

Form-Meaning Interface in Constraint-based Unified Grammar: Prosody and Pragmatics

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Form – **Meaning**

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Prosody – **Pragmatics**

i. intonation – **speech act**

ii. stress – **topic-focus articulation**

Section 2 **Prosody and pragmatics**

3 **Prosody-pragmatics interface in CUG**

4 **Illustrations**

Appendix

(1) Sentence Type (ST) and Sentence Level (SL)

ST \ SL	Deferential p	Plain a	Familiar ey	Blunt o	Intimate e	Polite yo
Declarative (DEC)	<i>-(su)pnita</i>	<i>-ta</i>	<i>-ney</i>	<i>-o</i>	<i>-e</i>	<i>-yo</i>
Interrogative (INT)	<i>-(su)pnikka</i>	<i>-nya</i>	<i>-na</i>	<i>-o</i>	<i>-e</i>	<i>-yo</i>
Imperative (IMP)	<i>-psio</i>	<i>-(e)la</i>	<i>-key</i>	<i>-o</i>	<i>-e</i>	<i>-yo</i>
Propositive (PRP)	<i>-(u)psita</i>	<i>-ca</i>	<i>-sey</i>	<i>-o</i>	<i>-e</i>	<i>-yo</i>

(2) **Mia-ka wa. ss.e**

SM come.PST.IMT

SM = subject marker

PST = past

IMT= intimate

a. **Mia-ka wa.ss.e.**

‘Mia came.’

(declarative)

b. **Mia-ka wa.ss.e?**

‘Did Mia come?’

(interrogative)

(3) **Nwuka** **wa. ss.e**

who/someone come.PST.IMT

a. **nwu.ka** wa.ss.e. ‘Somebody came.’ (statement)

b. **nwu.ka** wa.ss.e ? ‘Did anybody come?’ (ynQ)

c. **nwu.ka** wa.ss.e? ‘Who came?’ (whO)

d. **nwu.ka** wa.ss.e? ‘Who did you say came?’ (echoQ)

: *nwu.ka* ← *nwukwu* + *ka*

ynQ = *yes/no* question whQ = *wh*-question

echoQ=echo question

Echo Utterances

Echo Question

- Reprise Question (Bolinger 1957,
Ginsburg & Sag 2000)
- Retorted Question raised to the second power
(Jespersen 1924)

(4) A: **Mia-ka wa.ss.e** (=2a)

‘Mia came.’

B: **Mia-ka wa.ss.ta-ko** ?

come.PST.DEC.QM

QM=quotative marker

‘(Did you say **that**) Mia came?’

(5)

a. A: Mia-ka wa.ss.e?

‘Did Mia come?’

b. B: Mia-ka wa.ss.nya-ko?

‘Did Mia come--
did you ask?’

c. A: Ung. Mia-ka wa.ss.nya-ko

‘Yeah, did Mia
come? I asked.’

d. Mia-ka wa.ss.e?

‘Did you say Mia came?
It’s surprising.’

English tags (cf. Bolinger 1957:17-8)

- a. It's raining *isn't it?* (auxiliary tag)
- b. He will *I suppose?* (tentation)
- c. They will attend to it later *you say?* (imputation)
- d. How does he like it *I wonder?* (explication)
- e. Says, he is sorry, *eh?* (intonation tag)

(6) Korean neg-tagQ

[_S ... (tense) <i>ci</i>]	<i>an.ha?</i>]	..., <i>isn't it?</i>	(English)
			..., <i>n'est ce pas?</i>	(French)
PACK	TAG		..., <i>zyanai.</i>	(Japanese)

- FOOTNOTE-1

Postsentential tag (Chang 1985)

mid TC

i. Mia-ka wa.ss.ci an.kul.ay?

come.PST.SUP. NEG so.be/do.PL/INT

‘Mia came, I suppose--isn’t it so?’

(7) neg-tagQ

Mia-ka wa. ss. ci **an.** h.a

(agreeing)
(confirming)

come.PST.SUP.NEG.be/do.IMT

‘Mia came, **didn’t** she

(8) negQ

Mia-ka o.ci **an.**ha.ss.e

come.SUP NEG.be/do.PST.IMT

(SUP = suppositive)

‘Didn’t Mia come?’

(9) neg-tagQ vs. negQ

PACK

TAG

TC

a. neg-tagQ [_S ... (TENSE). *ci*. NEG. *ha* (*TENSE)... _S]

b. negQ [_S ... (*TENSE). *ci*. NEG. *ha*. (TENSE) ... _S]

(10) *Mia-ka wa.ss. ci an. ha.ss.e

come.PST.SUP. NEG.be/do.PST.IMT

(***Didn't** Mia **came**?)

(11) Speech act types (partial):

- a. *expositives*: {*state*(#1), *tell*(#1), *say*(#1),... }
- i. *assertives* {*assert*#2, *affirm*#2, *state*, ... }
- ii. *informatives* {*inform*, *report*#2, *describe*#2, ... }
- iii. *confirmatives* {*confirm*#2, *conclude*, *judge*#2, ... }
- iv. *assentives* {*agree*#2, *accept*#3, *assent*#3, ... }
- v. *dissentives* {*disagree*, *dissent*, *differ*, ... }
- vi. *suppositives* {*suppose*, *assume*, *reassume*,... }
- b. *rogatives*: {*ask*, *inquire*, *question*#3, ... }
- c. *directives*: {*request*#2, *ask*#2, *order*, ... }
- d. *commissives*: {*promise*, *offer*, *propose*, ... }

: WordNet (2.1): sense number ‘#1’ (basic) – left out

(12) TC-SA linking

[a = speaker, b = hearer, P=proposition, wh-/if-P = question]

a. fall ()	assert (a, b, P)	(statement)
	ask(a, b, wh-P)	(whQ)
	suppose(a, P) request(a, b, confirm(b, P))	(conf-tagQ)
b. rise ()	ask(a, b, if-P)	(ynQ)
	ask(a, b, say(b, a, P))	(echoQ)
	suppose(a, P) ask(a, b, agree(b, P))	(agr-tagQ)
c. hi-rise ()	ask(a, b, say(b, a, P)) surprised(a, P)	(incr-echoQ)
d. mid ()	suppose(a, P)	(supposition)

NB: ‘performative’ analysis

conf-tagQ = confirming tagQ, agr-tagQ = agreeing tagQ,

incr-tagQ = incredulity tagQ

(13) TC and IP boundary tones

TC	IP Boundary Tone	
a. fall ()	L%, HL%, LHL%, LHLHL%,...	statement, whQ , conf-tagQ
b. rise ()	LH%, HLH%, ... H%	echoQ, agr-tagQ, whQ ynQ
c. hi-rise ()	LHLH%, ...	incr-echoQ
d. mid ()	H%, LH%, HL% ...	supposition, ...

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- K-ToBI (**K**orean **T**one **B**reak **I**ndex) system

cf. Jun (2000, to appear)

9 IP boundary tones (%),

15 APs (accentual phrases), ip (intermediate phrase)

(14) Stress types and TFA

	STRESS	F0(Hz)	TFA TYPE	SHORTHAND
a.	0		zero topic	t0
b.	1	286	thematic topic	t
c.	2	327	narrow focus	f
d.	3	347	contrastive topic/ focus	tc/ fc

(Chung and Kenstowicz 1997)

(15) a. A: **Mia-ka wa.ss.e.** (=2a, 4a)

‘Mia came.’

b. Q: **Mia-ka wa.ss.ta-ko ?**

come.PST.DEC.QM

‘Mia come?’

(16) A: **Mia-ka wa.ss.e.yo.**

2 2

f f

a. Q1: **Mia-ka wa.ss.ta-ko ?**

echoQ

“Did you say Mia came?”

2 2

f f

b. Q2: **Mia-ka** wa.ss.ta-ko ?

incr-echoQ

“Did you say MIA came?

3 2

fc f

Surprising!”

c. Q3: **Mia-ka wa.ss.ta-ko ?**

incr-echo

“Did you say she CAME?

2 3

f fc

Surprising!’

Section 3: Prosody-pragmatics interface in CUG:

sign- and construction-based
typed feature-structured
discourse-oriented ...

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Principles and Conventions:

Principle of Order

Stress Lineup Convention

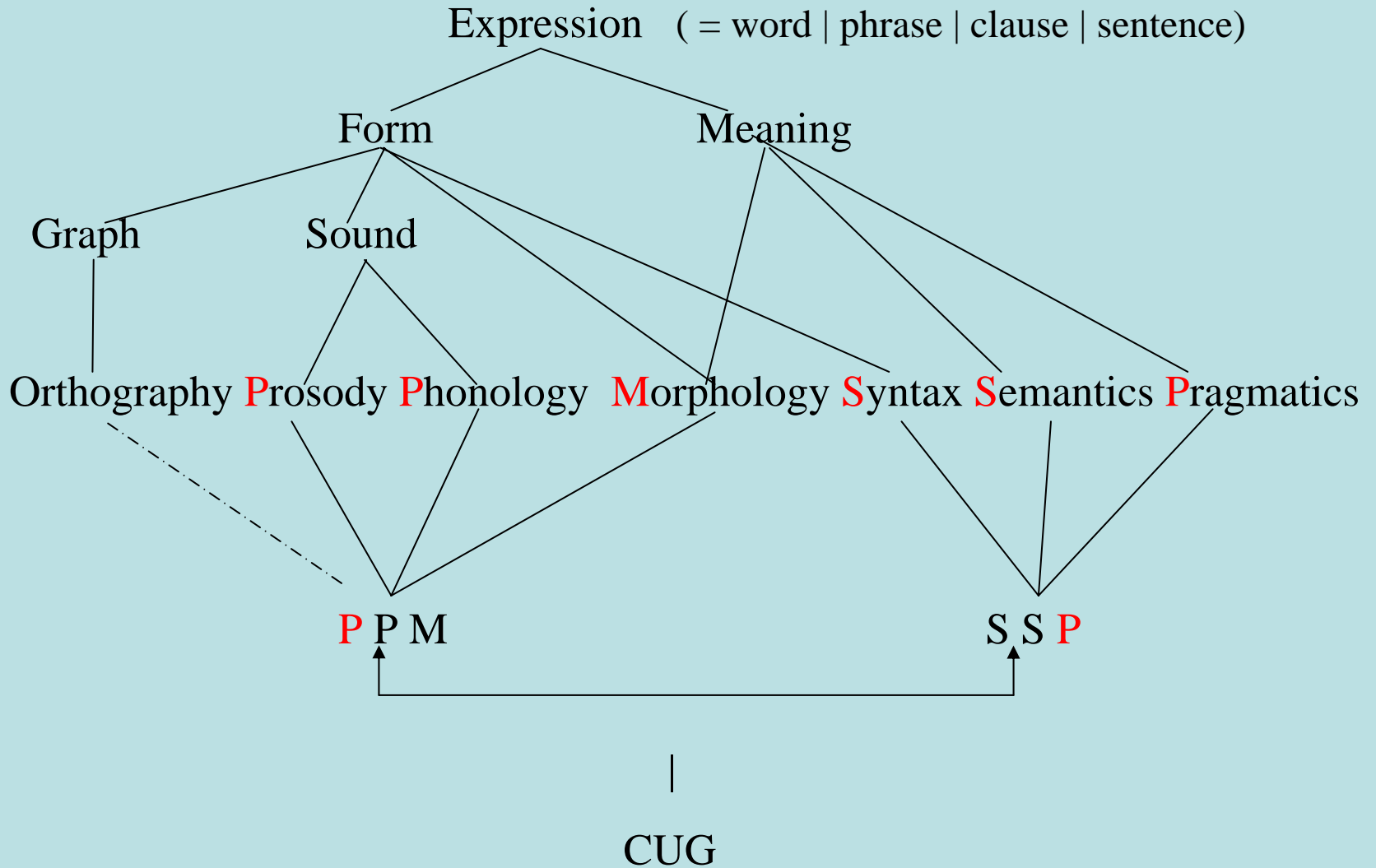
TFA Compositionality Convention ...

Devices:

Multiple Inheritance Hierarchy

Default Inheritance Hierarchy ...

Linguistic Components (Unified)



Major Feature Structures

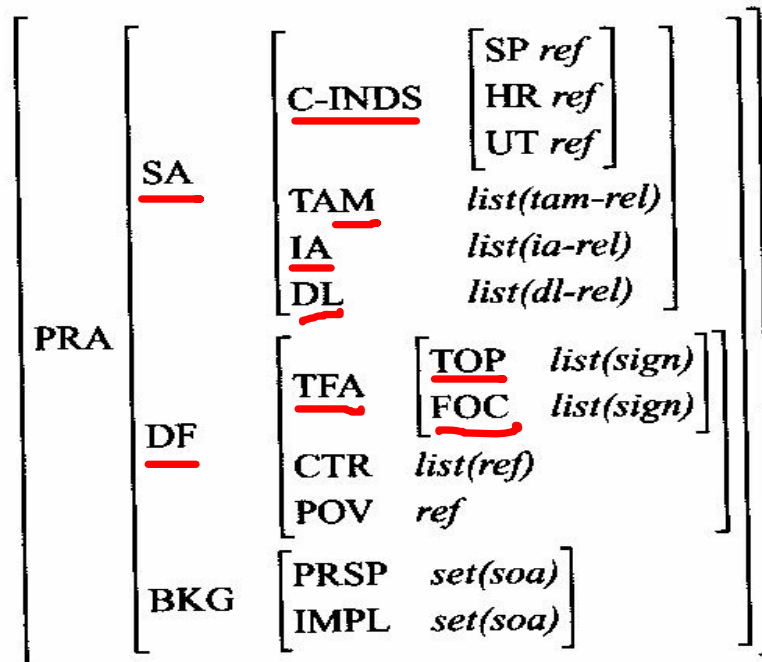
TYPE	FEATURES/VALUE TYPES	IMMEDIATE SUPERTYPE
<i>sign:</i>	$\left[\begin{array}{l} \underline{\text{PPM}} \quad ppm \\ \underline{\text{SSP}} \quad ssp \end{array} \right]$	
<u><i>ppm:</i></u>	$\left[\begin{array}{l} \underline{\text{PROS}} \quad pros \\ \text{PHON} \quad list(form) \\ \text{MORPH} \quad morph \end{array} \right]$	<i>sign</i>
<i>morph:</i>	$\left[\text{MORPH} \left[\begin{array}{l} \text{STEM} \quad stem \\ \text{AFFIX} \quad affix \end{array} \right] \right]$	<i>ppm</i>
<u><i>pros:</i></u>	$\left[\begin{array}{l} \underline{\text{TC}} \quad list(tc) \\ \underline{\text{STRS}} \quad list(stress) \end{array} \right]$	<i>ppm</i>
<u><i>ssp:</i></u>	$\left[\begin{array}{l} \text{SYN} \quad syn \\ \text{SYM} \quad sem \\ \underline{\text{PRA}} \quad pra \end{array} \right]$	<i>sign</i>
<i>syn:</i>	$\left[\begin{array}{l} \underline{\text{HEAD}} \quad pos \\ \text{VAL} \quad val \\ \text{GAP} \quad list(ssp) \\ \text{MARKING} \quad marking \end{array} \right]$	<i>ssp</i>
<i>val:</i>	$\left[\begin{array}{l} \text{COMPS} \quad list(expression) \\ \text{SPR} \quad list(expression) \\ \text{MOD} \quad list(expression) \end{array} \right]$	<i>syn</i>
<i>sem:</i>	$\left[\begin{array}{l} \underline{\text{IND}} \quad index \\ \underline{\text{RESTR}} \quad list(soa) \end{array} \right]$	<i>ssp</i>

3.1. Feature structures of PROS and PRA

(17) FS of PROSODY

[PROS [TC <i>list(tc)</i>	<i>tc: fall, rise, hi-rise, mid, nil</i>
STR <i>list(str)</i>]]	<i>str: 0, 1, 2, 3, nil</i>

(18) Feature Structure of PRA



(19) Partitions of *tam-relation* (partial)

a. Partition of *temporal relation*:

precede, overlap, ...

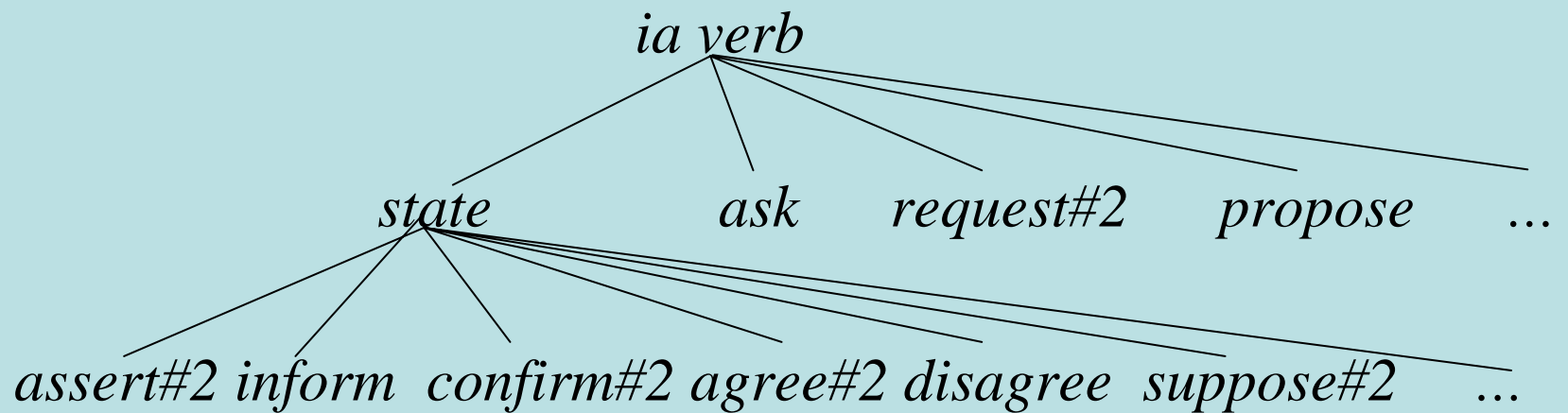
b. Partition of *aspectual relation*:

ongoing, complete, resultant, ...

c. Partition of *modal relation*:

intend, predict, recall, cognize, surprise, ...

(20) Type hierarchy: *illocutionary-act verbs* (partial)



(21) Partition of *discourse-level (dl) relation*:

plain, deferential, familiar,
blunt, intimate, polite; honor.

(22) SYN PRA

[SYN [HEAD *verb* [FORM *pl.dec*]]
PRA [SA [IA < [RELN */assert*] >
DL < [RELN *plain*] >]]]

add: [PROS [TC *fall*]]

‘/’ – default value; it is defeasible.

(23) (=4B) **Mia.ka wa.ss.ta.ko** (echoQ)

[PROS [TC *rise*]

SEM [INDEX s_1

RESTR < [come(t_1, x_1, s_1)] >]

PRA [SA [IA < [RELN *ask*($t_2, a, b, say(t_3, b, a, s_1)$)] >]]]

(See Appendix-2 for a detailed AVM)

(24) Stress-TFA Interface

a. zero topic (t0):

[1][STR < 0 >
TFA [TOP [1]]]

b. (thematic) topic (t):

[1][STR < 1 >
TFA [TOP [1]]]

c. (narrow) focus (f):

[1][STR < 2 >
TFA [FOC [1]]]

d. contrastive focus (fc):

[1][STR < 3 >
TFA [FOC [1]]]

e. contrastive topic (tc):

[1][STR < 3 >
TFA [TOC [1]]]

(25) Principle of Order (cf. Sag-Wasow-Emily 2003)

cx: [MOTHER [PHON [A₁] ⊕...⊕ [A_n]]
DTRS < [PHON [A₁]],..., [PHON [A_n]] >]

⊕ = append

cx = construction

- ORTH(OGRAPHY) in place of PHON

(26) Stress Lineup Convention

cx: [MOTHER [STR [1] \oplus ... \oplus [n]]
DTRS < [STR [1]], ... , [STR [n]] >]

(27) TFA Compositionality Convention

cx: [MOTHER [TFA [1] \oplus ... \oplus [n]] % delete a '['
DTRS < [TFA [1]], ... , [TFA [n]] >]

[FOOTNOTE 6]

- Semantic Compositionality Principle (cf. Sag et al. 2003)

cx: [MOTHER [SEM [RESTR [1] \oplus ... \oplus [n]]]
DTRS < [SEM [RESTR [1]]], ... , [SEM [RESTR [n]]] >]

(28) (=4B) Mia.ka wa.ss.ta. ko?
| |
head **marker**

(echoQ) ‘Did you say **Mia** came ’

(29) (=7) Mia.ka wa.ss.ci an.ha

(conf-tagQ) ‘Mia came, didn’t
she ’

(30) Dialog exchange

a. Q1: **Nwu.ka sam Kim-ul coh.aha.y?**

who three OM like.do.IMT

‘Who likes three Kims?’

b. A1: **Mia-ka DJ-lul coha.ha.y. Yuna-to. JP-nun ta silhe.ha.y.**

SM OM like.do.IMT too TM all dislike.do.IMT

‘Mia likes DJ. Yuna, too. JP everybody dislikes.’

c. Q2: **JP-nun ta silhe.han.ta.ko?**

(echoQ)

TM all dislike.do.PL/DEC.COMP

‘Everybody dislikes JP--Did you say?’

d. A2: **Ung, ta silhe.han.ta.ko.**

(echoS)

yes all dislike.do.PL/DEC.COMP

‘Yeah, everybody dislikes him, I said.’

(31) AVM (simplified)

Q1: **Nwu.ka sam Kim-ul coha.ha.y?** ‘Who likes three Kims?’

[TC *rise*

STR < 2, 1, 1 >

PHON < nwuka_[1], sam kimul_[2], coha.ha.y_[3]>

TFA [TOP < [2], [3] >

FOC < [1] >]]

A1: a. **Mia-ka DJ-lul coha.ha.y.**

‘Mia likes DJ.’

[TC *fall*

STR < 2, 1, 1 >

PHON < mia.ka_[1], DJ.lul_[2], coha.ha.y_[3] >

TFA [TOP < [2], [3] >

FOC < [1] >]]

b. **Yuna-to.**

‘Yuna, too.’

[TC *fall*

STR < 2, 0, 0 >

PHON < yuna.to_[1] >

GAP < [2], [3] >

TFA [TOP < [2], [3] >

FOC < [1] >]]

*0 0

c. **JP-nun ta silhe.ha.y.**

‘JP everybody dislikes.’

[TC *fall*

STR < 3, 2, 2 >

PHON < JP.nun_[1] , ta_[2] , silhe.ha.y_[3] >

TFA [TOP < [1] >

FOC < [2], [3] >]]

Q2: **JP-nun ta silhe.han.ta.ko?**

‘JP everybody dislikes—
did you say?’

[TC *rise*

STR < 3, 2, 2 >

PHON < JP-nun_[1], ta_[2], silhe.han.ta.ko_[3] >

DF [TOP < [1] >

FOC < [2], [3] >]]

A2: **Ung, ta silhehantako.**

‘Yeah, everybody dislikes him.’

[TC *fall*

STR < 2, 0, 1,1 >

PHON < ung_[1] , ta_[3] , silhe.han.ta.ko_[4] >

GAP < [2] >

DF [TOP < [2], [3], [4] >

 FOC < [1] >]]

Appendix

1. Tree Structure (p.25)
Mia-ka wa.ss.ta-ko? (pp.26-29)
2. Feature Structure
3. Echo Questions (cross-linguistic)
4. Summary: S-type - SA - TC - IP % - S-ending
5. Question and Answer: Intonation (Analysis)

Appendix 1

(28=4B) **Mia-ka wa.ss.ta-ko** ↗

(echoQ)

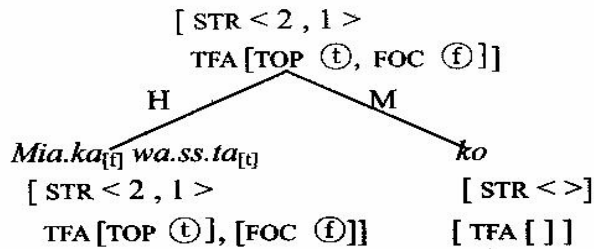
‘Did you say MIA came?’

- Tree Structure (simplified)

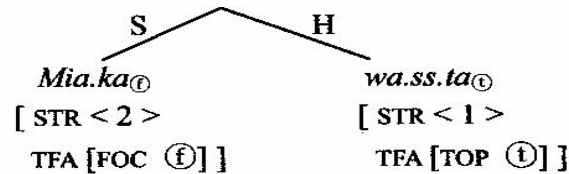
D: *head-comp cx*



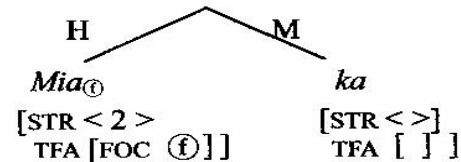
C: *head-mark cx*



B: *head-spr cx*



A: *head-mark cx*

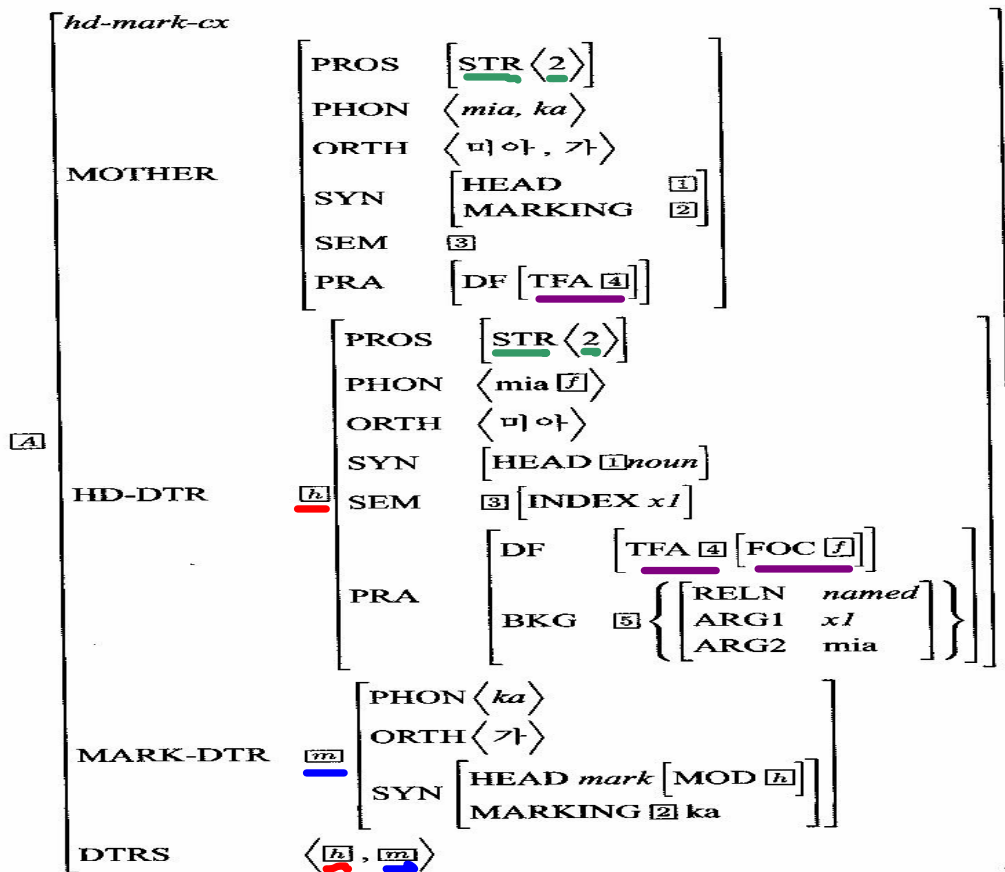


[H = Head, M=Marker, S = Specifier/Subject, C = Complement]

Appendix 2

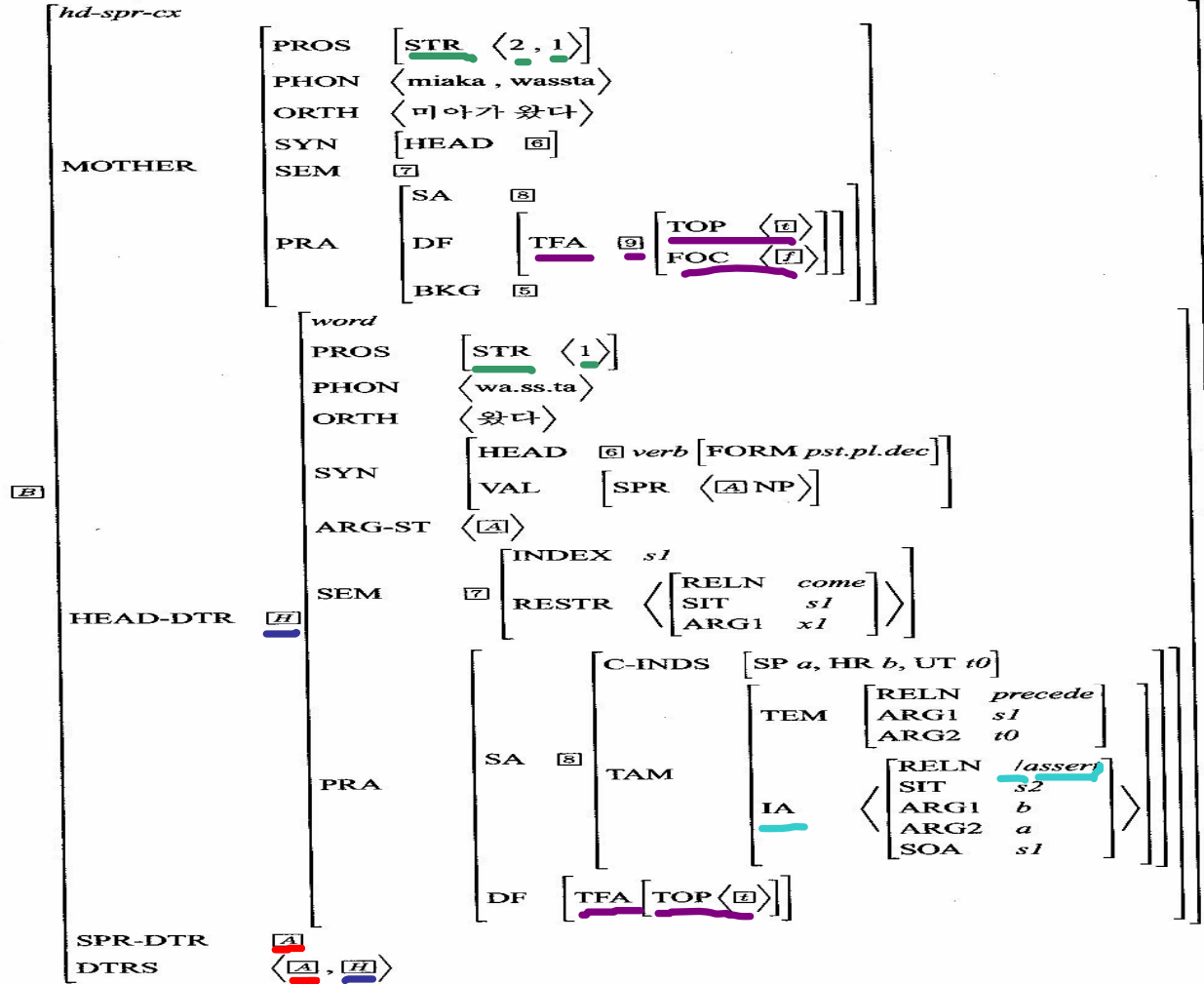
(28) *Mia-ka wassta-ko?*

A: Head-marker Construction: *Mia-ka*



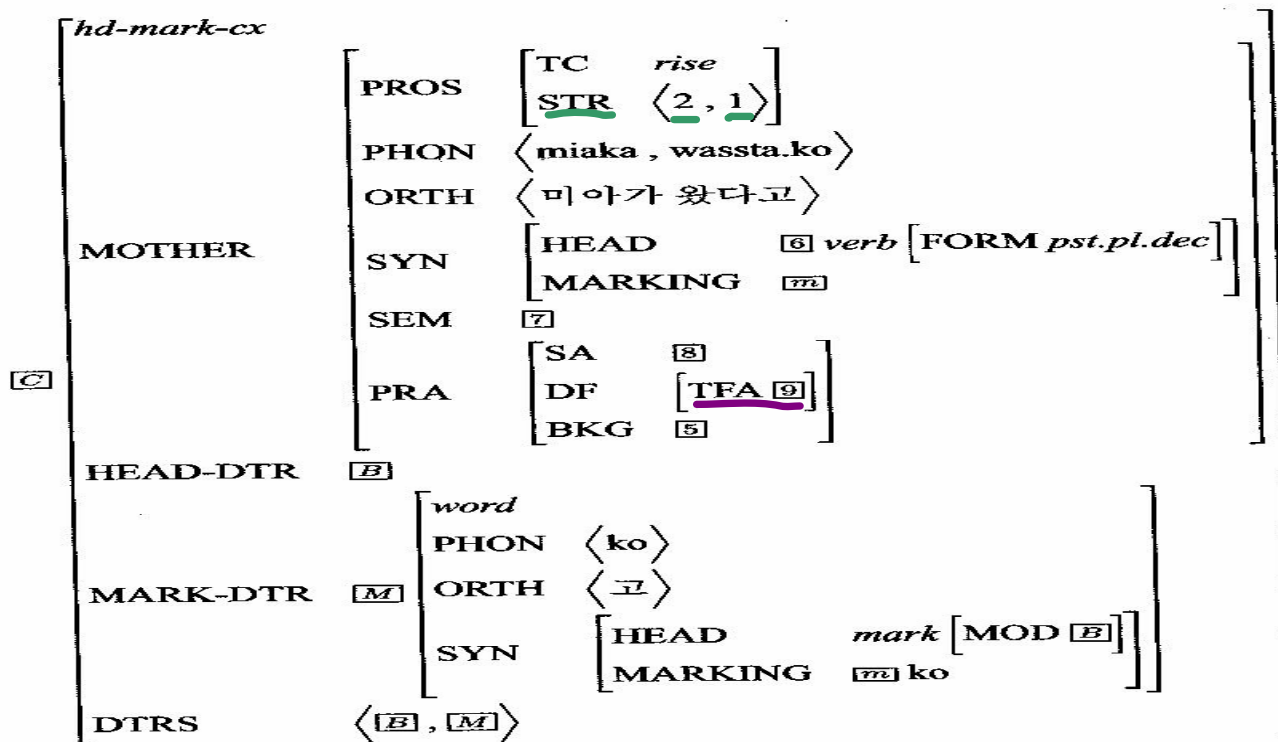
B: Head-specifier Construction:

Mia-ka wassta



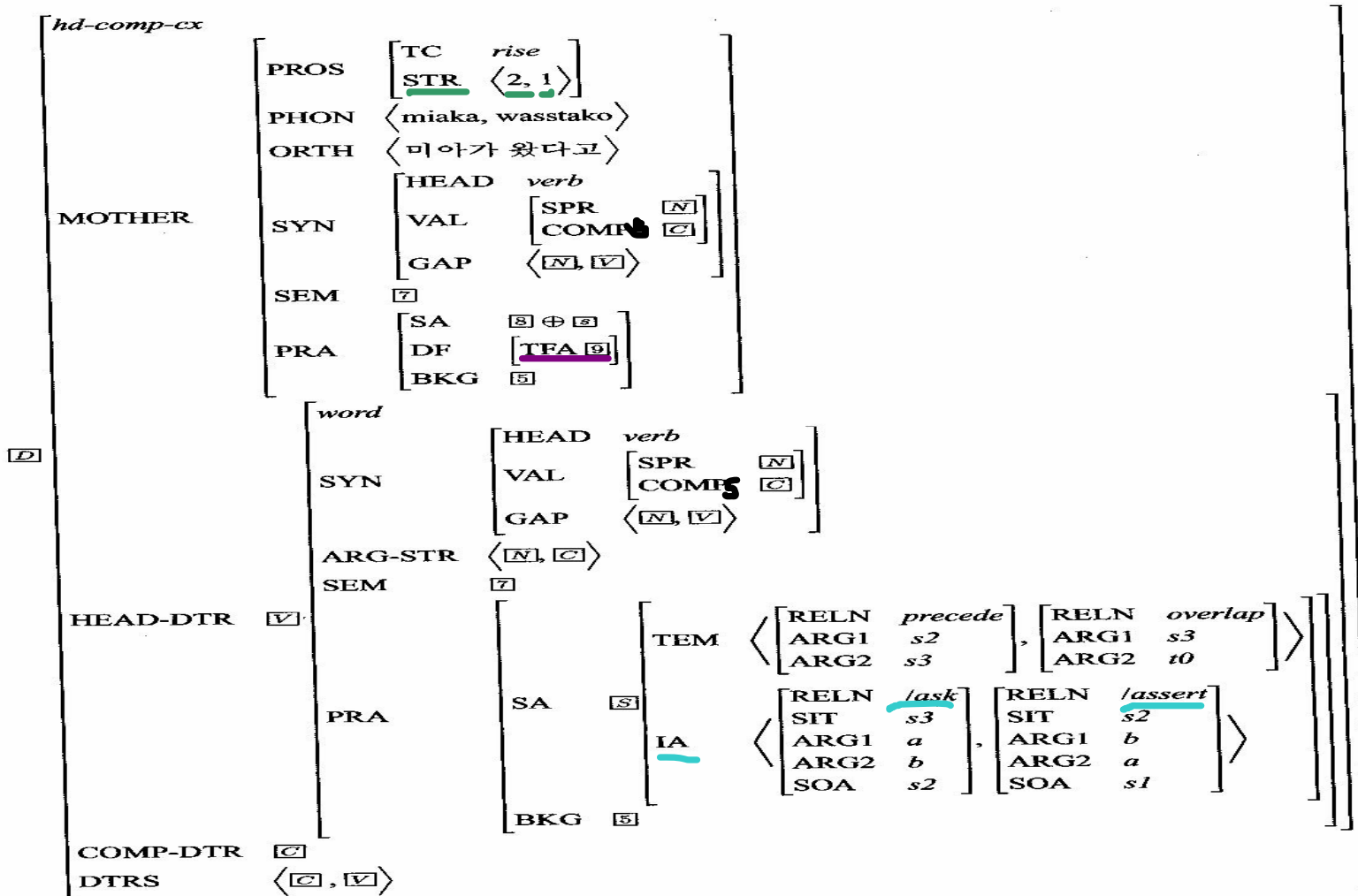
C: Head-marker Construction:

Mia-ka wassta-ko?



D: Head-comp construction:

(ney-ka) Mia-ka wassta-ko (malhayssnya)?



Appendix 3

Echo Questions (cross-linguistic) (cf. Jespersen 1924)

Standard ysQ vs. ys-echoQ

standard ynQ	yn-echoQ	N.B.
E. Is that true?	Is that true?	: <i>hi</i> rising tone
F. Est ce que c'est vrai? (or Est ce vrai?)	Si c'est vrai?	: <i>si</i> added; word order
G: Ist das wahr? :	Ob das wahr ist?	: <i>ob</i> added; word order
D: Er det sandt?	Om det er sandt?	: <i>om</i> added; word order
C: 真的嗎	你說 真的嗎	: <i>ni shuo</i> added
J: 本当か?	本当か って ?	: <i>tte</i> (< <i>to itte</i>) added
K: ?	?	: <i>ko</i> added

: C=Chinese D=Danish E=English F=French G=German J=Japanese
K=Korean

Standard whQ vs. wh-echoQ

standard whQ	wh-echoQ	N.B.
E: What have you done?	What have I done?	: hi rising tone
F: Que avez vous fait?	Ce que j'ai fait?	: relative clause
G: Was hast du getan?	Was ich getan habe?	: word order
D: Hvad har du gjort?	Hvad jeg har gjort?	: word order
C: 你做什麼呢	你說我做什麼呢	: <i>ni shuo</i> added
J: 君は何をしたか?	何をしたかって?	: <i>tte</i> added
K: ?	가 ?	: <i>ko</i> added

Appendix 4

U-TYPE	SA	TC	IP BOUNDARY TONE	S-ENDING
statement	assert(a, b, P)	fall ()	L%, HL%, LHL%, HLHL%, ...	dec . dec .
supposition	suppose(a, P)	mid ()	H%, ...	<i>ci</i> .
ynQ	ask(a, b, if-P)	rise ()	LH%, HLH%,	int ?
whQ	ask(a, b, wh-P)	fall ()	HL% H%, ...	int ?
echoQ	ask(a, b, say(b, a, P))	rise ()	LH%, HLH%, ...	<i>st.ko</i> ?
incr-echoQ	ask(a, b, say(b, a, P)) surprised(a, P)	hi-rise ()	LHLH%, ...	<i>st.ko</i> ? !
conf-tagQ	suppose(a, P) ask(a,b,confirm(b, P))	fall()	LHL%, HLHL%, ...	<i>ci.anha</i> ?
agr-tagQ	suppose(a, P) ask (a, b, agree (b, P))	rise ()	LH%, HLH%, ...	<i>ci.anha</i> ?

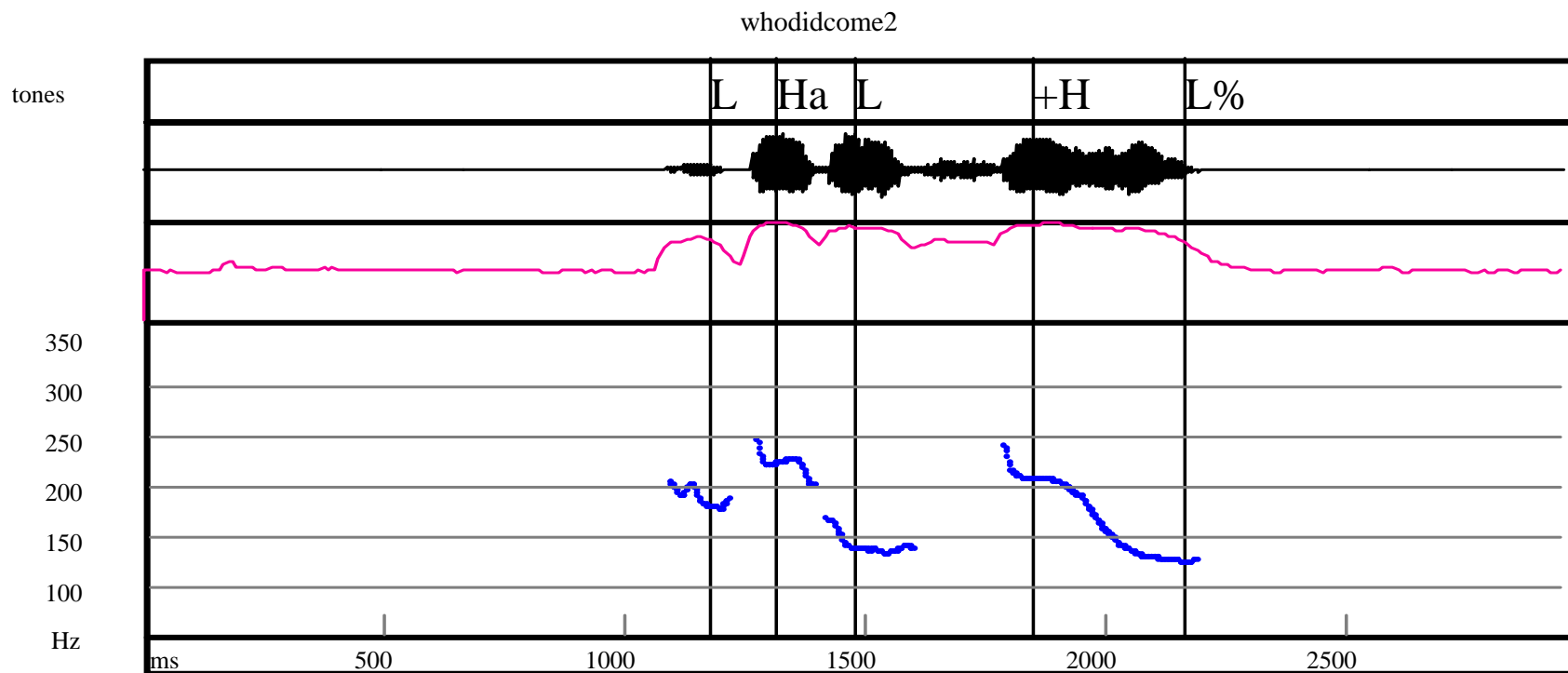
Appendix 5

Pitch Contour Analysis: Question and Answer

- by Kim Heesun (10/2005)

1. *Nwuka wasseyo.* (statement) (*nwuka*= someone)

L Ha L+H L%



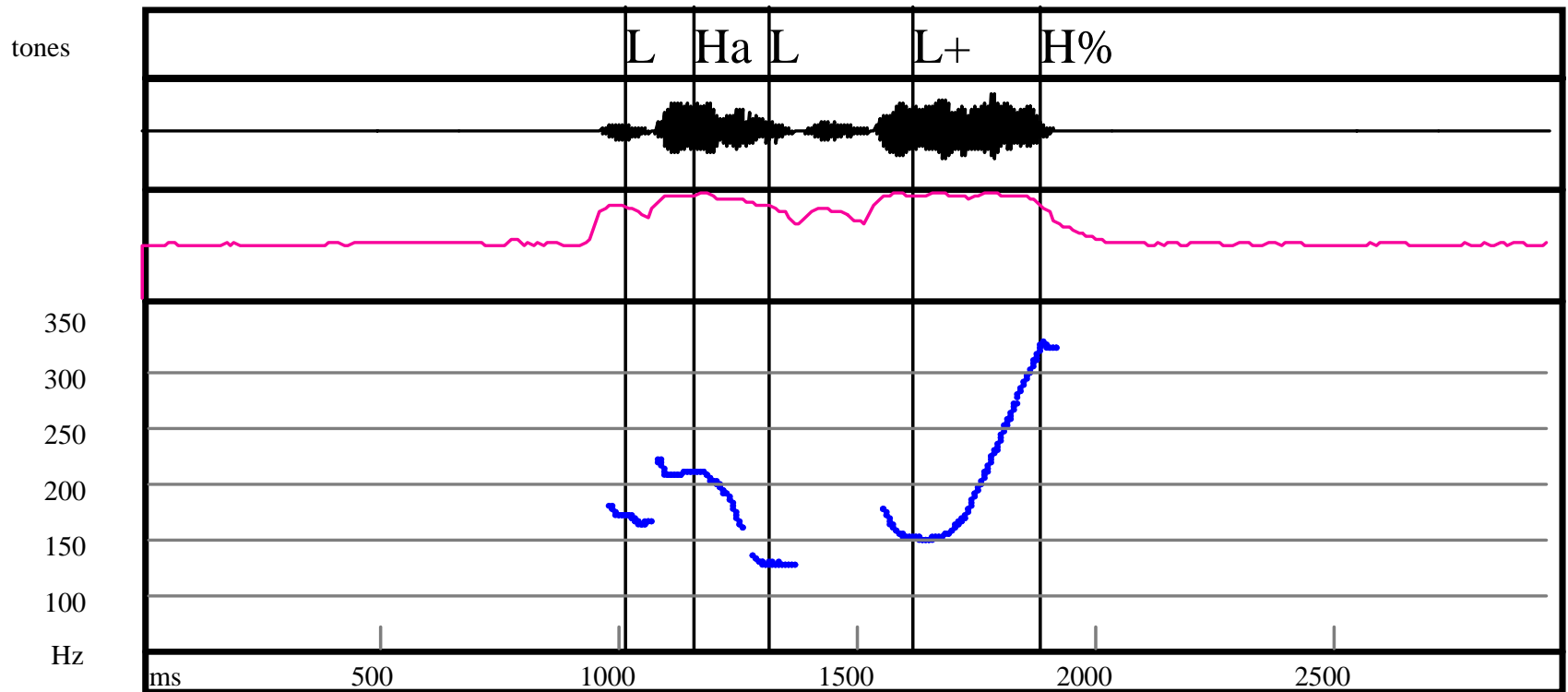
2. *Nwuka wasseyo?*

(yes/no-Q)

(*nwuka*= someone)

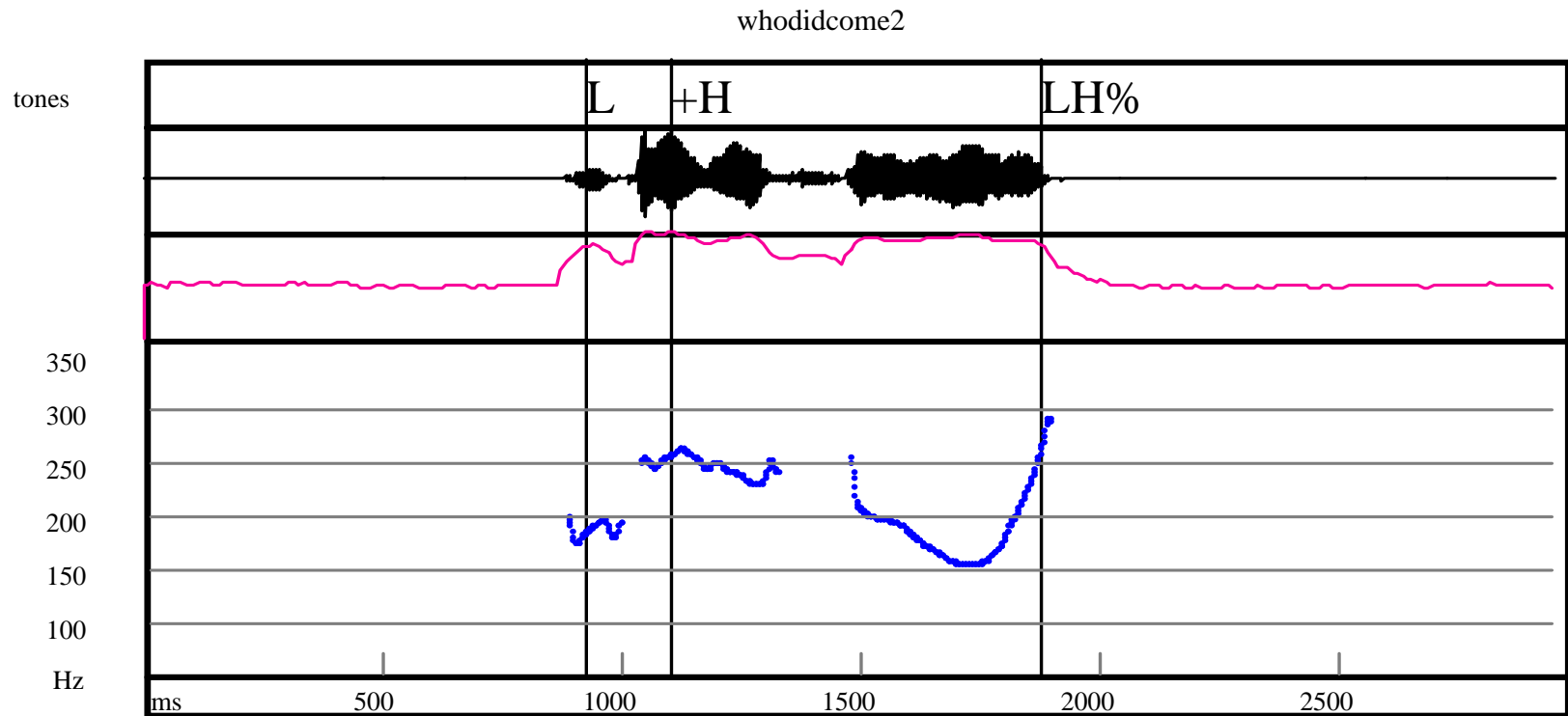
L Ha L L+ H%

whodidcome2



3. *Nwuka wasseyo?* (wh-Q) (*nwuka*= *who*)

L+H LH%



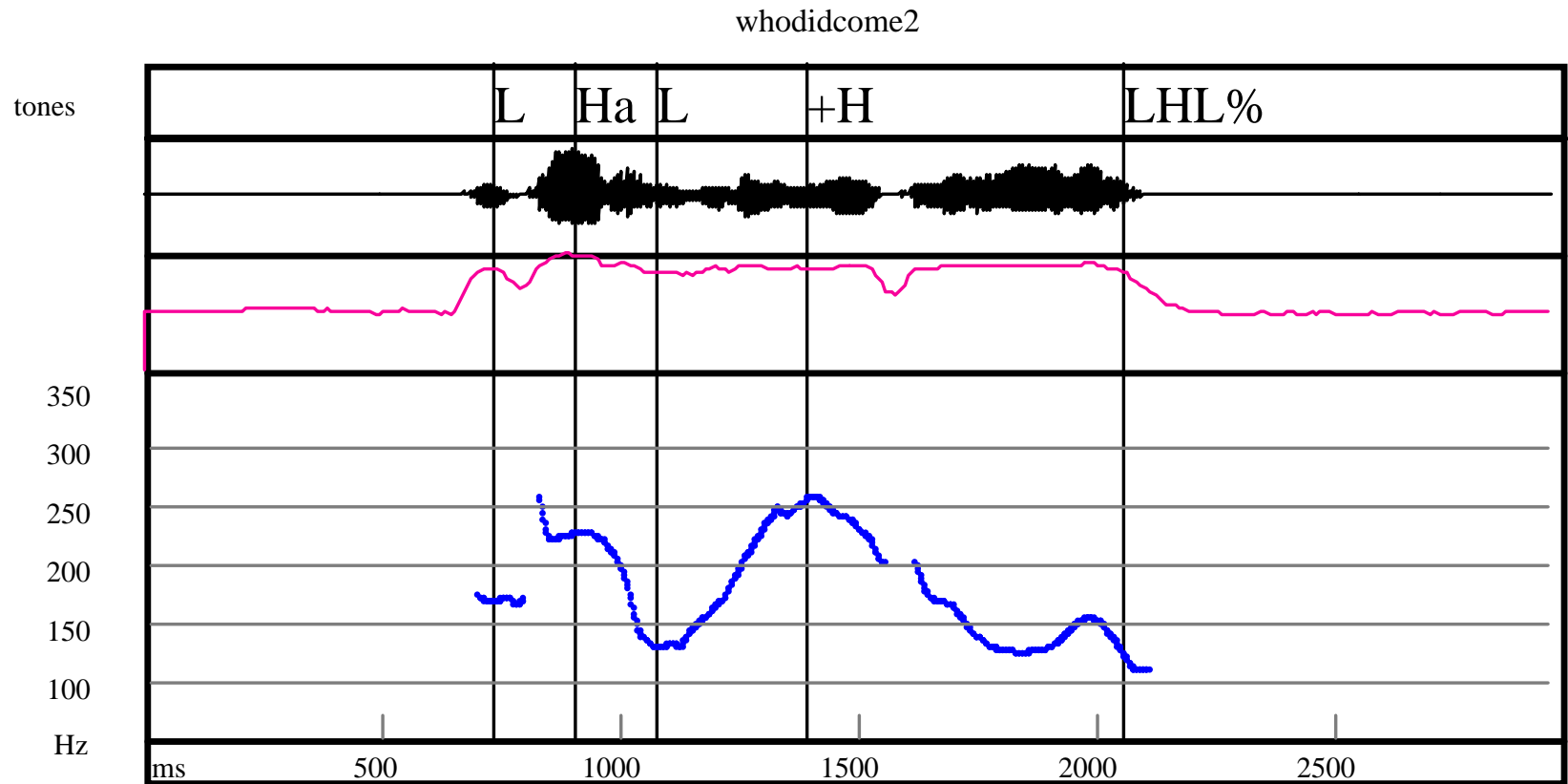
4. *Nwuka wassnunyakuyo*

(echo Q)

(*nwuka*= *someone*)

[Response to (2)]

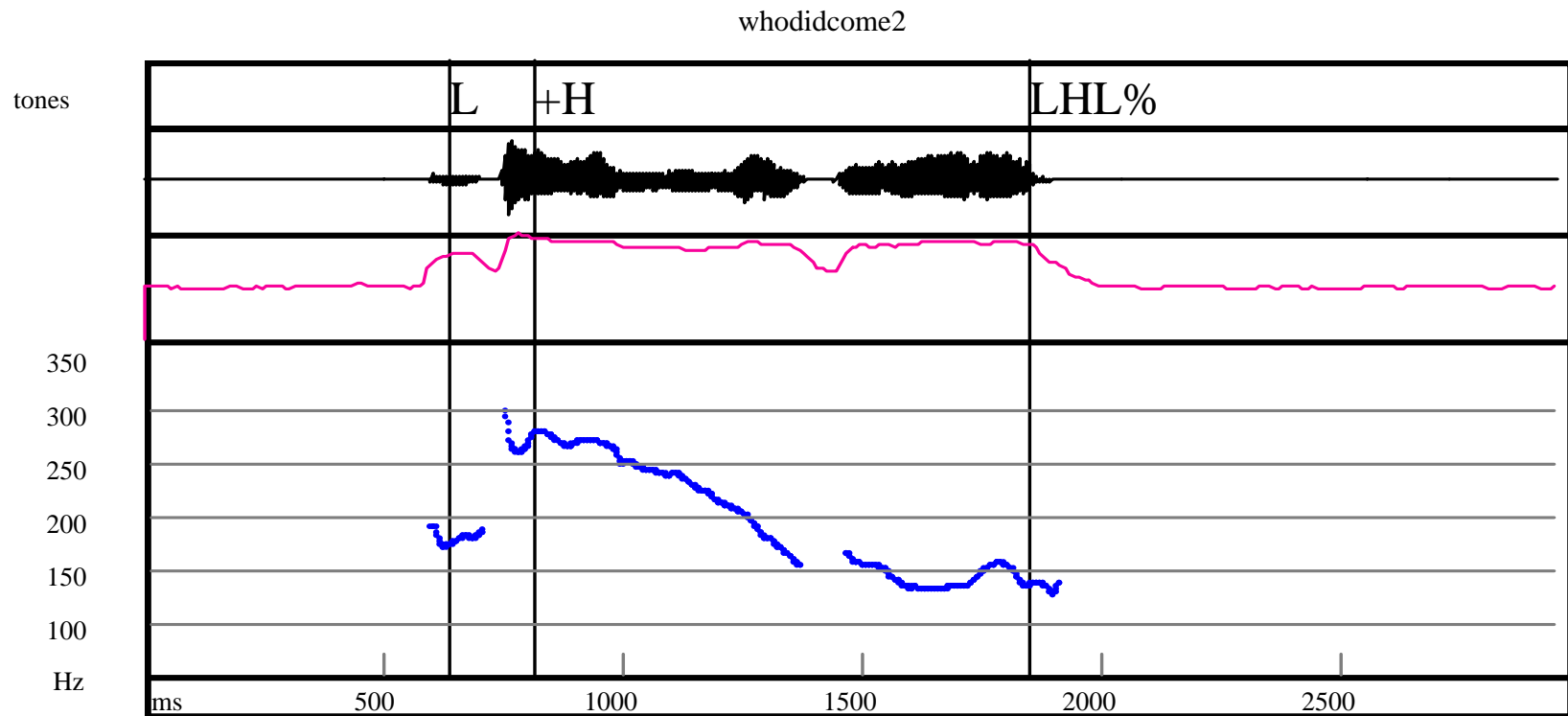
L Ha L +H LHL%



5. *Nwuka wassnunyakuyo?* (echo Q) (*nwuka= who*)

[Response to (3)]

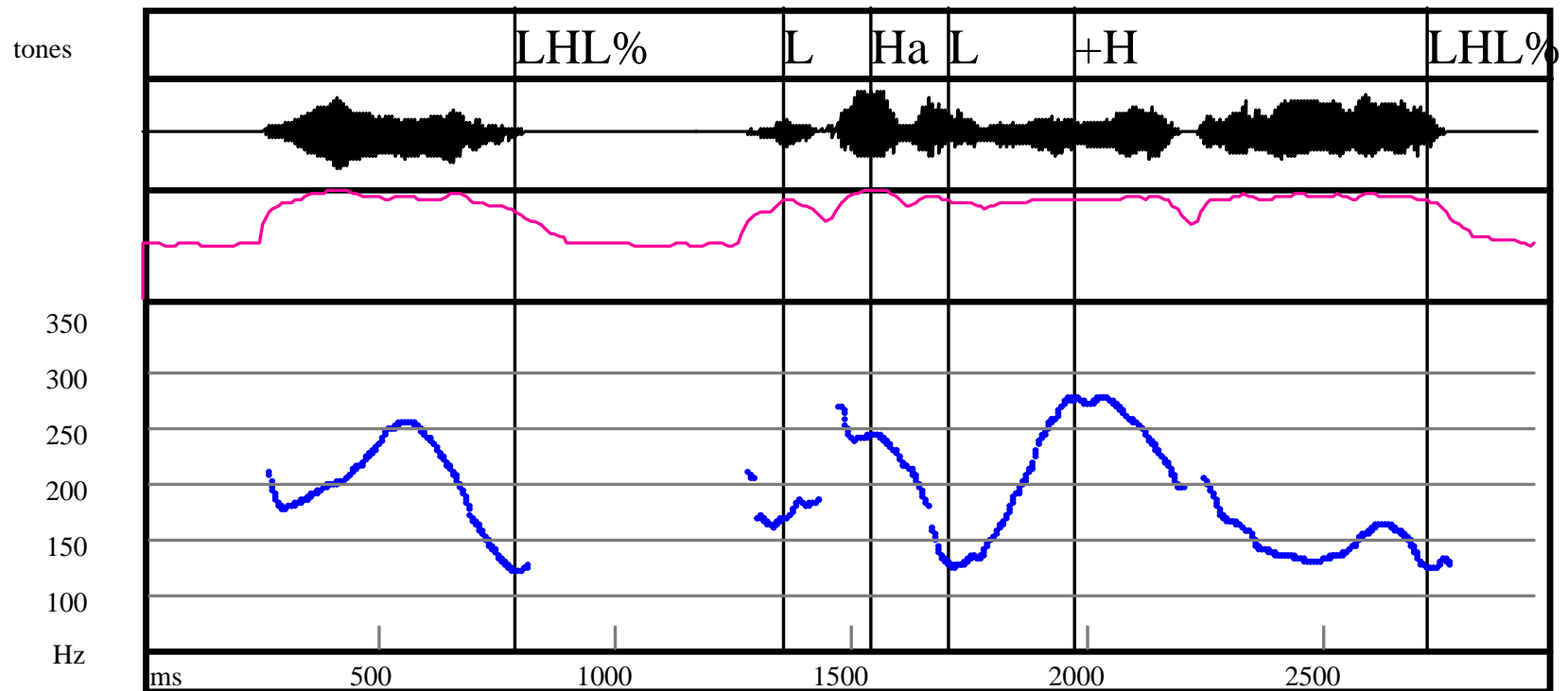
L+H LHL%



6. *Ung, nwuka wassnunyakwuyo* (echo S) (*nwuka= someone*)
 [Response to (4)]

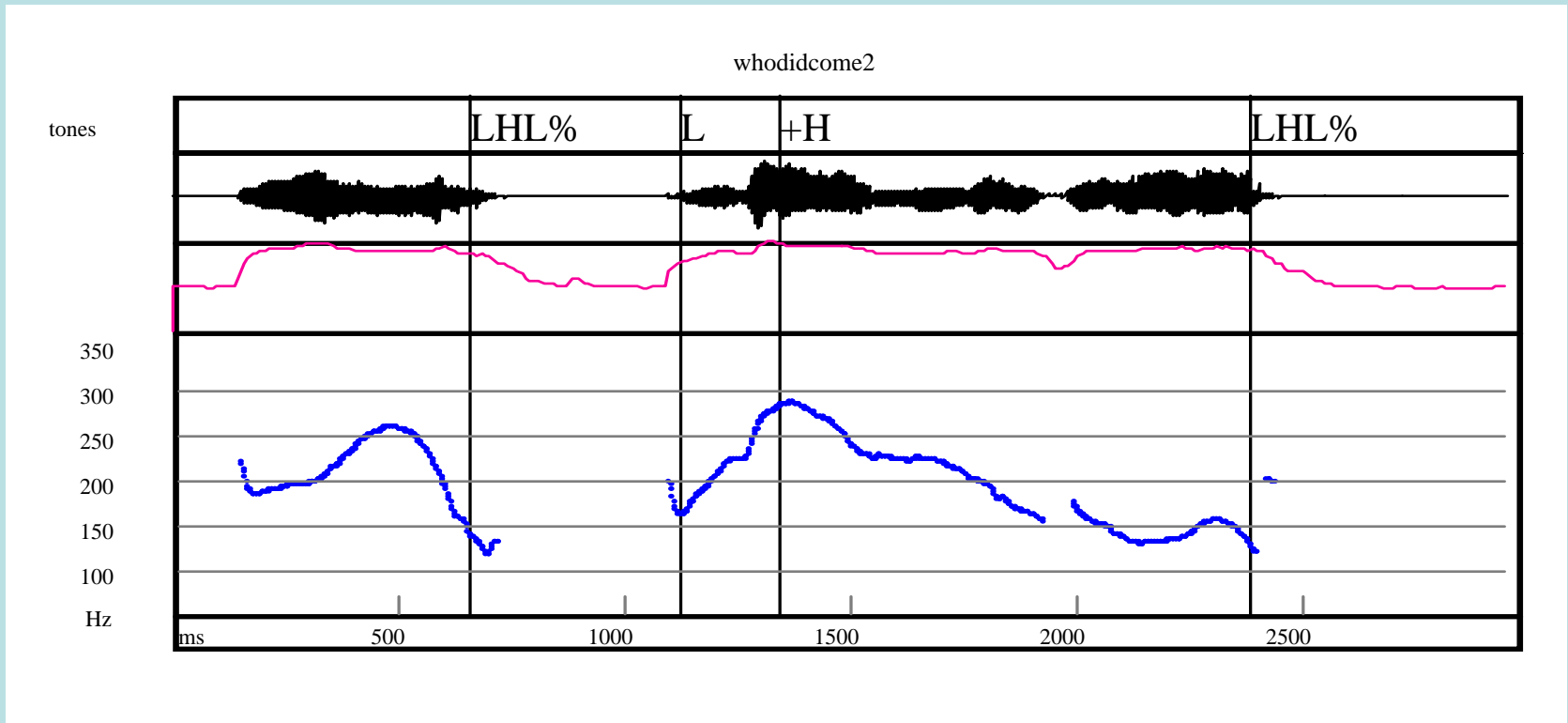
LHL% L Ha L +H LHL%

whodidcome2



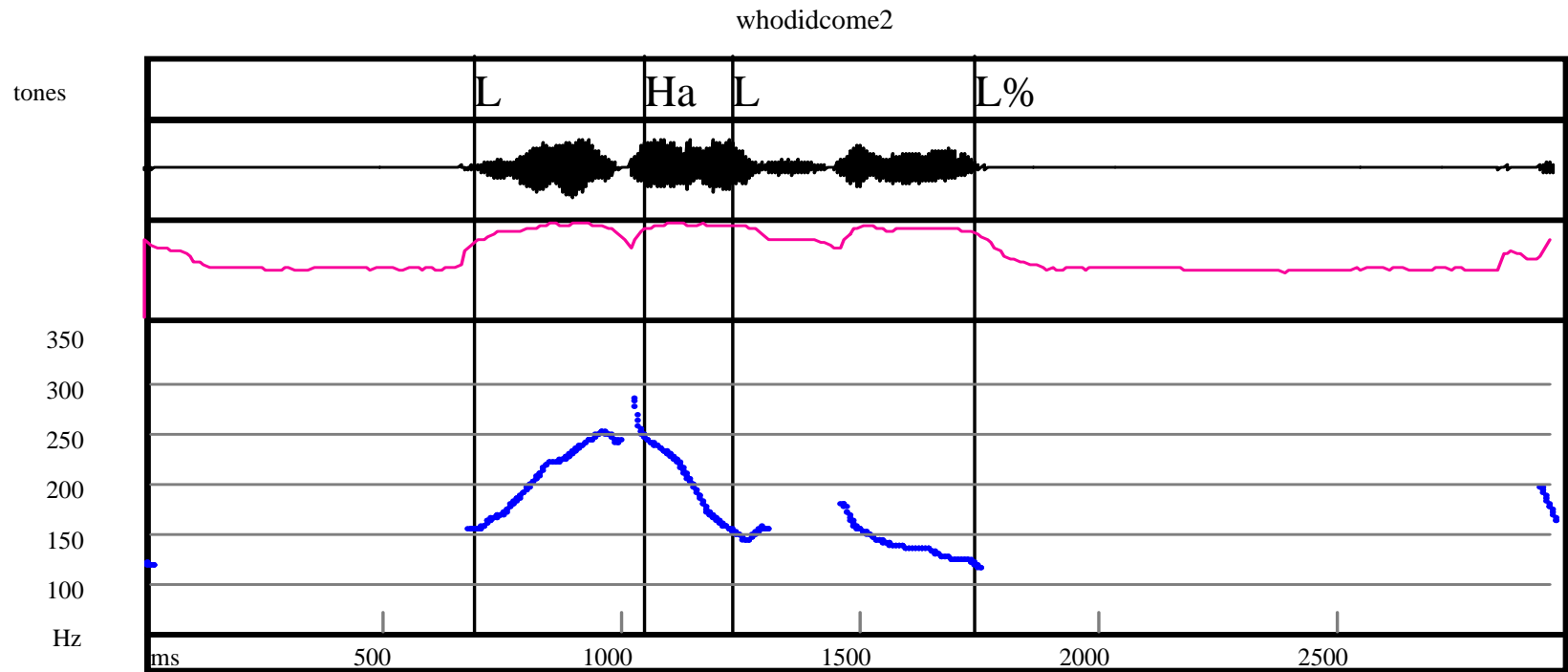
7. *Ung, nwuka wassnunyakwuyo.* (echo S) (*nwuka= who*)
 [Response to (5)]

LHL% L +H LHL%



8. *Miaka wasseyo*. (statement)

L Ha L L%



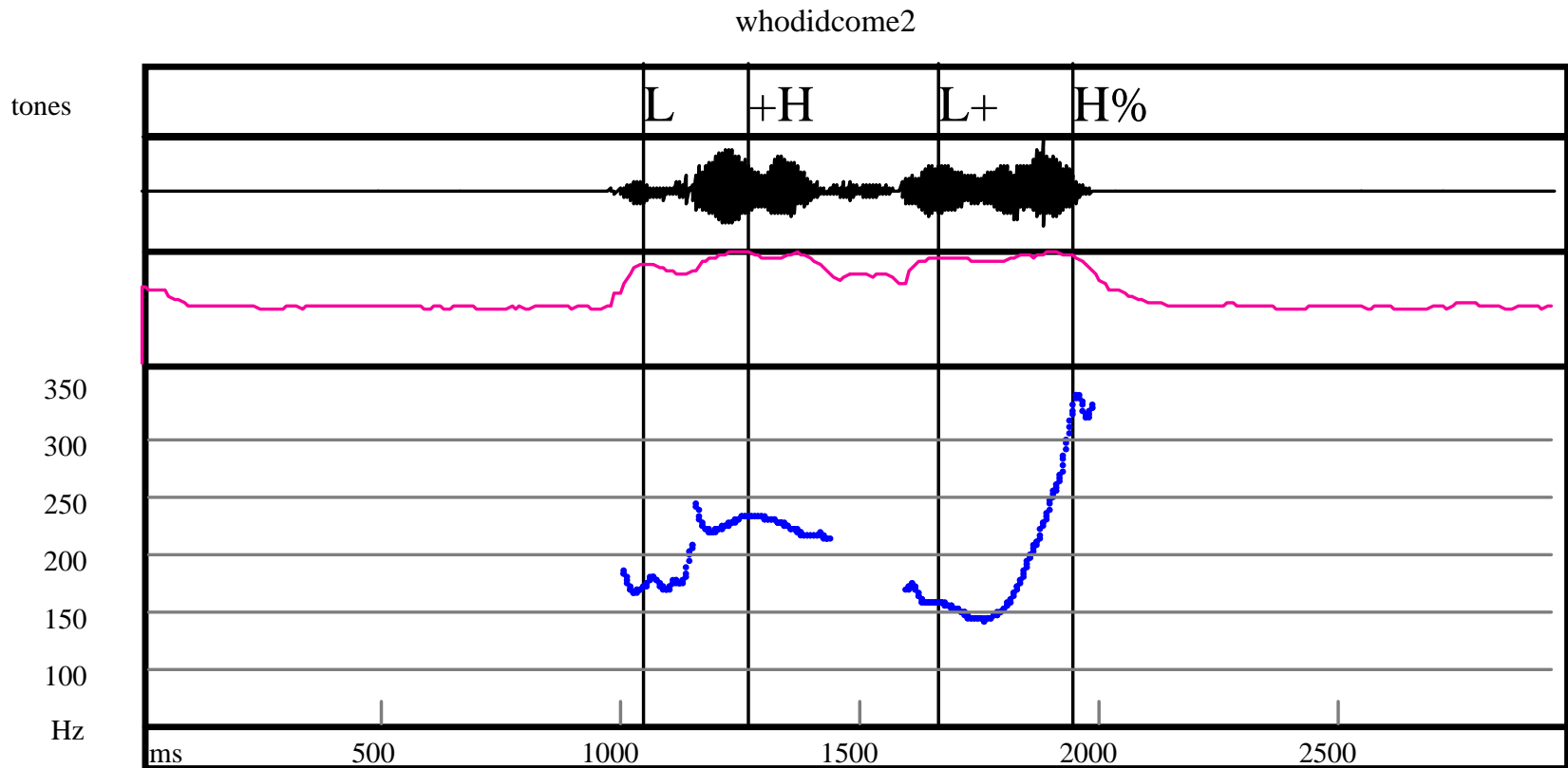
9. *Nwuka wassweyo?*

(echo Q)

(*nwuka* = *who*)

[Response to (8)]

L +H L+ H%

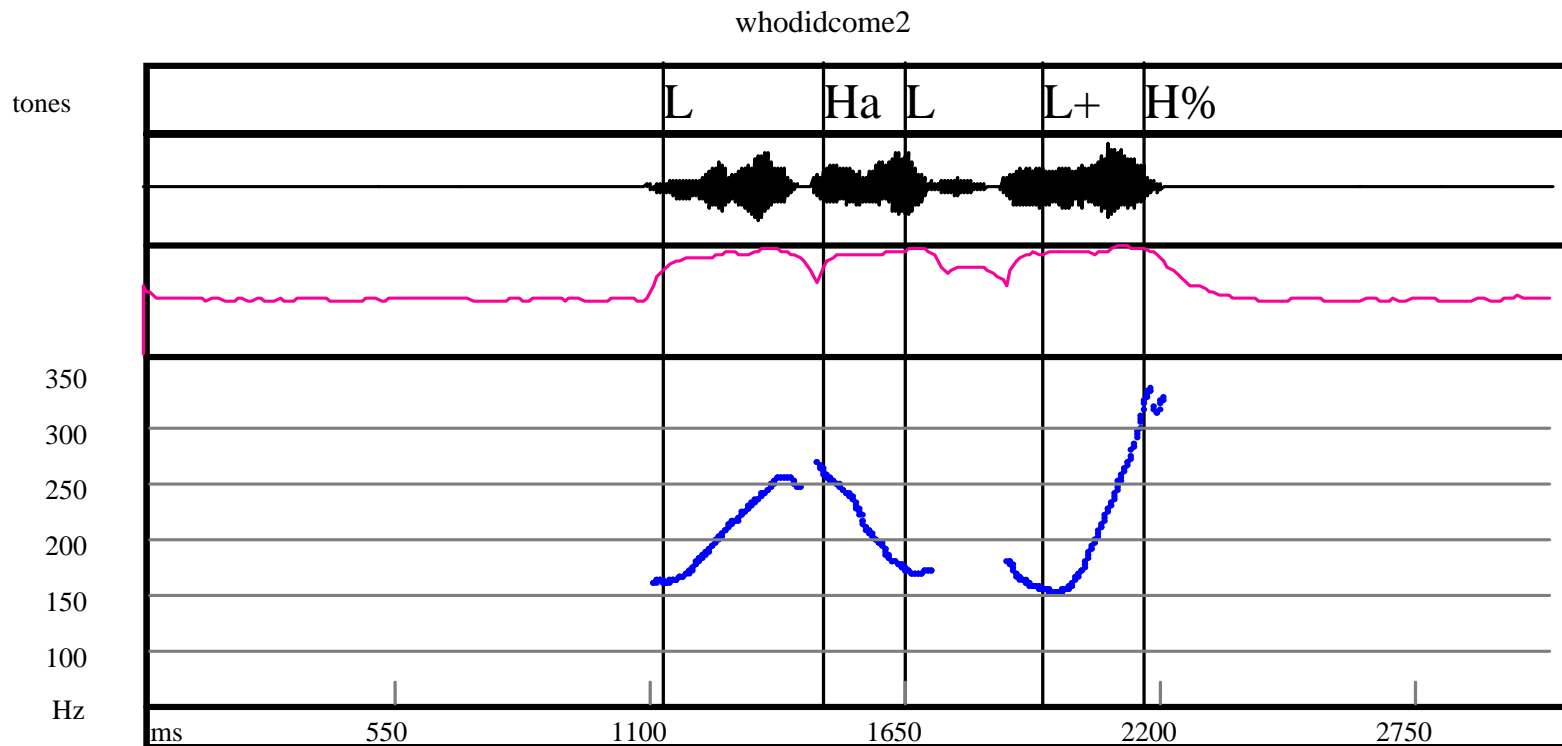


10. *Miaka wasseyo?*

(echo Q)

[Response to (8)]

L Ha L L+H%



5. Concluding remarks

Desideratum

- more detailed work for linking ontologically more relevant modal relations that represent the finer-grained cognitive mindset of the speaker with properly subtyped terminal contours and prosodically distinctive boundary tones