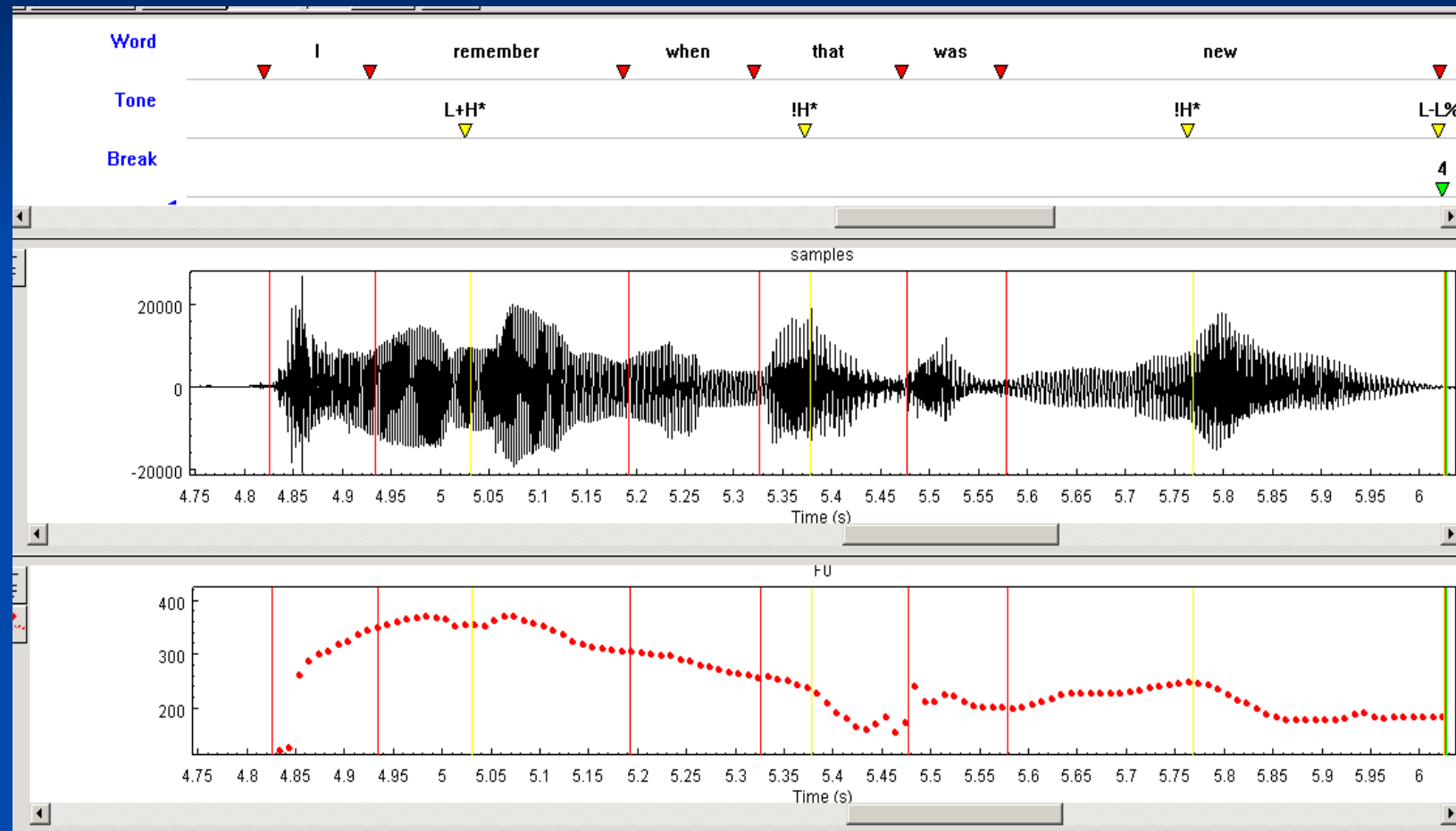
L+!H*

castle

L+!H*



Example 4. NZE: A “catathesis” chain – sequence of downstepped H* accents



I remember when that was new

H*

!H*

!H*

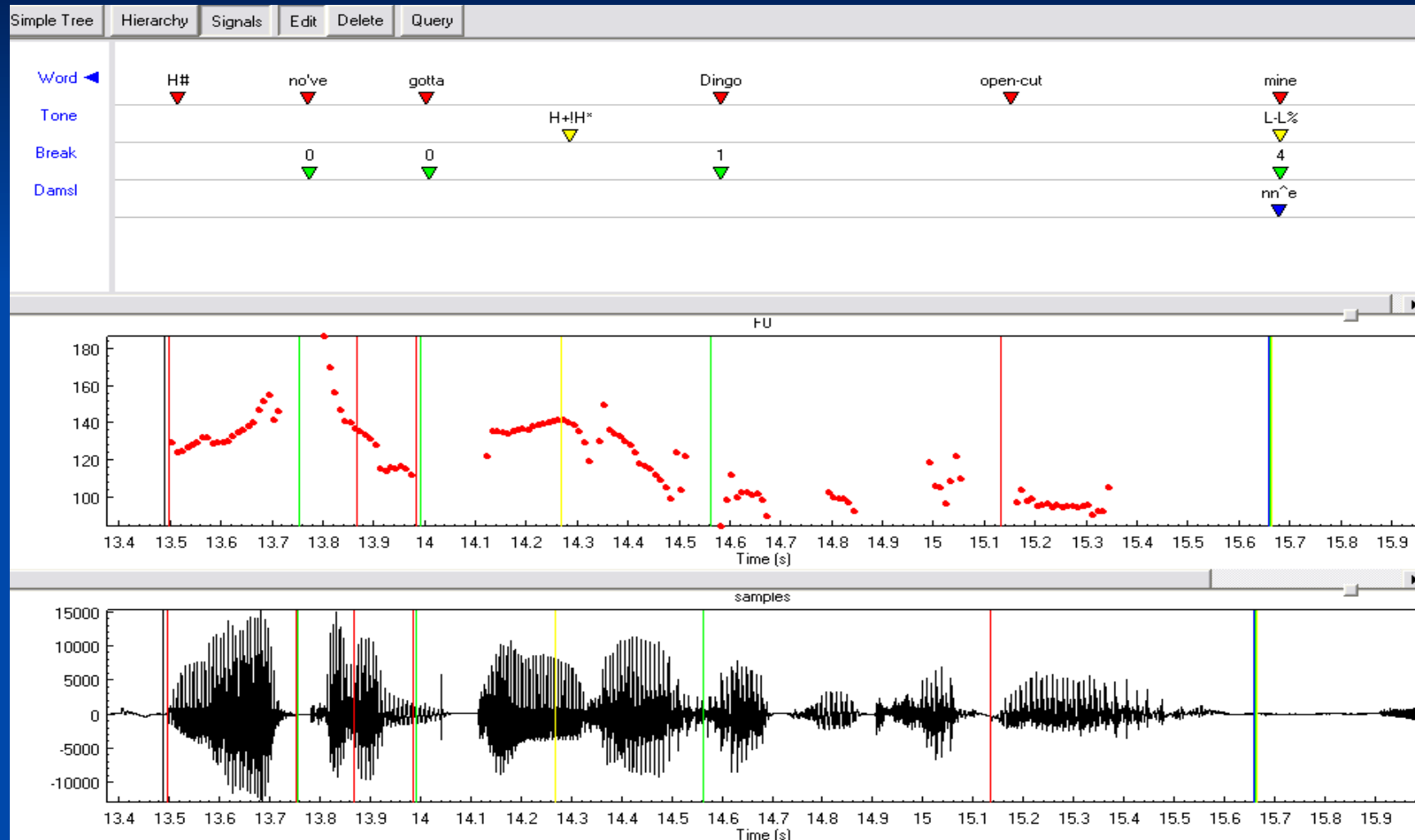


Another downstepped accent

H+!H*

- A clear step down from preceding high pitched unaccented material which is not associated with an initial pitch accent. The tone label should be aligned locally with the downstepped pitch accent.

Example: H+!H*



No've gotta

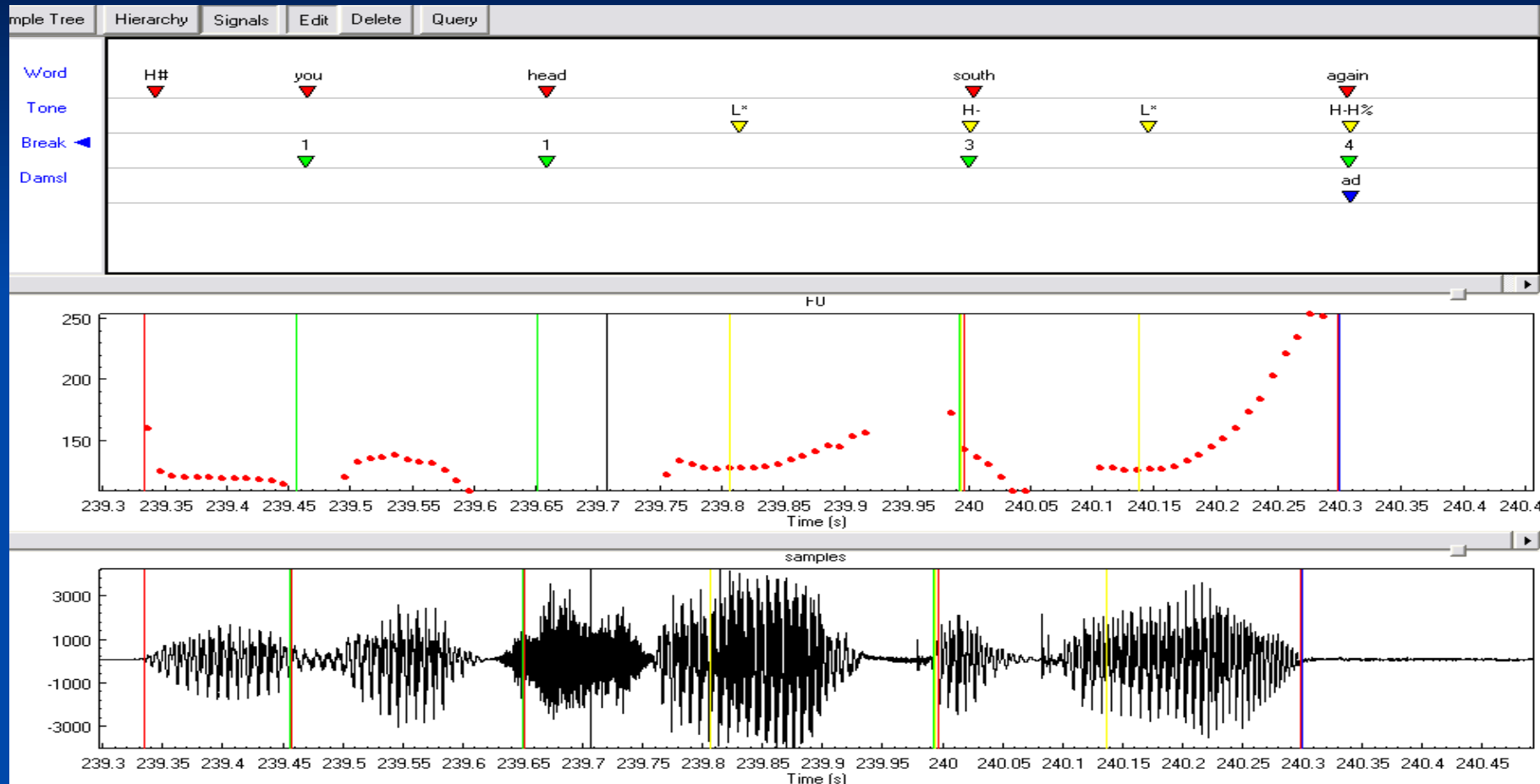
dingo

open-cut mine

H+ !H*

PHRASE ACCENTS & BOUNDARY TONES

H- versus H-H%



you

head

south

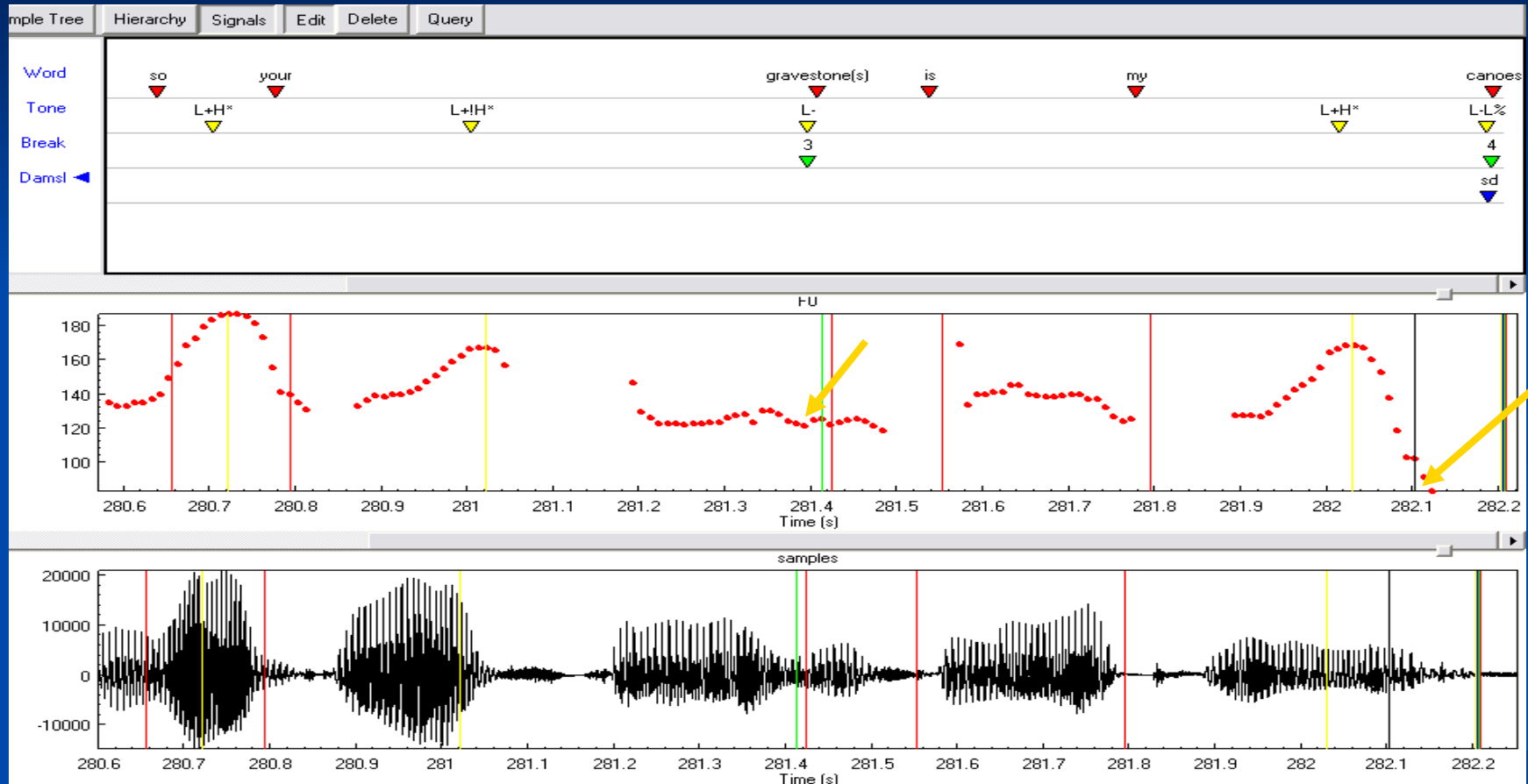
again

*?

L* H-

L* H-H%

L- vs L-L% (with final lowering)



So your gravestones, is my canoes".

L+H*

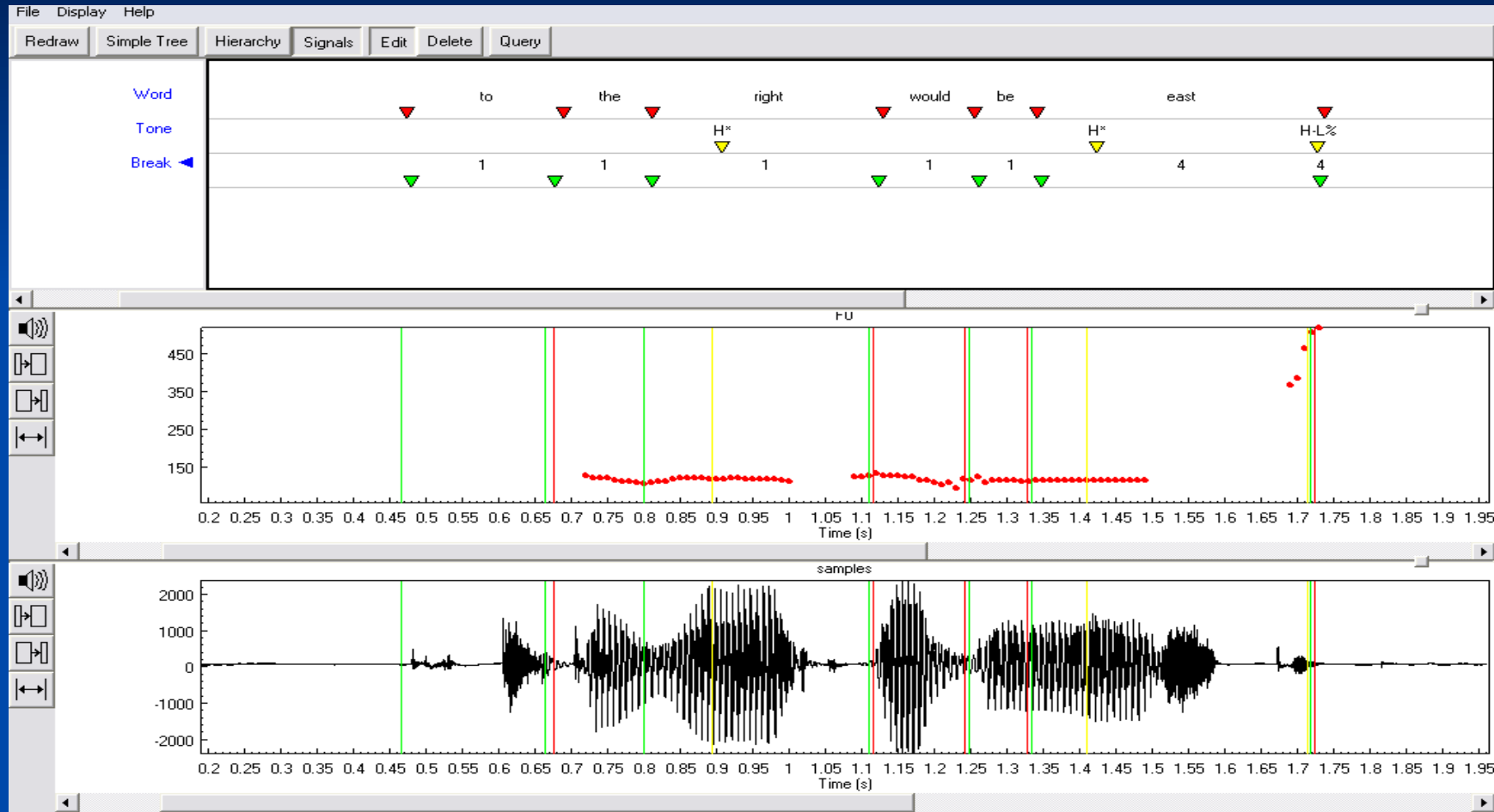
L+!H*

L-

L+H*

L-L²⁰%

H-L% or !H-L% (controversial!) H upsteps L%

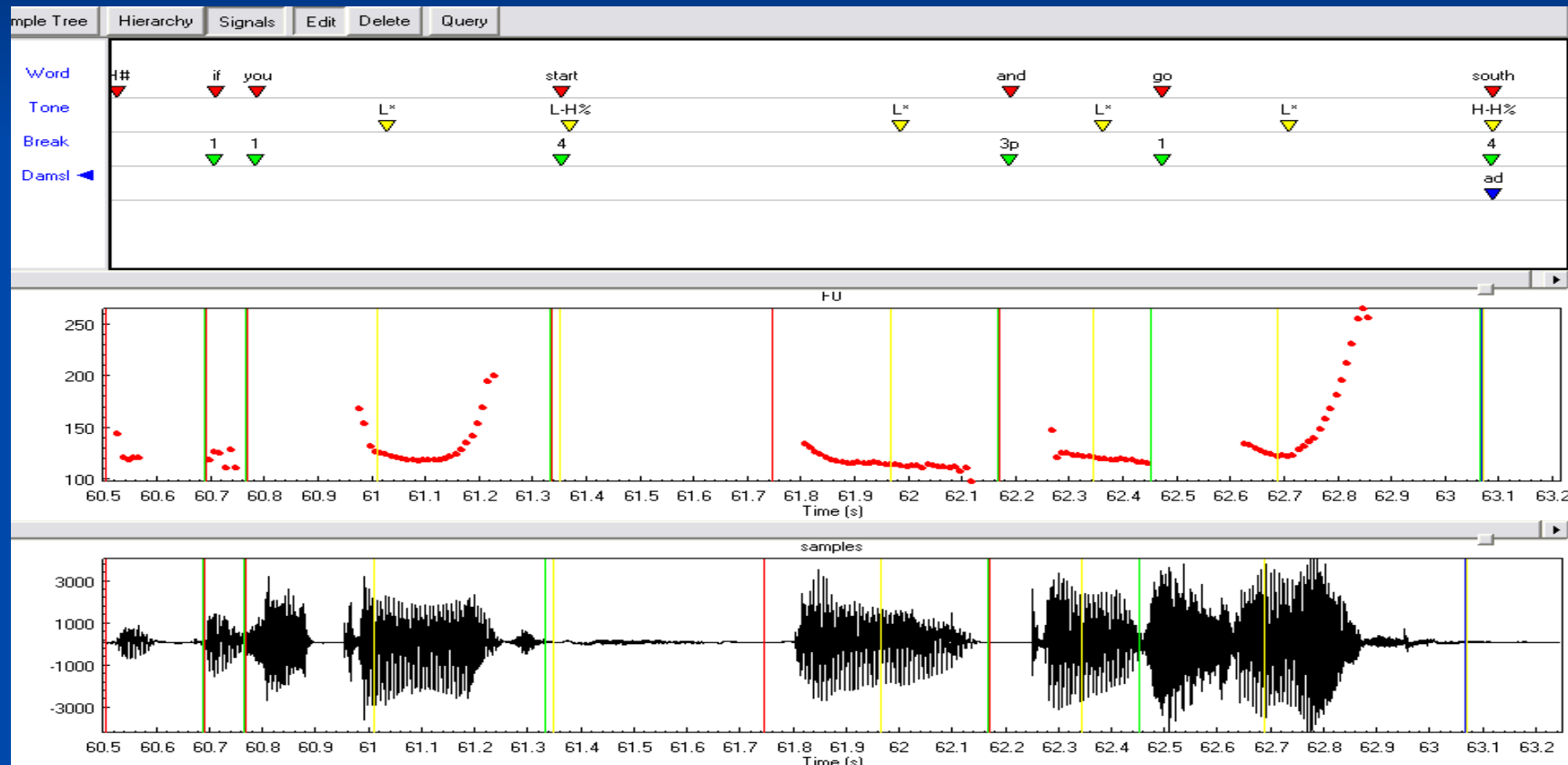


To the right would be east



More rises: L* L-H% vs L* H-H%

- ToBI allows the annotation of several kinds of final rises e.g. low rise & low-onset high rise (HRT)



if you

start

and

go

south

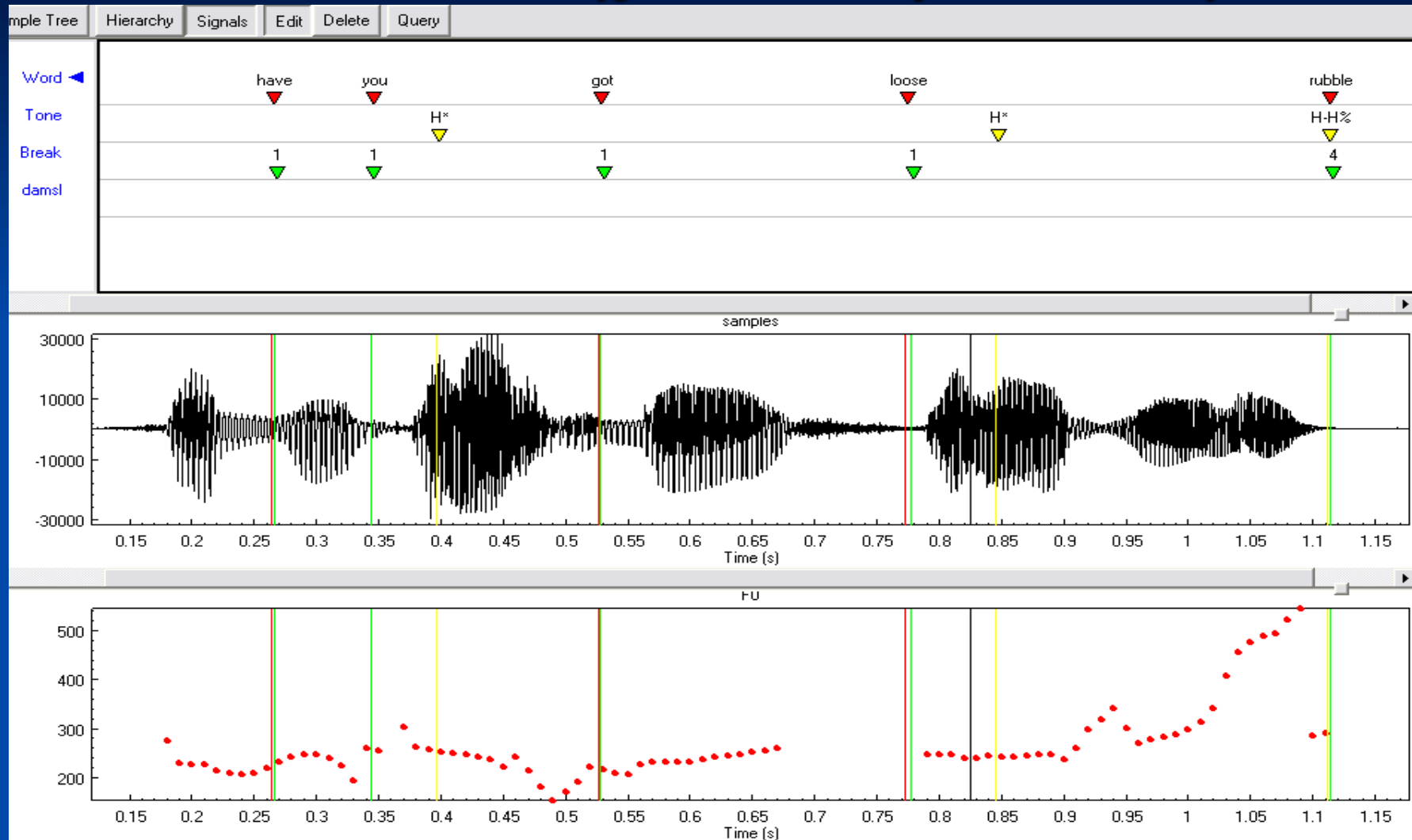
L* L-H%

L*

L* L* H^{2p}-H%



H* H-H% (yes/no question)



Have you

got

loose

rubble?

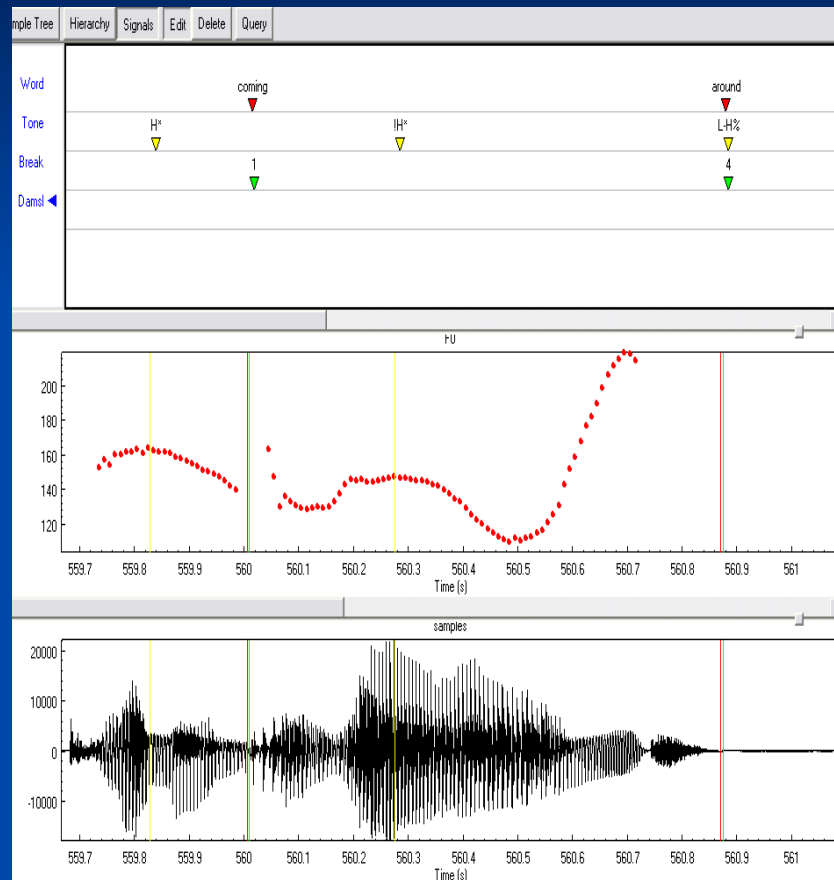
H*

H* H-H%



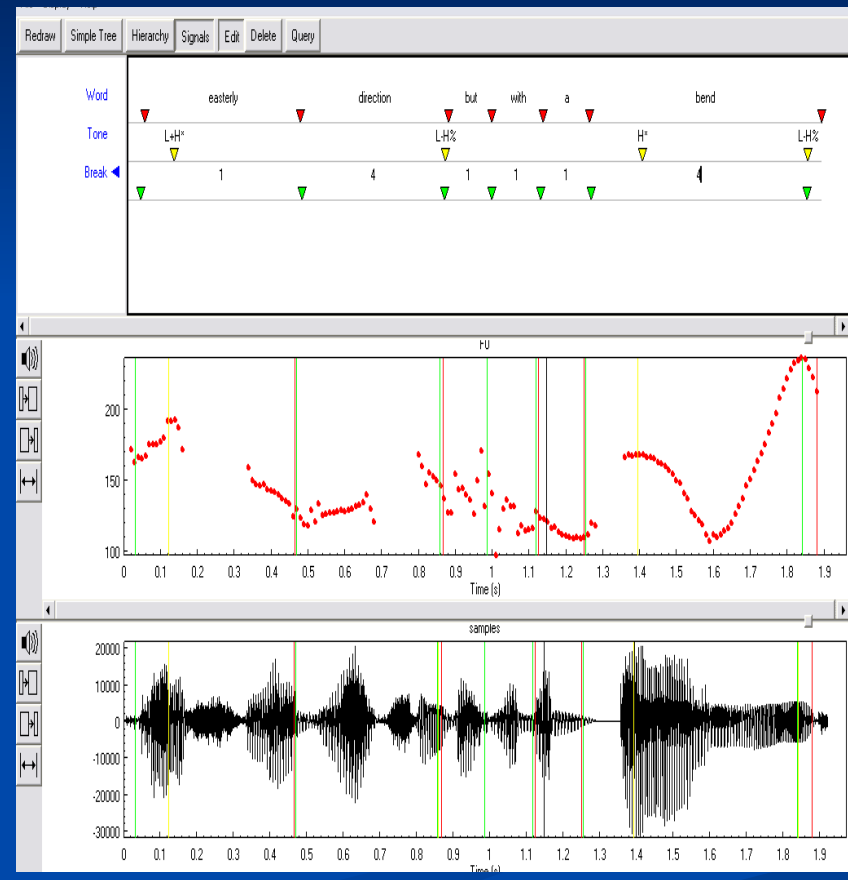
Fall-rise tunes - H*/ !H* L-H%

(continuation)



Coming around

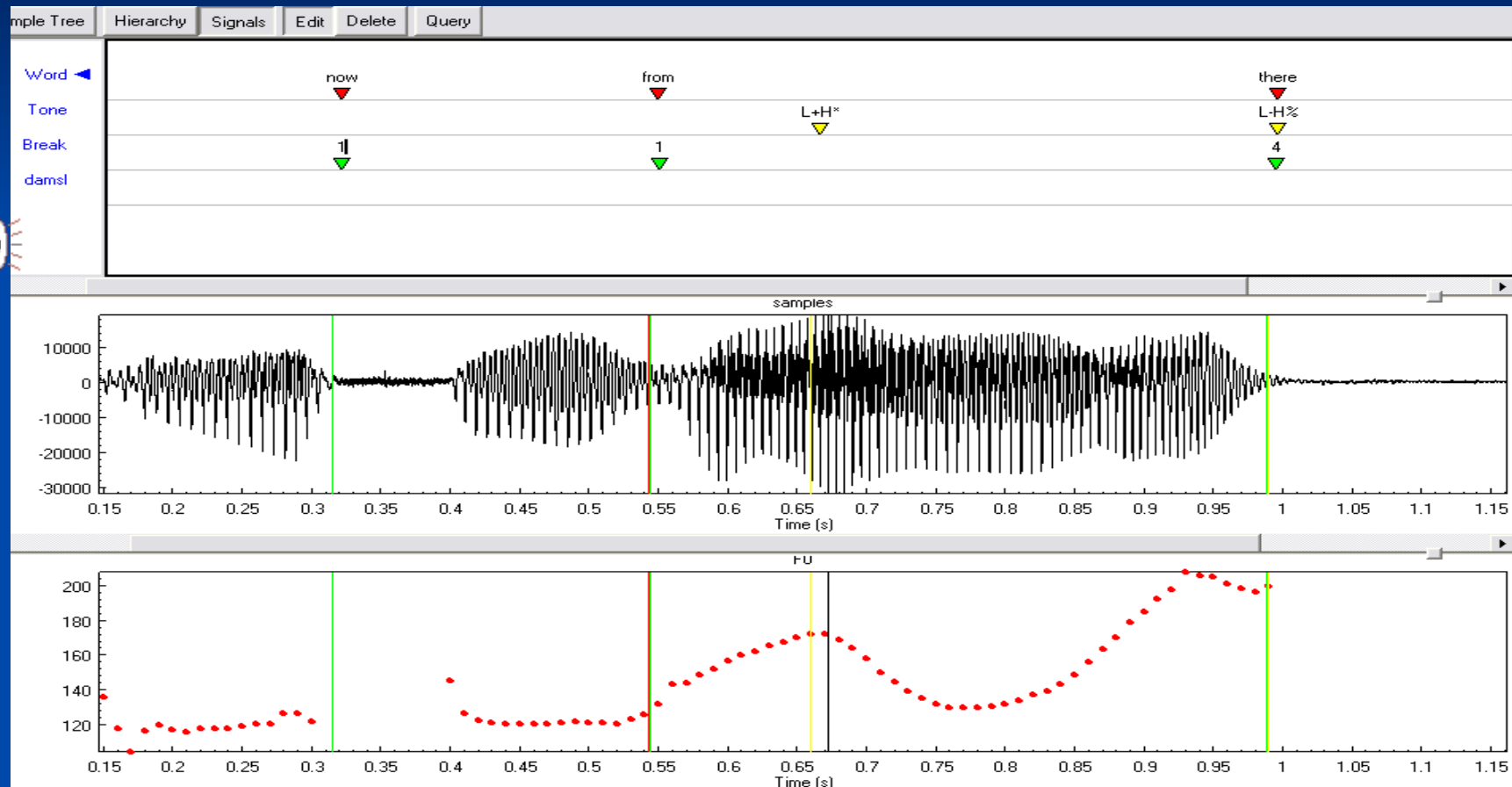
H* !H* L-H%



Easterly direction but with a bend

H* L-H% H* L-H%

Fall-rise tunes L+H* L-H%



Now

from

there.

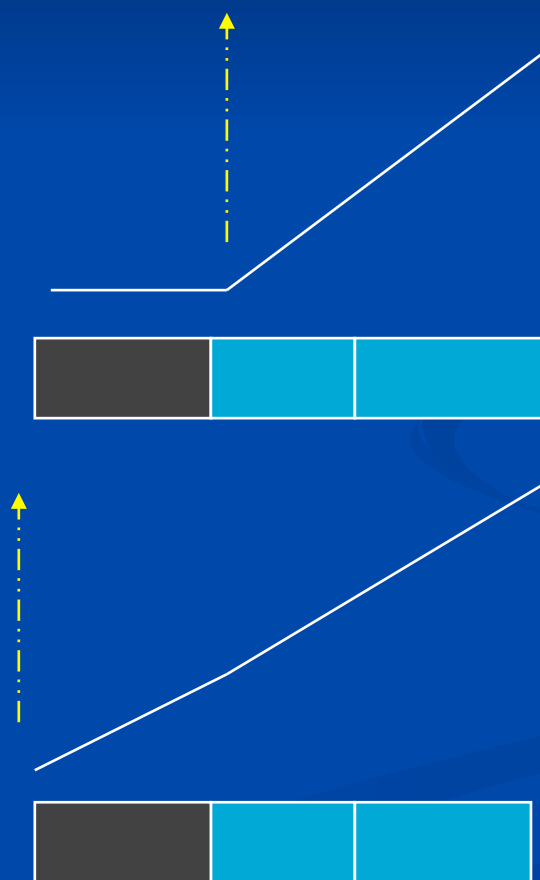
Rising Terminals

■ Earlier claims...

- phonetically identical tune to yes/no questions (Guy and Vonwiller, 1989; Cruttenden, 1995; Ladd, 1996)
- young adolescents, females, socially stigmatised, growing in usage
- narratives, description tasks, tasks of greater semantic complexity as floor holding and “checking” device; establishment of common ground between conversation participants

An HRT has been phonetically defined as:

- Tune that rises to a pitch level 40% higher “from where the rise commences” (Guy and Vonwiller, 1989)



1. Simple Rises

1.1 Is the 40% rule an effective phonetic indicator of an HRT? Where exactly is the starting point?

i.e. the onset of the lead tone? the "*" target in the accented syllable?

1.2 Is there a phonetic difference between statement rises and question rises in the two HRT-using varieties? *

1.3 If so, how is it realized? Endpoint (F0) or rise? Pitch Accent type? Alignment? Combination of all, or some of the above?

1.4 How should we model these rises?

1.5 Is there an interaction with the pattern of accents in pre-nuclear position

1.6 Is the difference the same for all speakers, for all varieties?

Australian English

- **H* nucleus**

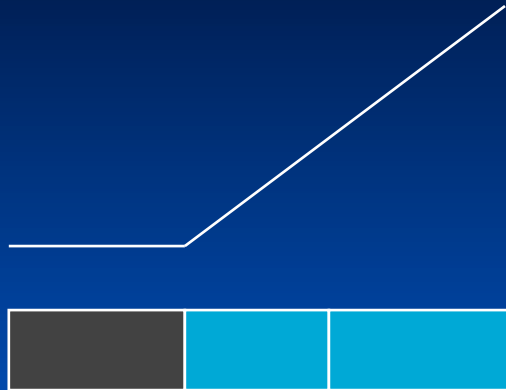
- used more frequently for yes/no questions in map task, but not necessarily in adolescent discourse (McGregor 2006)

- **L* nucleus**

- high variability in pitch accent type with H-H% for statements (e.g. L*, H*, L+H* and downstepped variants)

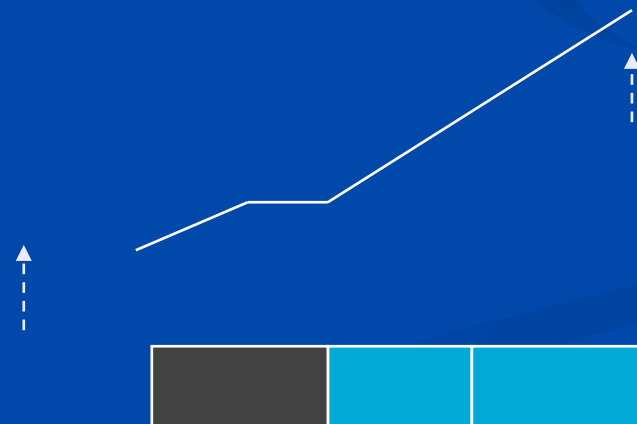
statements

lower starting
point - ie L*
accents



statements & yes/no questions

higher starting point
- ie H* accents



After Fletcher and
Harrington (2001);
Fletcher et al.
(2002)

New Zealand English

- Rise alignment
- late rises are used more by young female speakers
- males start rising earlier than females, and the rises on questions are earlier than those on statements
- difference between questions and statements may be more marked for men
- only 13% of the statement rises started on the accented syllable, with 52% on the following syllable and 25% on the syllable after that

NZE High Rises



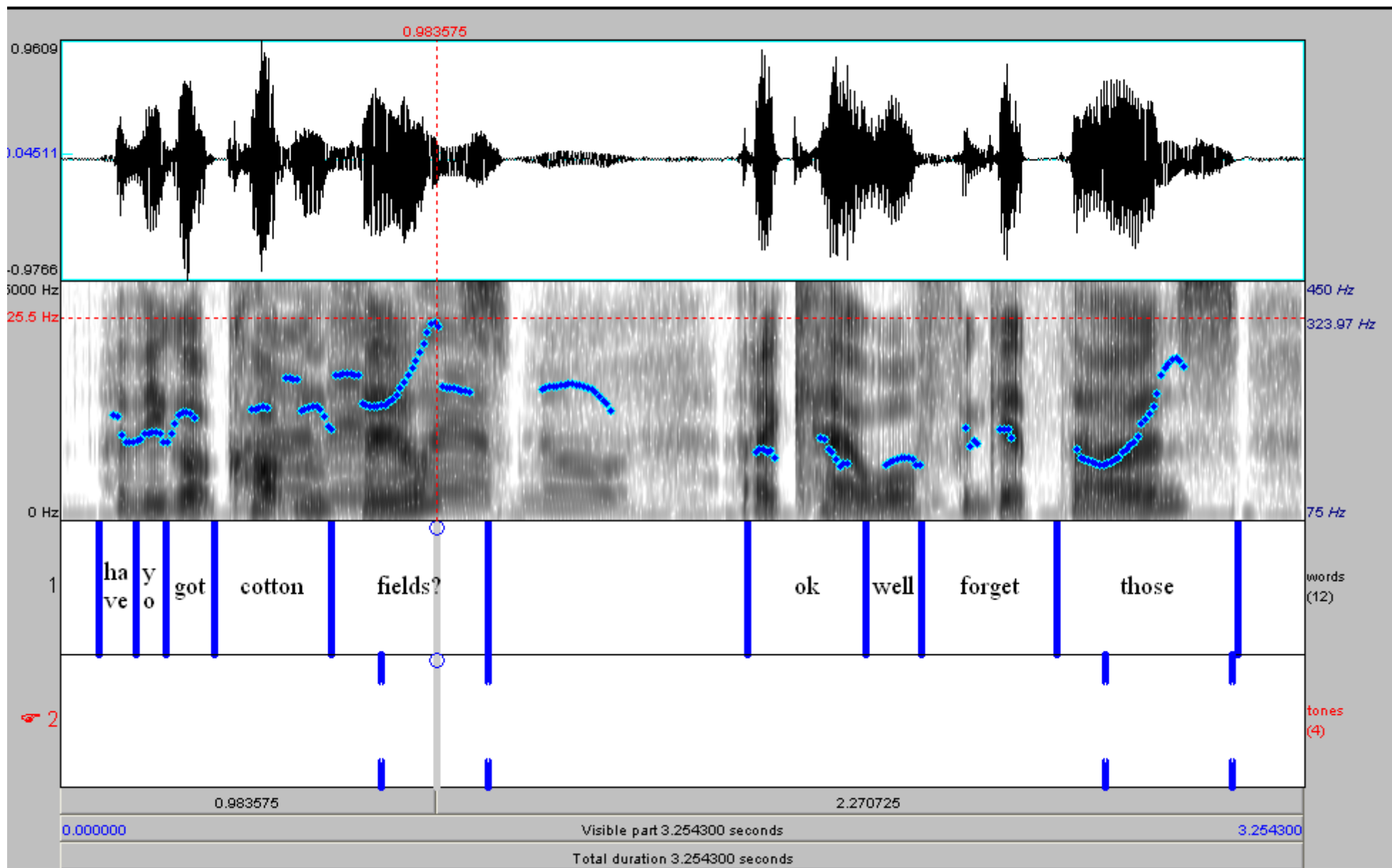
EXAMPLES

AuE

- f066-rises13
- f066-rises3
- m106-rises7
- M044-rises4

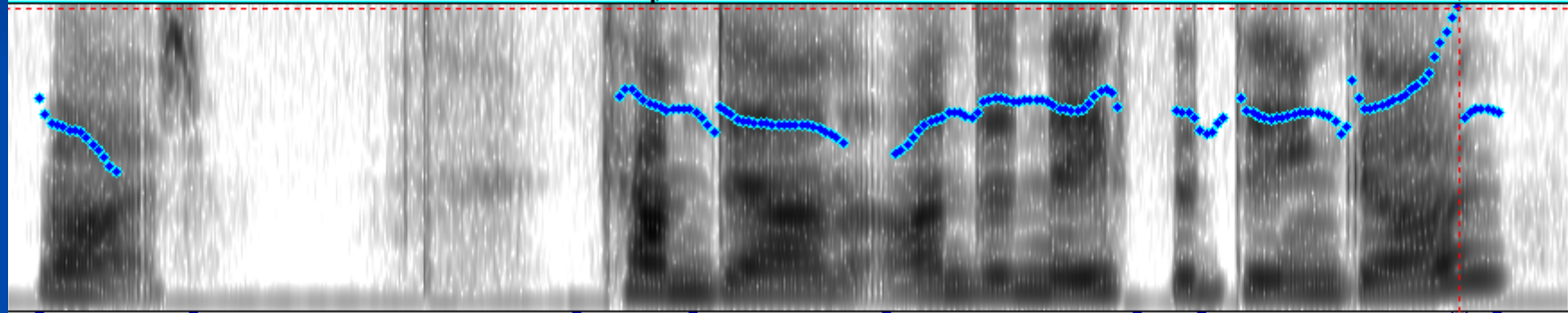
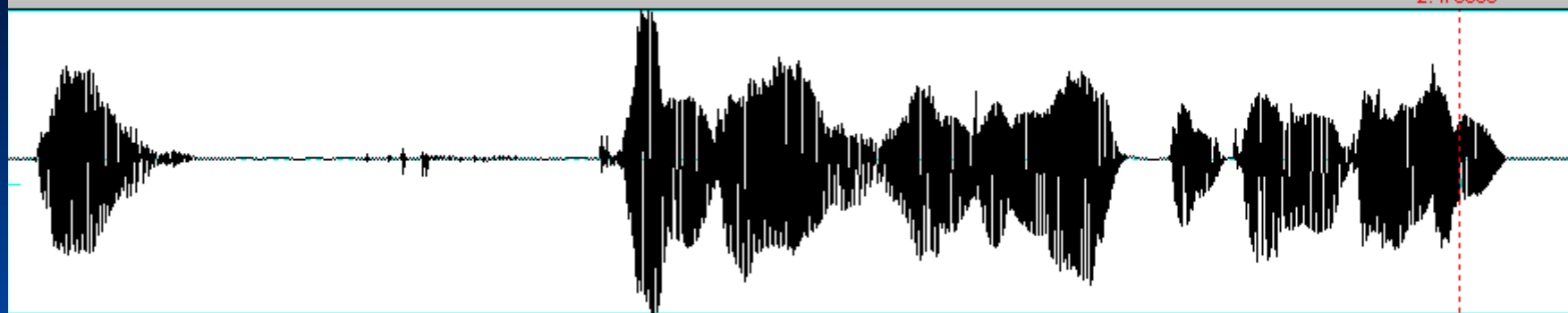
NZE

- pf0110-rise1
- pm0101-rise10
- pm0101-rise7





2.479306



433.76 Hz

75 Hz

Words
(9)

Tones
(0)

right

come

down

underneath

the

dingo

2.479306

0.191794

0.000000

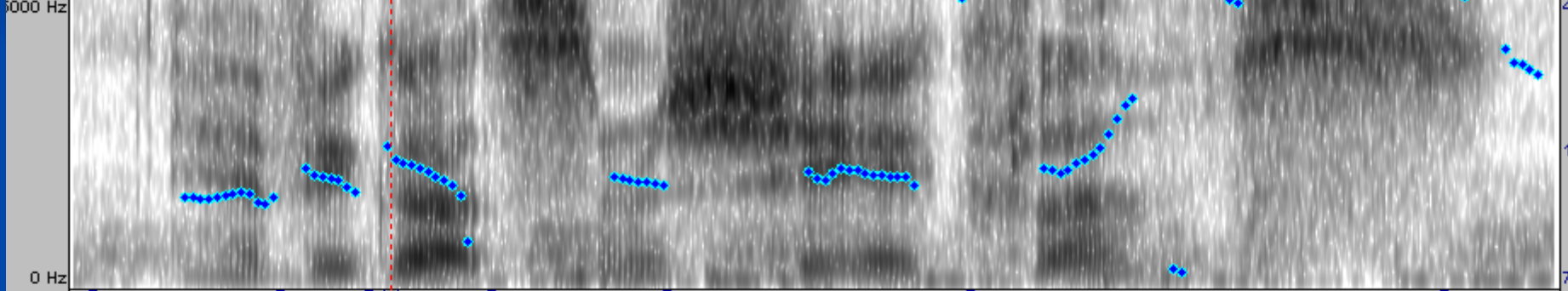
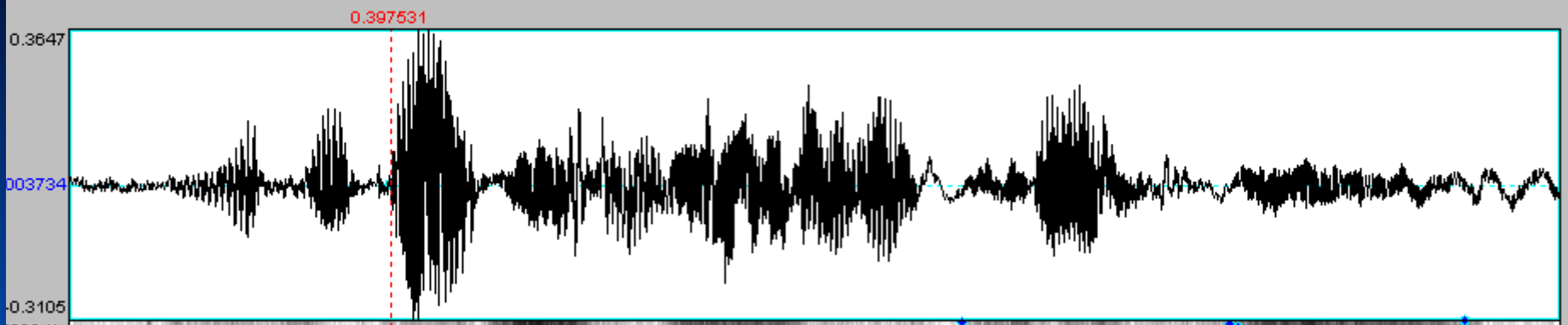
Visible part 2.671100 seconds

2.671100

Total duration 2.671100 seconds



Restor



1 have you got some sheer cliffs

words (8)

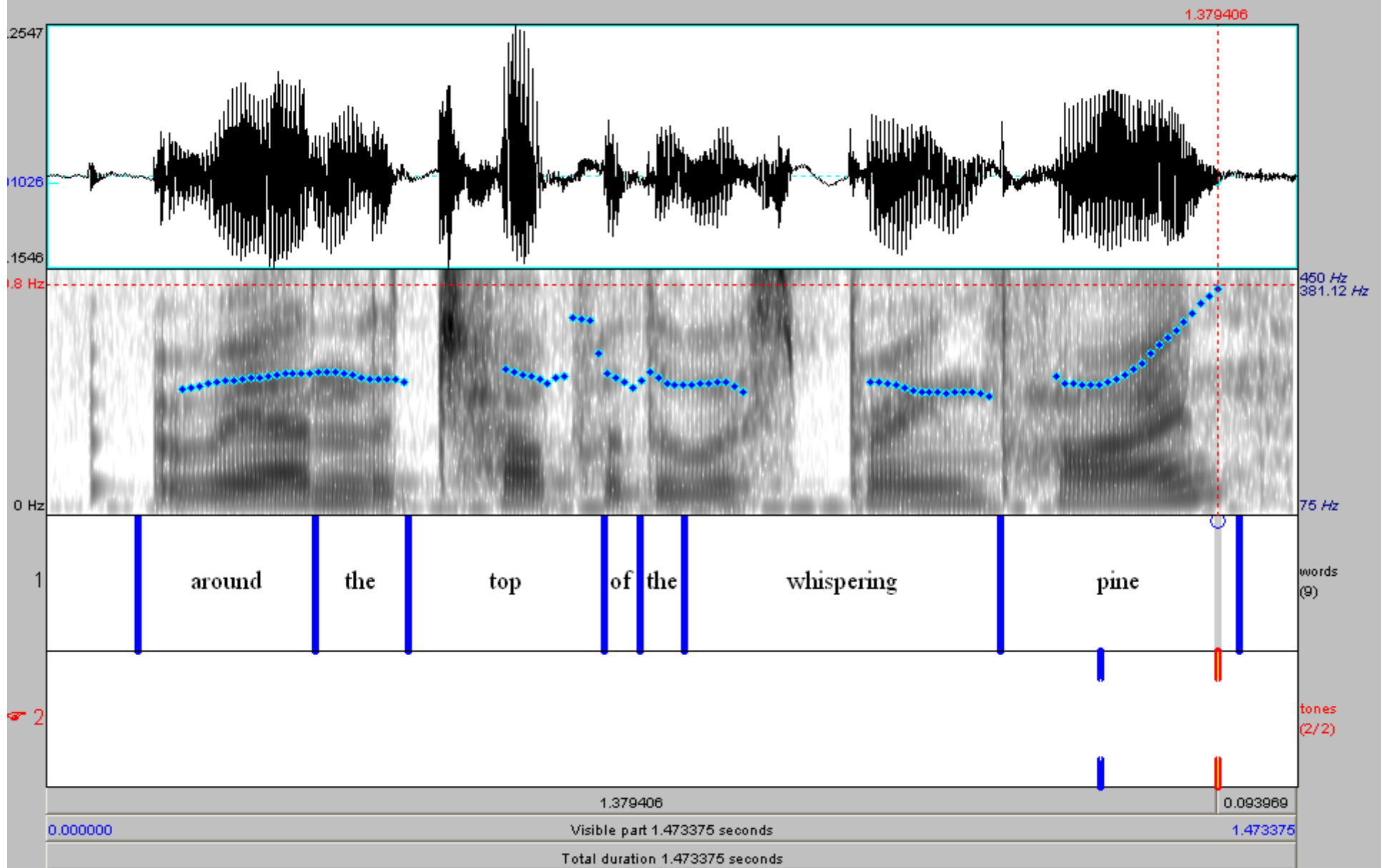
2 ?# ?%

tones (1/3)

0.397531 1.440719

0.000000 Visible part 1.838250 seconds 1.838250

Total duration 1.838250 seconds



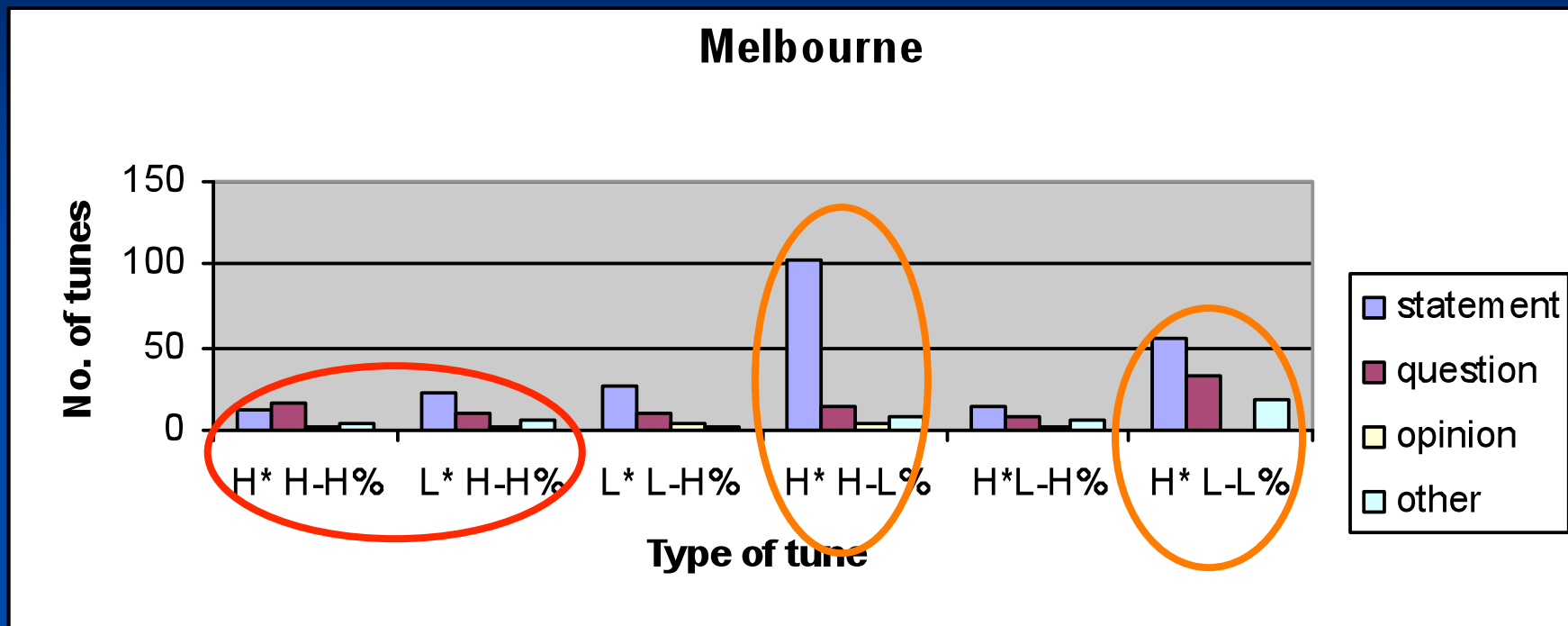
Pre-nuclear characteristics - Questions

- AuE
- M94.rise2
- f066-rises14

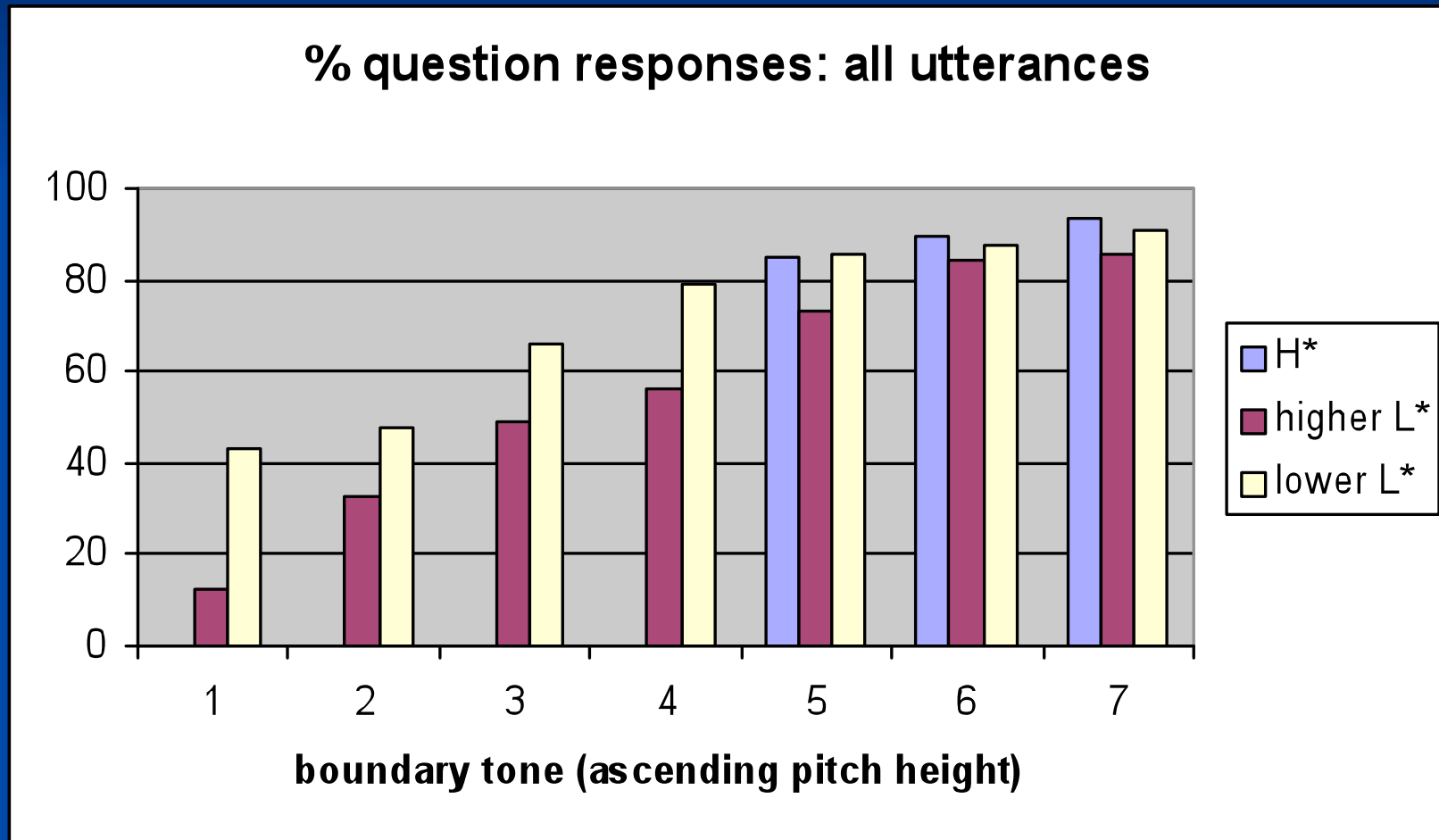
- NZE
- pm0131-rise7
- pf0110-rise6

RISES AND DIALOG ACT:

Melbourne corpus



How are high rises perceived?



Some recommended readings - ToBI

*Beckman, M. & J. Pierrehumbert (1986) Intonational structure in Japanese and English. *Phonology Yearbook 3*: 255-309.

Bolinger, D. (1972) *Intonation* [introduction and chapter 1]. Penguin Books, Ltd.

*Jun, Sun-Ah (2005) ed. *Prosody and typology: a unified approach*. OUP (Chapters 2 & 14,16)

*Ladd, D.R. (1996). *Intonational Phonology*, CUP

Pierrehumbert, J. & Hirschberg (1990) The meaning of intonational contours in interpretation of discourse. In Cohen, et al. (eds.) *Intentions in Communication*. MIT Press.

Venditti, J. (2002). "Intonational meaning in Discourse" (Web tutorial <http://www1.cs.columbia.edu/~jjv/introinton.html>)

Sound Files

■ AUE & NZE

8 millionaire.AuE 42 pf029.ds

s107a.dingo2

49 wallabies

s029a.dingo3

53 s029bml

f066.dingo1

54 s29b.lowrise.01

f066.rubble (55) 56 s105a.qy.01

9 pf0130fr&f

57 s106b_fr2

s106bfr

s106b.bend

pf0130r

58 s094.rfr1

LL_rises

59 s093a.desert2

16 pf0129rf (33, 72)

60 s29b.ghostown (63)

17 s105a.longtail (44)

61 m044.left

18 pf0129rf

s093a.gravestones (25, 51)

23 s106b.break3.01

25 s29b.LH.01 (50)

32 c065.map1.105

37 c065.map1.068

36 mac.003

39 c065.map1.002

41 s29b.ds.01