

The Phonology and Phonetics of **TOPIC**, **FOCUS** and *Giverness*

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Three core questions in the phonology of contrastive topics, foci and Given expressions:

- 1: How are these expressions themselves pronounced?
- 2: How do they affect pronunciation of the rest of the sentence?
- 3: How are they phrased in the phonology?

For the simplest cases the answers to questions 1 and 2 are relatively straightforward: foci and contrastive topics bear a pitch accent and affect an associated intonation phrase boundary tone, while Given expressions do neither. For both foci and contrastive topics, the choice of pitch accent appears to be almost completely unconstrained. The distinction between the two shows up only in their associated boundary tones: L-L% for focus, L-H% for contrastive topic. (N.B. The L-L% and L-H% boundary tones have two separate effects on pronunciation: (i) L-H% allows for (but doesn't require) a final rise in pitch while L-L% does not, and the pitch of preceding L tones is lower with L-L% than with L-H%.)

(1) Who laughed?

eLlizabeth *laughed*.

- | | | | | |
|----|-----|--------|---|------|
| a. | i. | H* | L | L-L% |
| | ii. | H* | L | L-H% |
| b. | i. | L+H* | L | L-L% |
| | ii. | L+H* | L | L-H% |
| c. | i. | H*+L | L | L-L% |
| | ii. | H*+L | L | L-H% |
| d. | i. | L*+H | L | L-L% |
| | ii. | L*+H | L | L-H% |
| e. | i. | L*+H+L | L | L-L% |
| | ii. | L*+H+L | L | L-H% |
| f. | i. | (H)L* | L | L-L% |
| | ii. | (H)L* | L | L-H% |
- (This pattern resists CT interpretation.)

However, when examples become more complicated, more possibilities arise. Restricting ourselves to only H* pitch accents, the following example indicates that the relation between accent location and focus / contrastive topichood is not a simple one. The bracketed focus / contrastive topic below can receive either one or two pitch accents.

(2) Who laughed?

Only [the mayor of Chicago] *laughed*.

- | | | | |
|----|----|----|-------------|
| a. | | H* | L-L% / L-H% |
| b. | H* | H* | L-L% / L-H% |
| c. | # | H* | L-L% / L-H% |

Additional complication makes for even greater variation (parentheses indicate optionality):

(3) Who laughed?

Only [the second son of the mayor of Chicago's favorite aunt] *laughed*.

((H*) H*) ((H*) H*) (H*) H* L-L% / L-H%

This variation, however, appears to be independent of focus and contrastive topichood. The exact same range of variation shows up discourse initially when the relevant expression can't be plausibly interpreted as either a focus or a contrastive topic:

(4) Once upon a time, [the second son of the mayor of Chicago's favorite aunt] laughed.

.. ((H*) H*) ((H*) H*) (H*) H* .. L-L%

Question: Do focus or contrastive topichood have any effect on pitch accent location?

Proposed answer: Yes, but limited.

Jackendoff (1972): A constituent that is F-marked contains the strongest accent of the sentence. Within that constituent, the normal rules of accent location apply.

Selkirk (1996): Accented words are F-marked. F-marking is inherited by a head from an internal argument and projects from a head to its maximal projection. An F-marked constituent that is not immediately dominated by another F-marked constituent is a Foc(us). Consequences: Every Foc(us) contains an accent, and every accent is contained in a Foc(us).

Truckenbrodt (1995): If F is a focus and DF is its domain, then the highest prominence in DF will be within F.

Problem: Given foci cannot contain an accent, like *Mary* below:

(5) John saw Mary. In fact, *he saw ONLY Mary* / #MARY / #'er.

Additionally, a new expression can be more prominent than a focus within that focus's domain:

(6) John grows rice. Because of that, on some days *he only EATS rice*.

Here *rice* needs to be a focus with VP as its domain to associate with *only*, but *eats* is more prominent than *rice* within that domain.

[[Aside: For Schwarzschild, all and only expressions that are not analyzed as Given get F-marked. This makes F-marking for Schwarzschild a way of marking New expressions, not Foci. Since New expressions and Foci show distinct phonetic behavior as shown in Katz & Selkirk 2011, this makes it possible to accept Schwarzschild's analysis as correct for New expressions but as saying nothing about Foci. Under this interpretation of Schwarzschild, Given Foci would not be F-marked. They would at most be Focus-marked instead, a marking Schwarzschild says nothing about.]]

So what is the relation between focus and accent location?

Proposal: A focus needs to bear an accent if it can.

Standard analysis of accent location:

Metrical grid construction rigidly determines phrasing and accent location.

An asterisk at the phonological phrase level corresponds to a pitch accent in the phonetics.

Focus affects the output of metrical grid construction by having to contain a head constituent at every metrical level.

Grid construction constraints (Truckenbrodt 1995):

- i. The head of a P-phrase is its rightmost expression bearing an asterisk on the ω level. (= Align φ)
- ii. Every lexically headed XP must be contained in a P-Phrase. (= Wrap-XP)
- iii. Every lexically headed XP must contain a phrasal stress x_{φ} . (= Stress-XP)
- iv. If F is a focus and DF is its domain, then the highest prominence in DF will be within F. (= Accent Focus)

Grid construction without focus

(*)	utterance								
(*)	(*)	intonation phrase							
(*)	(*)	(*)	(*)	phonological phrase (φ)			
(*)	(*)	(*)	(*)	(*)	prosodic word (ω)
John's mother sent Mary flowers															

Grid construction with focus on *sent* (Domain of Focus (DF) = the whole sentence)

(*)	utterance								
(*)	(*)	intonation phrase								
(*)	(*)	(*)	(*)	phonological phrase			
(*)	(*)	(*)	(*)	(*)	prosodic word
John's mother SENT Mary flowers															

Violates Align φ and **Wrap-XP** or **Stress-XP**. Ranking between Wrap-XP and Stress-XP will determine optimal output.

Problem: In a context in which a sentence is all new, a (di)transitive verb is predicted to only be accentable if it is focused. However, accent is possible without giving rise to any implied contrast with alternatives.

(7) Q: What did John just do?

- A: a. *He* kissed MARY.
 b. *He* KISSED MARY.

(8) (*)		(*)	
(*)	(*)	(*)	(*)	
(*)	(*)	(*)	(*)	(*)
	<i>He</i>		[kissed Mary] _F		<i>He</i>		[kissed Mary] _F		

Satisfies Align φ
 Satisfies Wrap-XP
 Satisfies Stress XP
 Satisfies Stress Focus

Satisfies Align φ
 !* Violates Wrap-XP (VP is not contained in a P-Phrase)
 Satisfies Stress-XP
 Satisfies Stress Focus

(Some way is needed to get *He* to show up without an accent, but Truckenbrodt does not address Givenness effects.)

Alternative Proposal:

The metrical grid is rigidly constructed in the phonology.

The phonetic pronunciation derives in part from choosing a particular parse of the metrical grid.

Metrical grid construction is only affected by Givenness, not by Focus or Topic marking.

Focus affects the phonetic interpretation by boosting prominence and assigning an L% boundary tone.

Topic affects the phonetic interpretation by assigning a pitch accent and an H% boundary tone.

Questions:

What are the rules for metrical grid construction above the prosodic word level?

How is the metrical grid interpreted phonetically?

Observation I:

Not all expressions are equal when it comes to accent assignment. At least a 3-way distinction is needed.

(9) 10 people went to a party. What's happening there now?

- a. MARY's dancing. / #Mary's DANCING.
 b. #SOMEONE's dancing. / Someone's DANCING.
 c. #MOST are dancing. / Most are DANCING.
 (*most* and *someone* pattern together, and differ from *Mary*.)

(10) (*)		(*)		(*)		
(*)	(*)	(*)	(*)	(*)	(*)	(*)		
(*)	(*)	(*)	(*)	(*)	(*)	(*	?)	(*)
	Mary's dancing				Someone's dancing							Most are dancing			

Satisfies Align φ , Wrap-XP and Stress-XP

(11) (*)		(*)		(*)		
(*)	(*)	(*)	(*)	(*)	(*)	(*)	(*)
(*)	(*)	(*)	(*)	(*)	(*)	(*	?)	(*)
	#Mary's dancing				Someone's dancing							Most are dancing			

Satisfies Align φ , Wrap-XP
 !* Violates Stress-XP

(12) (*)	(*)	(*)
(*)	(*)	(*)
(*)(*)	(*)(*)	(*)(*?)(*)
Mary's dancing	Someone's dancing	Most are dancing

Satisfies Wrap-XP

Satisfies Stress-XP if the subject is analyzed as inside the VP

!* Violates Align φ

(13) 10 people went to a party. There,
 a. JOHN kissed MARY. / #JOHN KISSED Mary.
 b. #JOHN kissed SOMEONE. / JOHN KISSED someone.
 c. JOHN kissed MOST. / #JOHN KISSED most.
 (*most* and *Mary* pattern together and differ from *someone*.)

(14) (*)	(*)	(*)
(*)(*)	(*)(*)	(*)(*)
(*)(*)(*)	(*)(*)(*)	(*)(*)(*)
John kissed Mary	#John kissed someone	John kissed most

Satisfies Align φ , Wrap-XP and Stress-XP

(15) (*)	(*)	(*)
(*)(*)	(*)(*)	(*)(*)
(*)(*)(*)	(*)(*)(*)	(*)(*)(*)
#John kissed Mary	John kissed someone	#John kissed most

Satisfies Wrap-XP

!* Violates Align φ , Stress-XP

Proposal: There are 3 levels of accentability:

- 1: common nouns, proper names (*mayor, Mary*)
- 2: verbs (*dance, kiss*), quantifiers (*most*)
- 3: pronouns (*I, you, he?*), *someone, something*

Metrical Grid Construction Rules:

- I: Asterisks in the metrical grid are replaced by numbers.
- II: A lower number wins out over a higher number for projection as a head at the next level.
- III: If two constituents with the same number combine, the number on the right projects.
- IV: Grid construction follows syntactic constituency.

(16) (1)	(2)	(2)
(1)(2)	(3)(2)	(2)() (2)
Mary's dancing	Someone's dancing	Most are dancing

(17) (1)	(1)	(1)
(1)(1)	(1)(2)	(1)(2)
(1)(2)(1)	(1)(2)(3)	(1)(2)(2)
John kissed Mary	John kissed someone	John kissed most

Observation 2:

There are multiple accenting possibilities for each of these sentences even if the context is fixed.

(18) 10 people went to a party. What's happening there now?
 a. MARY's dancing. / MARY's DANCING.

- b. Someone's DANCING. / SOMEONE's DANCING.
- c. Most are DANCING. / MOST are DANCING.

(19) 10 people went to a party. There,

- a. JOHN kissed MARY. / JOHN KISSED MARY. / ?John kissed MARY. / #John KISSED MARY.
- b. JOHN KISSED someone. / ?JOHN KISSED SOMEONE. / JOHN kissed someone. / #John KISSED SOMEONE.
- c. JOHN kissed MOST. / JOHN KISSED MOST. / #JOHN kissed most. / #John KISSED MOST.

Standard approach: Create multiple metrical grids and get the good ones to come out equally optimal.

Proposed approach: Create a single metrical grid and generate multiple possibilities by choice of phonetic parse.

Specific Proposal: Allow any exhaustive phonetic parse of the metrical grid, where all and only numbers in the parse give rise to a pitch accent, and brackets in the parse are interpreted as Intonation Phrase boundaries. Default prominence among IntPs is rightmost, regardless of the specific numbers contained in the parse.

(20)	(1) (1)(2) Mary's dancing	(2) (3)(2) Someone's dancing	(2) () (2) (2)() (2) Most are dancing
(21)	(1) (1)(1) (1)(2)(1) John kissed Mary	(1) (1)(2) (1)(2)(3) John kissed someone	(1) (1)(2) (1)(2)(2) John kissed most

Problematic prediction: *JOHN kissed most* and *John kissed MARY* are predicted to be acceptable in the context provided, but the first is bad and the second only marginal. Both *John* and *most/Mary* need to be accented in an all-new context, but the analysis always allows a pronunciation with a single accent.

Fix = ?

Note: Since variability in intonation phrasing derives from the phonetic parse, it makes no sense under this approach to rigidly identify levels in the metrical grid as utterance, intonation phrase and phonological phrase levels.

Observation 3:

Pure Given expressions lack an accent.

(22) Q: What happened to Mary?

A: JOHN KISSED *Mary*. / #JOHN kissed MARY.

(23) Q: Who kissed Mary?

A: JOHN *kissed Mary*. / #JOHN KISSED *Mary*. / #JOHN *kissed MARY*.

Proposal:

Lexical items marked as Given in the syntax get a subscripted G on their metrical grid entry.

A G-subscripted number loses out to a non-subscripted number in projecting.

G-subscripted numbers do not generate pitch accents.

Phonetically, a constituent headed by a G-subscripted number is an Intonation Phrase clitic.

(24)	(1) (1)(2) (1)(2)(1 _G) John kissed Mary	(1) (1)(1 _G) (1)(2 _G)(1 _G) John kissed Mary
	JOHN <i>kissed Mary</i> JOHN KISSED <i>Mary</i>	JOHN <i>kissed Mary</i>

Incorporating Focus:

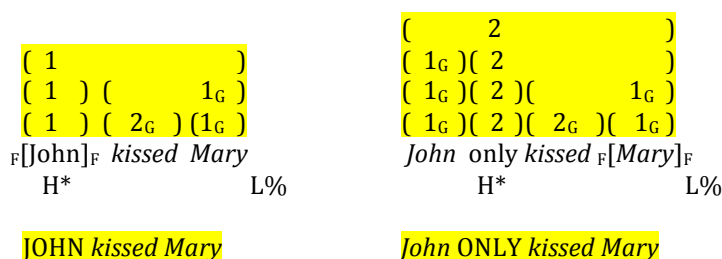
Assumption: In the syntax, focus is encoded as an F-mark on a constituent.

Standard approach: F-marking affects metrical grid construction by requiring an F-marked expression to get the highest *

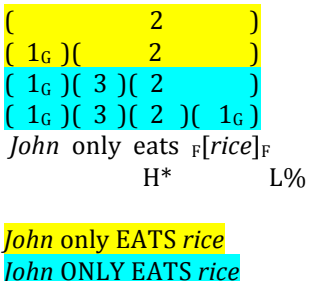
Proposed approach: F-marking affects pronunciation by restricting the phonetic parse and boosting accent.

Proposal: F-marking in the syntax translates as labeled brackets on the string in the phonology: $F[\dots]_F$.
 $F[\dots]_F$ in the phonology boosts the prominence of the prominent expression(s) contained within in the phonetic parse, and marks the Intonation Phrase boundary on its right as L%.
 Restriction: the phonetic parse has to include a (non-G-marked) number within the Focus brackets if there is a suitable number in the grid.

(25) Q: Who kissed Mary?
 A: JOHN *kissed* Mary. In fact, *John* ONLY *kissed* Mary.



(26) John grows rice. Because of that, on some days *John* only EATS *rice*.



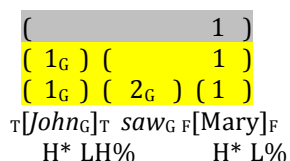
Incorporating Topic:

Assumption: In the syntax, topic is encoded as a T-mark on a constituent.

Standard approach: ???

Proposal: T-marking in the syntax translates as labeled brackets on the string in the phonology: $T[\dots]_T$.
 $T[\dots]_T$ in the phonology generates a pitch accent in the phonetic parse, and marks the Intonation Phrase boundary on its right as LH%.
 Restriction: The phonetic parse needs to contain a number within $T[\dots]_T$.

(27) Q: Who did John see?
 A: **JOHN**_T saw MARY.

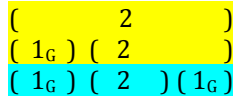


JOHN saw MARY

A pitch accent goes to every IntP head in the parse.

(28) Mary was sad. Did John do anything to help?

- a. #Well, *he* [**kissed MARY**_G]_T ... (but I don't know if he smiled too.)
- b. Well, *he* [**KISSED Mary**_G]_T ... (but I don't know if he smiled too.)
- c. Well, *he* [[**KISSED**] (or so I hear) [**MARY**_G]]_T ... (but I don't know if he smiled too.)



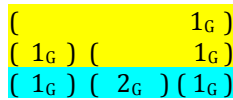
*He*_G [**kissed Mary**_G]_T
 H* (H*) L-H%

He KISSED Mary_{L-H%}

He KISSED MARY_{L-H%}

(29) Mary was sad. Did John kiss her?

- a. Well, *he*_G [**kissed_G MARY**_G]_T ... (but I don't know if he smiled.)
- b. Well, *he*_G [**KISSED_G Mary**_G]_T ... (but I don't know if he smiled.)
- c. #Well, *he*_G [**KISSED_G Mary**_G]_T ... (but I don't know if he smiled.)



*He*_G [**kissed_G Mary**_G]_T
 (H*) H* L-H%

He kissed MARY ...

He KISSED MARY ...

Observation 4:

Intonation phrasing of non-Given accentable expressions follows their syntactic constituency, but intonation phrasing of Given expressions need not.

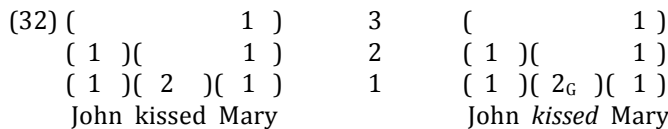
(30) Q: Who did what?

A: [JOHN] (or so I hear) [**kissed MARY**] / #[JOHN **kissed**] (or so I hear) [MARY]

(31) Q: Who kissed who?

A: [JOHN] (or so I hear) [*kissed* MARY] / [JOHN *kissed*] (or so I hear) [MARY]

The first fact follows from our analysis so far if we take metrical constituents in the parse to correspond to Intonation Phrases (IntPs). The second fact does not follow, however.



Phonetic parse using line:

3	[John kissed MARY]	[John kissed MARY]
2	[JOHN] [kissed MARY]	[JOHN] [kissed MARY]
1	[JOHN] [KISSED] [MARY]	[JOHN] ??? [MARY]

Problem: G-subscripted numbers don't generate pitch accents, but IntPs have to contain an accent. This blocks analyzing the Given *kissed* above as a separate IntP. But what happens if the phonetic parse includes a constituent headed by a G-subscripted number, like (2_G) above?

Proposal: The entire constituent is treated in the phonetics as an Intonation Phrase clitic, and is phonetically incorporated into an adjacent IntP.

(33) $\left(\begin{array}{c} \\ (1) \end{array} \right) \left(\begin{array}{c} 1 \\ \end{array} \right)$
 $\left(\begin{array}{c} 1 \\ (1) \end{array} \right) \left(\begin{array}{c} 2_G \\ \end{array} \right) \left(\begin{array}{c} 1 \\ \end{array} \right)$
 John *kissed* Mary ==> [JOHN *kissed*] [MARY] or [JOHN] [*kissed* MARY]

Restrictions:

An IntP clitic properly contained in a right branch can't adjoin to the right unless no other options exist.

(34) Q: What did people buy for Mary?
 A: a. [JOHN *bought 'er*] [a NECKLACE]
 b. [JOHN] [*bought 'er* a NECKLACE]
 c. #[JOHN *bought*] [*'er* a NECKLACE]
 Assumed syntactic structure: [John [[*bought her*] a necklace]]

(35) A: John told Mary to leave.
 B: a. [BILL *told 'er*] [to STAY]
 b. [BILL] [*told 'er* to STAY]
 c. #[BILL *told*] [*'er* to STAY]
 Assumed syntactic structure: [Bill [[*told her*] [to stay]]]

Formalizing the restriction:

Since metrical structure is phonological, not syntactic, there are no right branches in metrical structure.
 → Projectable IntP boundaries. These affect Intonation Phrasing only if they are included in the phonetic parse.

$[_x Y Z] \rightarrow \begin{array}{c} (a) (b) \\ Y \quad Z \end{array}$ (a, b represent prosodic word level metrical grid entries)

The bold right bracket,], projects only as long as it remains located outside of a metrical constituent.

$\left(\begin{array}{c} \\ (1) \end{array} \right) \left(\begin{array}{c} 1 \\ \end{array} \right) \left] \right]$
 $\left(\begin{array}{c} 1 \\ (1) \end{array} \right) \left(\begin{array}{c} 2_G \\ \end{array} \right) \left] \left(\begin{array}{c} 1 \\ \end{array} \right) \right]$
 $\left(\begin{array}{c} 1 \\ (1) \end{array} \right) \left(\begin{array}{c} 2_G \\ \end{array} \right) \left(\begin{array}{c} 3_G \\ \end{array} \right) \left] \left(\begin{array}{c} 1 \\ \end{array} \right) \right]$
 John bought her a necklace (Topic and Focus not marked)

Yellow: [JOHN] [*bought 'er* a NECKLACE]
 Blue: [JOHN *bought 'er*] [a NECKLACE]

Extra-metrical Expressions:

Some expressions strongly resist accent except when narrowly focused, e.g. *a, an, the, of, pleonastic it & there*. If we assigned these expressions a number, they would be expected to be readily accentable, contrary to fact. I take these expressions to be extra-metrical, in the following sense. Phonologically, these words are represented in the metrical grid, but are not assigned any number. They combine in the metrical grid like all other expressions according to their syntactic structure, but never project. Phonetically, if the parse includes a constituent containing only such a word, it gets incorporated into an adjoining Intonation Phrase (IntP), just as with Given expressions similarly parsed.

(36) $\left(\begin{array}{c} \\ () \end{array} \right) \left(\begin{array}{c} 1 \\ \end{array} \right)$
 $\left(\begin{array}{c} () \end{array} \right) \left(\begin{array}{c} 1 \\ \end{array} \right)$
 $\left(\begin{array}{c} () \end{array} \right) \left(\begin{array}{c} 1 \\ \end{array} \right) \left(\begin{array}{c} 1 \\ \end{array} \right)$
 a box of chocolates ==> [a BOX] [of CHOCOLATES] or [a BOX of] [CHOCOLATES]

Assumed syntactic structure: [a [box [of chocolates]]]

Levels in the Metrical Grid

The standard analysis generates a fixed number of levels: prosodic words, phonological phrases, intonation phrases, and utterances. The alternative proposed here generates as many levels as are required by the syntactic structure. For example, the sentence *John sent the first mayor of somewhere a box of chocolates* gives rise to 8 levels:

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8 (                                     1) ]
7 (1) (                                     1) ]
6 (1) (           1           ) ] (           1) ]
5 (1) (2) (           1           ) ] (           1) ]
4 (1) (2) ( ) (           1           ) ] (           1) ]
3 (1) (2) ( ) (2) (1           ) ] ( ) (           1) ]
2 (1) (2) ( ) (2) (1) (           3) ] ( ) (1) (           1) ]
1 (1) (2) ( ) (2) (1) ( ) (3) ] ( ) (1) ( ) (1) ]
[John] [sent [the [first [mayor of somewhere]]]] a [box of chocolates]

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(                                     *)
(*) (           *           ) (           *)
(*) (*) (           *) (           ) (           *) (*)
(*) (*) ( ) (*) (*) ( ) (?) ( ) (*) ( ) (*)
[John] [sent [the [first [mayor of somewhere]]]] a [box of chocolates]

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utterance
intonation phrases
phonological phrases
prosodic words

Note: Even if we allow for distinct phonetic parses, no single representation under the standard approach will generate all the needed accenting and phrasing possibilities:

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[SENT] [the FIRST] [MAYOR] [of SOMEWHERE]
[SENT] [the FIRST] [MAYOR of somewhere]
[SENT] [the first MAYOR of somewhere]
[sent the first MAYOR of somewhere]

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(37) JOHN, and this I know as a fact, SENT, and it surprised me to no end, the FIRST, at least I think she's the first, MAYOR, can you believe it?, of SOMEWHERE, please don't ask me where, a BOX, quite a big one from what I understand, of CHOCOLATES.

Directionality:

Some extra-metrical expressions (e.g. *a, an, the*, pleonastics) can cliticize only to the right. Others (e.g. *of*) can cliticize either to the right or to the left.

(38) a. [JOHN] [KISSED] [a GIRL]
b. # [JOHN] [KISSED a] [GIRL]

(39) a. [a BOX] [of CHOCOLATES]
b. [a BOX of] [CHOCOLATES]

Proposal: Directional expressions lexically encode a left ([]) or right ([]) IntP bracket.

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(40) (           1           )
      ( 1 )(           1           )
      ( 1 )( 2 ) [(           1           )
      ( 1 )( 2 ) [( ) (           1           )
      ( 1 )( 2 ) [( ) ( 1 ) (           1           )
      ( 1 )( 2 ) [( ) ( 1 ) (           1           )
      ( 1 )( 2 ) [( ) ( 1 ) (           1           )
John bought a box of chocolates ==> [JOHN] [BOUGHT] [a BOX] [of CHOCOLATES] or
[JOHN] [BOUGHT] [a BOX of] [CHOCOLATES]

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Observation 5:

Focus is largely independent of intonation phrasing, with one exception: Focus on an expression X is incompatible any phonetic parse in which X is not analyzed as or does not contain the head of a metrical constituent.

A single focus can be properly contained within a single IntP.

(41) Q: Who did John see?

A: [*He* only *saw* MARY_F]_{IntP}

Focus is narrow (on *Mary*), but the sentence contains only one IntP.

An IntP can be larger than a focus.

A single focus can also be split up into multiple IntPs:

(42) Q: What did John do at the party?

A: a. *He* (only) [TALKED to MARY]_F

b. *He* (only) TALKED, and this I know first hand, to MARY. He didn't dance or even eat.

Here the VP *talked to Mary* is the focus, but it contains two pitch accents and hence by assumption involves at least two IntPs, [*He* (only) *talked*] and [*to Mary*].

A single focus can result in multiple IntPs indirectly:

(43) Yesterday John went to a party. He talked with a lot of people there. However,

A: *he* only KISSED_F MARY.

(44) (1)

(1_G) (1)

(1_G) () (1)

(1_G) () (2) (1)

*he*_G only _F[*kissed*]_F *Mary*

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

Focus on *kissed* forces selection of a phonetic parse containing the 2 over *kissed*. This 2 only occurs on the bottom line. With this line as the parse, 2 accents are generated, and hence 2 IntPs. The accent on *kissed* is boosted, and the Given *he* and inherently unaccented (?) *only* cliticize onto the IntP headed by *kissed*. The boundary tone of the first IntP is L-L% because of the focus. The boundary tone of the second IntP is L-L% by default. The first boundary tone drops to just above the bottom of the speaker's pitch register, influenced (?) by the following H*.

[Unsolved problem: *only* needs to not generate a number in the metrical grid to avoid its being accented here. Earlier, though, we saw that *only* can be optionally accented without being focused, implying that it *does* generate a number in the metrical grid, and here as well it can be optionally accented.

Possible solutions:

Only can be given a 3 or no number optionally.

Only always generates a 3, but IntPs headed by a 3 can optionally cliticize.]

Observation 6:

While many different intonation phrasings are possible for a sentence in a fixed context, possibilities are not unlimited. The following phonetic parses are all possible for the sentence *John sent the mayor of somewhere a box of chocolates* in a context in which it is all new.

(45) John sent the first mayor of somewhere a box of CHOCOLATES

JOHN / sent the first mayor of somewhere a box of CHOCOLATES

JOHN / sent the first MAYOR of somewhere / a box of CHOCOLATES

JOHN / sent the first MAYOR of somewhere / a BOX of / CHOCOLATES

JOHN / SENT / the first MAYOR of somewhere / a box of CHOCOLATES

JOHN / SENT / the FIRST / MAYOR of somewhere / a BOX / of CHOCOLATES

JOHN / SENT / the FIRST / MAYOR / of SOMEWHERE / a box of CHOCOLATES

That these are all possible Intonation Phrasings can be verified by inserting parentheticals at every boundary. For the bottom example this gives:

(46) JOHN, and this I know as a fact, SENT, and it surprised me to no end, the FIRST, at least I think she's the first, MAYOR, can you believe it?, of SOMEWHERE, please don't ask me where, a BOX, quite a big one from what I understand, of CHOCOLATES.

Not all substrings of the sentence can be parsed into an IntP, however:

(47)

#JOHN sent /	(ok with <i>sent</i> Given: <i>sent</i> is non-directional as an IntP clitic)
*/ SENT the /	(<i>the</i> can only cliticize to the right)
#/ the first mayor of SOMEWHERE /	(ok with <i>first mayor</i> Given)
*/ of somewhere a BOX /	(<i>somewhere</i> and <i>box</i> do not form a syntactic constituent excluding <i>chocolate</i>)

These facts follow from (i) the analysis of metrical structure as based on syntactic structure and (ii) the extrametricality of lone *a*, *the* and *of* in a phonetic parse. Standard analyses of Intonation Phrasing and pitch accent location like those of Selkirk and Truckenbrodt aim to generate a single best pronunciation. As such, they account for the limitations found, but fail to account for the variation available.

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