Classes 7.1-7.2: Tonal targets and phonological constituency

1 Administrative

(1) Questions
   a. Student-led classes timing

(2) Assignments
   a. Project: if you don't know yet what you're teaching post-spring break or what your "paper review" assignment is, make sure you meet with me this week

2 Notes on Goldsmith homework

(3) Discussion about HS solution: Alex, Anissa, Jonathan

(4) Discussion about archipelago: show relevant candidate comparisons
   a. Maggie: explain why you proposed a NoCrossing constraint
   b. Duygu: explain why you proposed Align constraints and a *Local constraint.
   c. Bethany: explain why you proposed Spread-R. Why no Spread-L?
   d. Erika: explain why you proposed a Head constraint

(5) Autosegmental representations and Harmonic Serialism: Gen. Whither flop?

> An important aspect of the on-going HS research program is determining what it means to make "one change at a time". Answering this question for the full range of phonological phenomena is beyond the scope of this chapter, but before analysis can proceed it is necessary to adopt some assumptions about how Gen manipulates autosegmental structures:
>
> (12) Assumptions about Gen for autosegmental phonology in HS[4]
> Gen's set of operations consists of:
> a. Insertions:
> – A feature and a single association line linking it to some pre-existing structure.
> – A single association line linking two elements of pre-existing structure.
> b. Deletions:
> – A feature and a single association line linking it to some pre-existing structure.
> – An association line linking two elements of pre-existing structure.

Figure 1: A Gen operating on autosegmental representations? (McCarthy, 2010, p. 202) `further-reading/7/mccarthy2010.pdf`

(6) Constraints on association in autosegmental representations as a special case of correspondence theory

> Once the basic patterns of faithfulness are sketched, it becomes clear that there is an important further parallel to be drawn, which the generality of correspondence affords us. Suppose the strings S_1 and S_2 related by $\mathcal{R}$ are a string E of tone-bearing elements (vowels, moras, or syllables) and a string T of tones, respectively. Then MAX-ET requires that every tone-bearing element have a correspondent tone, and DEP-ET requires that every tone have a correspondent tone-bearing element. These are equivalent to two clauses in Goldsmith's (1976) "Well-Formedness Condition" for autosegmental phonology: every tone-bearing element is associated with some tone; and every tone is associated with some tone-bearing element. The other constraints on correspondence laid out in Appendix A, such as LINEARITY, CONTIGUITY, and ANCHORING, also have clear analogues in principles of autosegmental association, such as the line-crossing prohibition, the requirement of directional one-to-one linking and the Initial Tone Association Rule (Clements & Ford 1979). The phenomena comprehended by the theory of autosegmental association are therefore a special case of correspondence.[12]
>
> This parallel, and the consequent reduction of autosegmental assocation to correspondence, are particularly significant because they recapture one of the original ideas of Prosodic Morphology, one which was lost in the solely reduplicative correspondence theory of McCarthy & Prince (1993a): that template satisfaction is a special case of autosegmental association, involving associating floating melodemes to a templatic skeleton (McCarthy 1979, Marantz 1982, Clements 1985a, Mester 1986, McCarthy & Prince 1986, etc.). We now see that exactly the same relation — correspondence — and the same constraints — MAX, DEP, etc. — are at work in both domains, just as they are in faithfulness.

Figure 2: (McCarthy and Prince, 1995, §2.2) `further-reading/7/mccarthyprince1995.pdf`

(7) Segmental vs. autosegmental theory of "featural faithfulness"

a. Segmental theory of featural faithfulness: IDENT(feature) constraints are based on the idea that segments are in correspondence and featural identity is always mediated by segmental correspondence. (McCarthy, 2010, p. 200)

That is, you're constrained by the absolute slicing hypothesis. You cannot propose a constraint like MAX(+nasal) or MAX(nasal) or MAX(T) unless you are assuming autosegmental representations! (Can you have IDENT(+nasal) or IDENT(nasal) or IDENT(T)?)

> The autosegmental idea can be carried over to correspondence theory. Features themselves are in correspondence, so there are MAX(feature) and DEP(feature) constraints specific to each autosegmental tier. These constraints are exemplified in (39). They are the basis for an *autosegmental theory of featural faithfulness.*
>
> (39) MAX(round)
> Let *input [round] tier* = $r_1r_2r_3 \ldots r_n$ and *output [round] tier* = $R_1R_2R_3 \ldots R_m$.
> Assign one violation mark for every r_x if there is no R_y where $r_x \mathcal{R} R_y$.
>
> DEP(round)
> Let *input [round] tier* = $r_1r_2r_3 \ldots r_n$ and *output [round] tier* = $R_1R_2R_3 \ldots R_m$.
> Assign one violation mark for every R_y if there is no r_x where $r_x \mathcal{R} R_y$.

Figure 3: Features in correspondence (McCarthy, 2008, p. 200) `further-reading/7/mccarthy2008a.pdf`

3 Autosegmental-metrical theory (AM theory)

(8) (Ladd, 2008, p. 44) on the "four basic tenets of the AM approach to intonation":

a. Sequential tonal structure:
tonal structure consists of a string of local events associated with certain points in the segmental string. Between such events the pitch contour is phonologically unspecified and can be described in terms of *transitions* from one event to the next. In languages like English, the most important events of the tonal string are *pitch accents*, which are associated with prominent syllables in the segmental string, and *edge tones*, which are associated with the edges of intonational tunes at major prosodic boundaries.

i. A: I hear Sue's taking a course to become a driving instructor.

ii. B: Sue?! or B: A driving instructor?!

b. Distinction between pitch accent and stress:
pitch accents, in languages that have them, may serve as concrete perceptual cues to stress or prominence. However, they are in the first instance *intonational* features, which are *associated with* certain syllables in accordance with various principles of prosodic organisation. The perceived prominence of accented syllables is, at least in some languages, a matter of *metrical strength* and/or *dynamic stress*, which can be distinguished from pitch accent.

c. Analysis of pitch accents in terms of level tones:
pitch accents and edge tones in intonational languages can be analysed as consisting of primitive *level tones* or pitch targets, High (H) and Low (L).

d. Local sources for global trends:
the phonetic realisation or *scaling* of any given H or L tone depends on a variety of factors (degree of emphasis, position in utterance, etc.) that are essentially orthogonal to its identity as H or L. Overall trends in pitch contours (e.g. gradual lowering of overall range) mostly reflect the operation of *localised* but *iterated* changes in scaling factors.

4 Swedish magic redux

(9) Recall our camel/dromedary contrast:

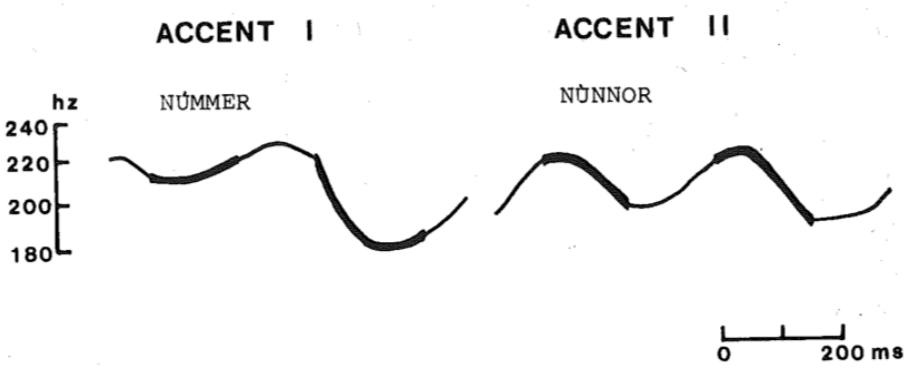


Figure 4: Swedish word accent contrast in citation form.

(10) Here's a figure showing only the target Accent I/II words in different prosodic positions. What is the difference between Accent I and Accent II realization in the f0 contour?

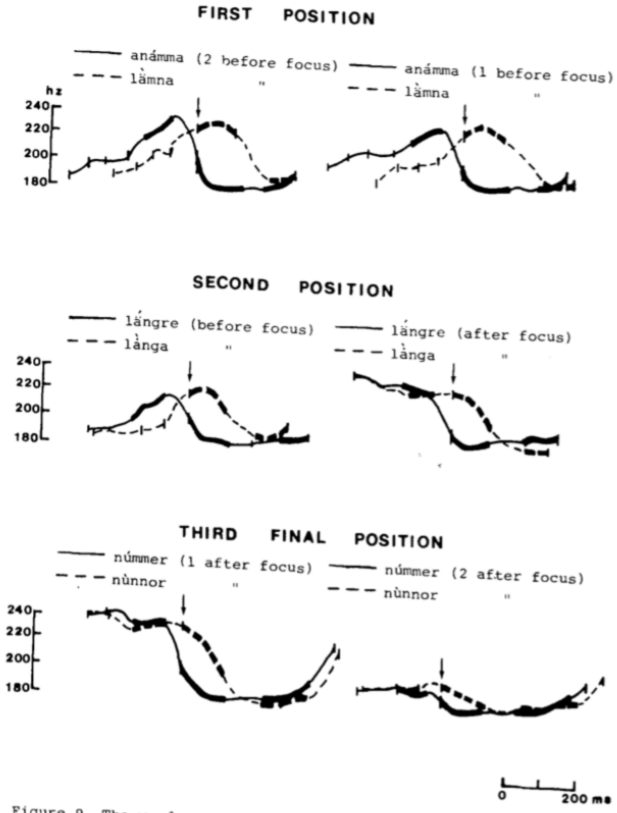


Figure 9. The word accent distinction in non-focal position. Fo-contours of accent I- and accent II-words in the first and second non-final and in the third final positions. The line-up point is at the CV-boundary of the stressed syllable.

(11) Here are schematics from Bruce (1977) showing the atomic tonal events under discussion.

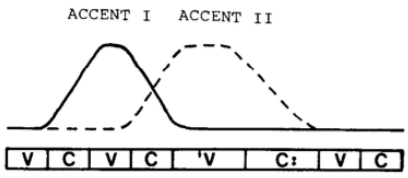


Figure 17. The basic contours of the two word accents. Schematized Fo-contours of accent I (unbroken line) and accent II (broken line) in pre-focal position.

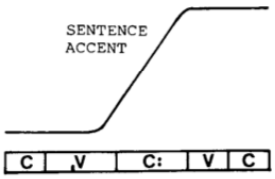


Figure 18. The basic contour of sentence accent. Schematized Fo-contour of sentence accent in the secondary-stress syllable of a compound in non-final position.

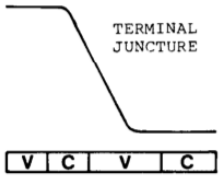


Figure 19. The basic contour of terminal juncture. Schematized Fo-contour of terminal juncture in the utterance-final syllable of a non-oxytonic word.

5 More on tonal targets

> One key innovation of the AM theory here is that it draws an explicit distinction between *events* and *transitions*. It recognises that certain localised pitch features are linguistically important, while much of the rest of the pitch contour is merely what happens between the important features. (Ladd, 2008, p. 47)

(12) How can we synthesize an f0 contour? (Very practical issue: text to speech (TTS))

(13) A classic paper on intonational synthesis is Pierrehumbert (1981) `[further-reading/7/pierrehumbert1981.pdf]`

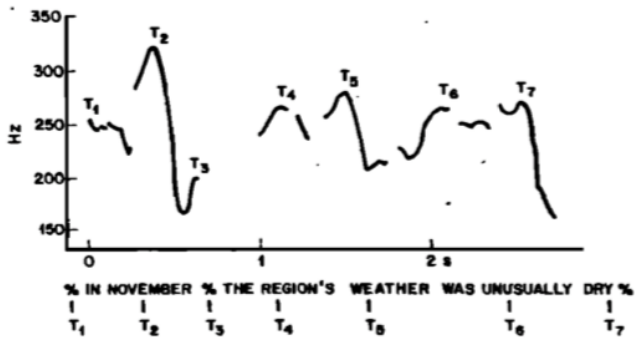


FIG. 1. *F*0 contour for an utterance of the sentence "In November, the region's weather was unusually dry." *T*1 through *T*7 are points in the contour which are interpreted as *F*0 targets in the present synthesis rules. The labeling under the contour indicates how these targets are aligned with syllables and phrase boundaries (%).

J. Pierrehumbert: Synthesis of intonation 986

As is clear in Fig. 1, *F*0 varies continuously in natural speech. Just as it is useful to view the continuously varying vocal tract resonances as the implementation of a string of discrete speech segments, it is also useful to view the continuously varying *F*0 contour as implementing a series of discrete elements. There have been a number of proposals about what these discrete elements are. Öhman (1967) analyzes Swedish *F*0 contours in terms of impulses fed to a linear filter. Each word receives one impulse, and all impulses are in the same direction. A related model for *F*0 in Japanese is presented in Fujisaki and Nagashima (1969). Bolinger (1951), 't Hart and Cohen (1973), O'Shaughnessy (1976), and Clark (1978) propose theories under which the contour in Fig. 1 would be analyzed as a series of instructions to raise or lower the *F*0. A third school of thought, represented by Pike (1945), Trager and Smith (1951), Liberman (1975), and Bruce (1977), would analyze the contour as a series of target values which are connected together by transitional functions. The work presented here takes this third approach. For example, both of the *F*0 contours shown in Fig. 2 have a high target value at the onset (*T*1), a low target on the first stressed syllable (*T*2), and a high target on the second stressed syllable (*T*3). The slope of the contour between *T*2 and *T*3 is greater in Fig. 2(b) than in Fig. 2(a) because there is less time to connect the first to the second in Fig. 2(b) than in Fig. 2(a).

Exercise 5.1 (Text to speech synthesis and prosody). *Try generating some different prosodic renditions of "In November the region's weather was unusually dry" or some other string (help. help help. help help help.) at* `https://text-to-speech-demo.ng.bluemix.net/` *or some other TTS system. What can you tell about how prosody is generated? Or see if Siri can respond appropriately to different prosody on same segmental strring.*

5.1 Tonal crowding, undershoot, sagging

(14) Back to Bruce (1977): if we have enough segmental material to spread out tonal events, we might see something like this:

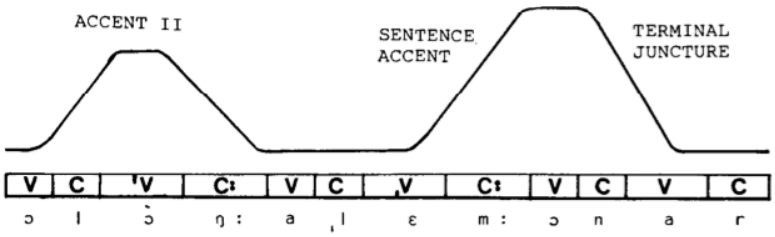


Figure 20. The basic contours of accent II, sentence accent and terminal juncture combined in a compound word. Schematized Fo-contour of the compound làngalemmonar.

(15) But, we may have two tonal events squashed together over segmental material

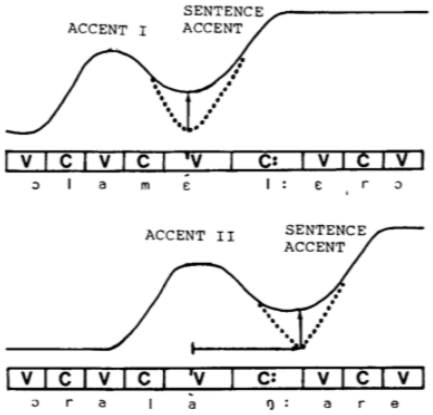


Figure 21. Interplay of word accent and sentence accent in non-compound words. Schematized Fo-contours of accent I with sentence accent (upper part) and accent II with sentence accent (lower part). The extent of the undershooting of the word accent minimum is indicated by the arrow pointing upward, and the extent of the delay of the sentence accent rise for accent II by the arrow pointing to the right. The dotted line represents contours prior to adjustment.

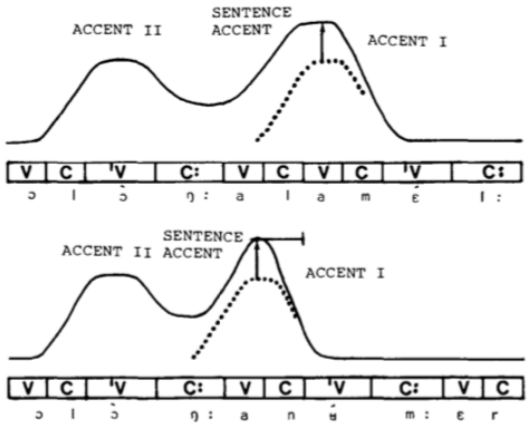


Figure 22. Interplay of sentence accent and word accent. Schematized Fo-contours of accent II with sentence accent followed by accent I, with a late stress placement (upper part) and with an early stress placement (lower part). The extent of the "overshooting" of the word accent maximum is indicated by the arrow pointing upward, and the extent of the anticipation of the sentence accent rise, particularly the end-point, by the arrow pointing to the left. The dotted line represents contours prior to adjustment.

(16) Or even three!

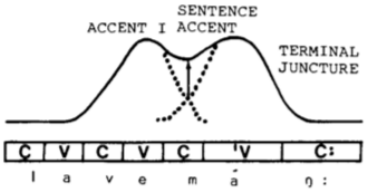


Figure 26. Interplay of word accent, sentence accent and terminal juncture for accent I. Schematized Fo-contour of an oxytonic accent I-word. The anticipation of the sentence accent rise, the undershooting of the sentence accent maximum, and the delay of the terminal juncture fall illustrated in figure 24 for the oxytonic compound are all presupposed in the present figure. The extent of the undershooting of the word accent minimum is indicated by the arrow pointing upward. The dotted line represents contours prior to adjustment.

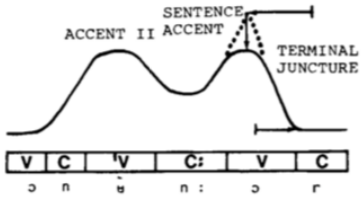


Figure 25. Interplay of sentence accent and terminal juncture for accent II. Schematized Fo-contour of a disyllabic accent II-word. The extent of the anticipation of the sentence accent rise, particularly the end-point of the rise, is indicated by the arrow pointing to the left, the undershooting of the sentence accent maximum by the arrow pointing downward, and the delay of the terminal juncture fall by the arrow pointing to the right. The dotted line represents contours prior to adjustment.

(17) There are different outcomes from dealing with tonal crowding, e.g., this figure from Gussenhoven (2004) on end-of-utterance effects.

Exercise 5.2 (End-of-utterance-effects)**.** *How do English and German differ in the realization of tonal targets at the end of the utterance, as depicted here?*

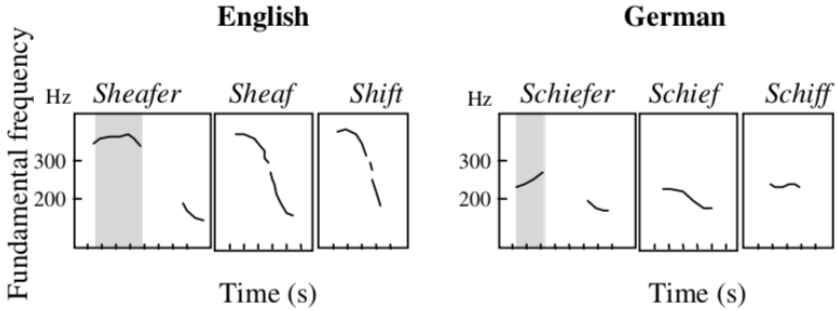


Fig. 1.7 Representative F_0 traces of falls in British English and German on a pre-final syllable, on a final syllable with a long vowel, and a final syllable with a short vowel followed by an obstruent. The shaded area indicates the stress vowel of a disyllabic word. German truncates falls on final rhymes like *-iff*, but English does not (cf. *shift*). From Grabe (1997: 163).

(18) One target or two? Non-monotonic transitions and the infamous sagging transition between high pitch accents in English, from Pierrehumbert (1981)

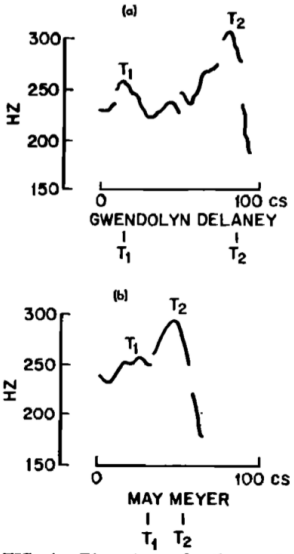


FIG. 4. *F0* contours for the words "Gwendolyn Delaney" and "May Meyer" excised from the context "I think you should discuss it with _____." Subscripted *T*'s indicate two points which are to be viewed as *F0* targets. When the two targets are far apart, as in (a), the *F0* contour sags in between; when they are sufficiently close together, as in (b), the sagging disappears.

(19) And here's output of Pierrehumbert (1981) equations to compute that transition, which depend on the distance in time between the tonal targets. See Pierrehumbert (1981, p. 990) for details.

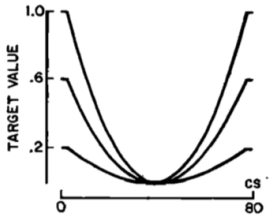


FIG. 6. Superimposed *F0* contours showing transitions computed between two targets which are 80 cs apart. Any path through the graph is an output of the system. In every case, the *F0* contour reaches the baseline 40 cs after the first target.

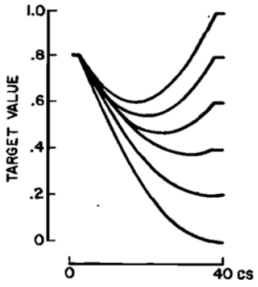


FIG. 7. Superimposed *F0* contours showing transitions computed between two targets which are 40 cs apart.

5.2 Some ToBI practice: tonal targets and alignment

(20) Check out OCW MIT materials at https://ocw.mit.edu/courses/electrical-engineering-and-computer-science/6-911-transcribing-prosodic-structure-of-spoken-utterances-with-tobi-january-iap-2006/

(21) We will go through Chapter 2.5 to look at the difference between L*+H and L+H*.

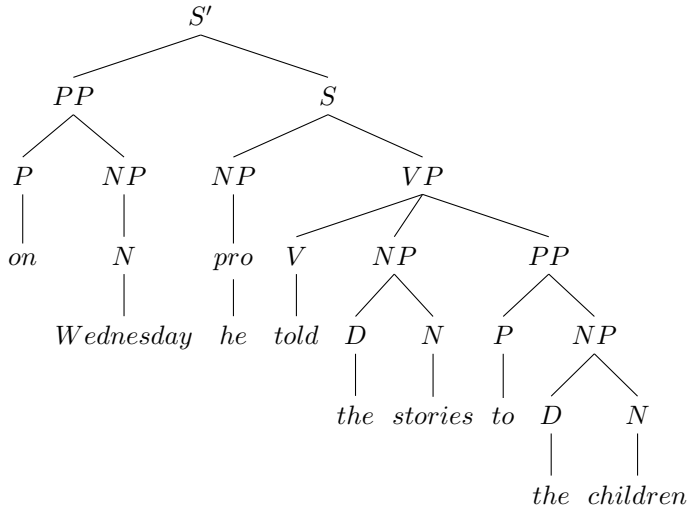
(22) Also check out the matrix of "tails": https://ocw.mit.edu/courses/electrical-engineering-and-computer-science/6-911-transcribing-prosodic-structure-of-spoken-utterances-with-tobi-january-iap-2006/lecture-notes/appendix1

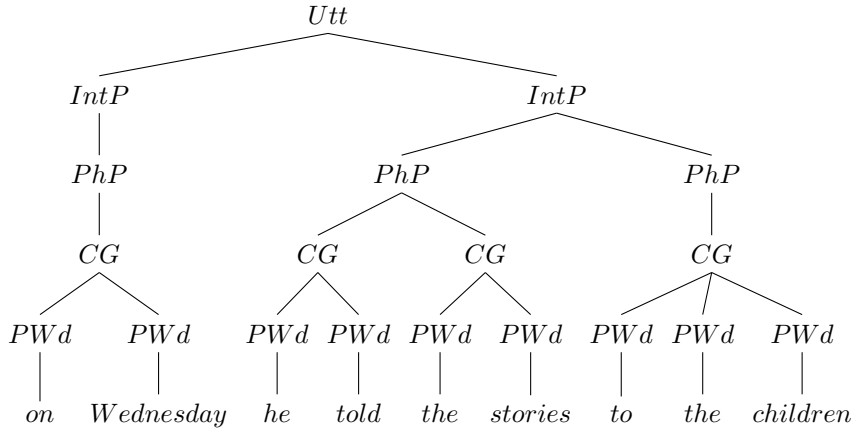
6 The prosodic hierarchy

(23) Idea: syntactic structure (output of syntactic module) submitted to a set of phonological phrasing processes which rebracket and relabel syntactic constituency relations to create purely phonological constituency relations in a phonological structure called the **prosodic hierarchy**.

Discussion 6.1 (An example of syntax-prosody mapping)**.**

From Hayes (1990, p. 86); don't get distracted by the outdated syntactic structure—the key idea is the process of rebracketing and relabeling in mapping between syntactic and prosodic structure.[1] *Where is there rebracketing? Relabeling?*





(24) How do phonological processes refer to the prosodic hierarchy? They may be:

a. Bounded by a particular prosodic domain, i.e. [ ]: rule may apply only if both the *context* and the *focus* are within a particular prosodic domain, e.g. English Rhythm Rule.

b. Refer to the right or left edge of a domain in their structural description, i.e. [or], e.g. Chimwini vowel shortening, various devoicing processes.

c. Refer to domain-internal junctures, i.e.][.

(25) A generative grammar for a prosodic hierarchy is restricted by the **Strict Layer Hypothesis** (Selkirk, 1986) (among other work in the 80s):

Definition 6.1 (Strict Layer Hypothesis (informal))**.**
Each non-terminal category in the prosodic hierarchy dominates only categories of the immediately lower level.

Definition 6.2 (Strict Layer Hypothesis (formal))**.**
The categories of the Prosodic Hierarchy may be ranked in a sequence C_1, C_2,..., C_n, such that

a. all segmental material is directly dominated by the category C_n, and

b. for all categories C_i, $i \neq n$, C_i directly dominates all and only the constituents of the category C_{i+1}.

[1] *Notation: Utt := Utterance; IntP := Intonational Phrase; PhP := Phonological Phrase; CG := Clitic Group; PWd := Prosodic Word*

3. *Prosodic Hierarchy*

Utt	Utterance
IP	intonational phrase
PPh	phonological phrase
PWd	prosodic word
Ft	foot
σ	syllable

4. *Constraints on Prosodic Domination*

(where C^n = some prosodic category)

Layeredness

No C^i dominates a C^j, $j > i$,
e.g. "No σ dominates a Ft."

Headedness

Any C^i must dominate a C^{i-1} (except if $C^i = \sigma$),
e.g. "A PWd must dominate a Ft."

Exhaustivity

No C^i immediately dominates a constituent C^j, $j < i-1$,
e.g. "No PWd immediately dominates a σ."

Nonrecursivity

No C^i dominates C^j, $j = i$,
e.g. "No Ft dominates a Ft."

Figure 5: Constraints enforcing strict layering (Selkirk, 1996, p. 190).

(26) Note the implications of the Strict Layer Hypothesis (Hayes, 1989, p. 204):

a. Rules applying across a boundary at the edge of C_i must also apply across all weaker boundaries at the edge of C_j, $\forall j > i$.

b. Rules applying before or after a boundary at the edge of C_i must apply before or after all stronger boundaries, i.e. boundaries at the edge of C_j, $\forall j < i$

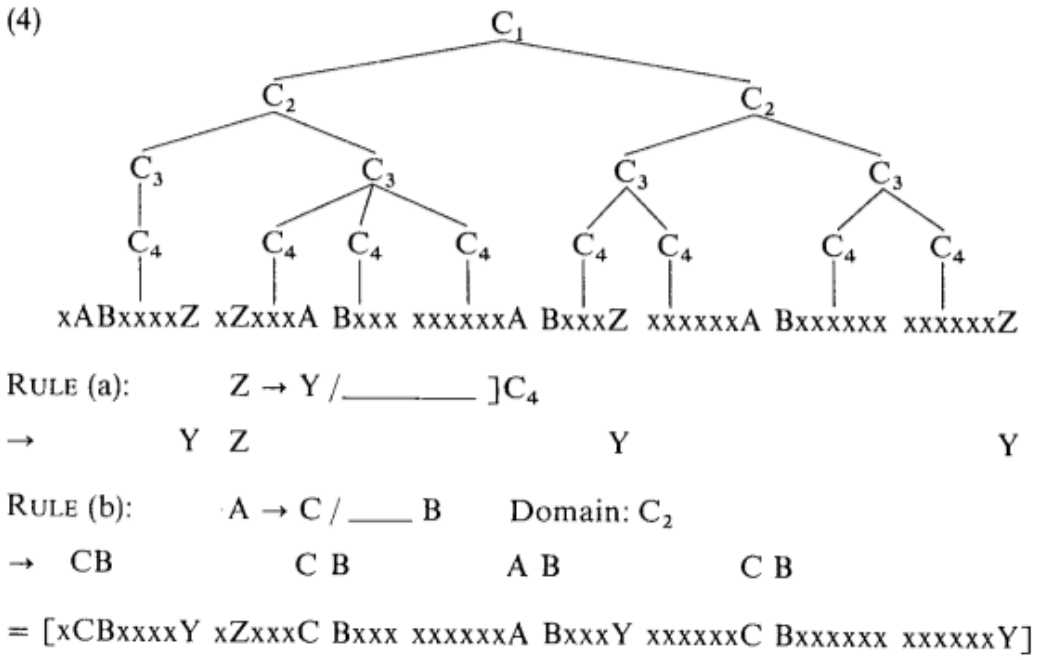


Figure 6: Schematic illustration of implications of Strict Layer Hypothesis for phonological processes (Hayes, 1989, p. 204).

(27) There have been various proposals for different kinds of prosodic constituents and how they are related. Here's a comparison of some of the main proposals (Shattuck-Hufnagel and Turk, 1996) in Figure 7. We won't focus on the arguments for these different alternatives today.

7 Tones and prosodic constituency

(28) Sources of tones have been claimed to be from:

a. Lexical representation

- Mandarin: *ma˥* 'mother' vs. *ma˨˩* 'horse'
- Serbo-Croatian: *mlada* 'young' (long rise) vs. *mlada* 'bride' (long fall)
- Japanese: kák-iga (initial accent) 'oyster' vs. kakí-ga (penult accent) 'fence' vs. kaki-ga (unaccented) 'persimmon'

b. Inflectional morphology

- Case: recall "associative" constructions e.g. in Igbo, Grassfields Bantu
- Gender: Somali *inan* (HL) 'boy' vs. *inan* (LH) 'girl'
- Number: Somali *kalax* (HL) 'ladle' vs. *kalax* (LH) 'ladles'
- Person: Chimwiini and penult vs. ultima high tone *jí:le* 's/he ate' vs. *n-ji:lé* 'I ate' and *ji:lé* 'you.sg ate'

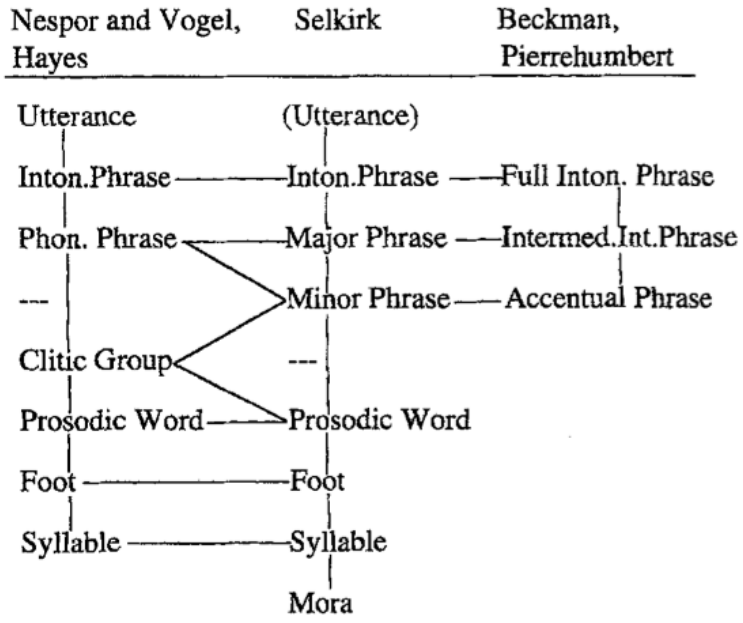


Figure 7: A comparison of prosodic hierarchy proposals (Shattuck-Hufnagel and Turk, 1996, p. 206).

- TAM: Iau (Indonesia, Papua) (Hyman, 2011)

  The 8 tone patterns of Iau [Indonesia: Papua] are phonologically paradigmatic on nouns, morphologically paradigmatic on verbs (Bateman 1990:35-36) ($^{\uparrow\prime}$ = a super-high tone) morph paradigms

Tone	*Nouns*		*Verbs*		
H	bé	'father-in-law'	bá	'came'	*totality of action punctual*
M	bē	'fire'	bā	'has come'	*resultative durative*
H$^{\uparrow}$H	bé$^{\uparrow\prime}$	'snake'	bá$^{\uparrow\prime}$	'might come'	*totality of action incompletive*
LM	bè$^{-}$	'path'	bà$^{-}$	'came to get'	*resultative punctual*
HL	bê	'thorn'	bâ	'came to end point'	*telic punctual*
HM	bé$^{-}$	'flower'	bá$^{-}$	'still not at endpoint'	*telic incompletive*
ML	bē`	'small eel'	bā`	'come (process)'	*totality of action durative*
HLM	bê$^{-}$	'tree fern'	bâ$^{-}$	'sticking, attached to'	*telic durative*

c. Pragmatics

- Force: English polar interrogative superhigh utterance-final tone
- Information structure: LH rise focus morpheme in dialects of Swedish (Bruce, 1977; Riad, 2006), (rise) fall-rise contrastive topic in English (Jackendoff, 1972; Büring, 2003; Constant, 2014)

(29) Syntax

a. via "direct" syntax-mapping: Odden (1987, p. 21) claims that a H tone is inserted between daughters of a maximal projection in Kimatuumbi

b. "indirect" syntax-prosody mapping: isomorphism between syntactic and prosodic constituents that can place tones at constituent edges (Selkirk, 1986; Nespor and Vogel, 1986; Hayes, 1989; Steedman, 1991; Wagner, 2010; Selkirk, 2011; Steedman, 2014).

(30) Truth-conditional semantics: in Catalan, information-seeking polar interrogatives have a higher high leading tone than confirmation-seeking ones (del Mar Vanrell et al., 2013)

(31) **Phonological grammar**

> Some tones that appear in the sentence are apparently neither lexical nor morphemic but rather epenthetic, present to satisfy phonological constraints. Phonological constraints determine the precise location in the sentence of these various sorts of tones and tend to produce representations in which

individual tones align with either the prominent head of a prosodic constituent or with the edge of a constituent. (Selkirk, 2003)

a. Rising pitch accent associated with predictable primary stress in Egyptian Arabic Hellmuth (2006, 2009)

b. Low-high rise at the end of each accentual phrase in Korean (Jun, 1998, 2000)
`[mat/intonation/prosodic-hierarchy/Kor-uncle-neutral-2nd-GOOD.wav, .png]`

c. Low-high pitch contour over Calcutta and Bangladeshi Bengali accentual phrases Hayes and Lahiri (1991); Khan (2008, 2014)
`[mat/intonation/prosodic-hierarchy/bengali-aps.wav, bengali-aps.TextGrid]`

8 Phonological processes and prosodic constituency

(32) Review: Selkirkian prosodically-sensitive phonological processes (from Kie Zuraw handout)

- domain span rules: the structural description must be contained within a certain domain

$$A \rightarrow B \,/\, \overbrace{\ldots X\_\_Y \ldots}^{D}$$

- domain juncture rules: the structural description refers to the boundary between two domains D, and is contained within a domain D' (D' is higher than D, but not necessarily the immediately dominating level)

$$A \rightarrow B \,/\, \overbrace{\ldots \overbrace{\ldots X \_\_ Y}^{D} \overbrace{Z \ldots}^{D} \ldots}^{D'} \quad \textit{or} \quad A \rightarrow B \,/\, \overbrace{\ldots \overbrace{\ldots X}^{D} \overbrace{Y \_\_ Z \ldots}^{D} \ldots}^{D'}$$

- domain limit rules: the structural description is at the edge of a domain D

$$A \rightarrow B \,/\, \overbrace{\ldots X\_\_Y}^{D} \quad \textit{or} \quad A \rightarrow B \,/\, \overbrace{X\_\_Y \ldots}^{D}$$

(33) Example: Accentual-phrase internal lenis stop voicing in Korean (Jun, 1998)

Finally, Lenis Stop Voicing (also known as Obstruent Voicing) is a rule by which a lenis stop becomes voiced intervocalically. This rule was thought to apply only within a word (Lisker & Abramson 1964, Han & Weitzman 1970) until Cho (1987) showed that the domain of this effect is actually larger. She argues that this rule is a postlexical phonological rule, whose domain is the PhP. A formal description of this rule is given in (13), with some examples in (14) (Cho 1990: 48–49). The target lenis stop is in bold.

(13) $[-\text{cont}, -\text{asp}, -\text{tense}] \rightarrow [+\text{voice}] \,/\, {}_{\phi}(\ldots[+\text{voice}] \_\_ [+\text{voice}]\ldots)$

(14) a. $_{NP}(_{Adj}(\text{motin})\ _{N}(\textbf{k}\text{ilim}))$ → {modin **g**irim}[12]
every picture 'every picture'

b. $_{VP}(_{NP}(\text{kilim-il})\ _{V}(\textbf{p}\text{ota}))$ → {kirimil **b**oda}
a-picture to-see 'look at the picture'

c. $_{NP}(_{IP}(_{NP}(\text{ki-ka})\ _{VP}(\text{mək-nin}))\ _{N}(\textbf{p}\text{ap}))$ → {kiga}{məŋnin **b**ap}
he-NOM to-eat-REL CL MARKER rice 'the rice he is eating'

d. $_{IP}(_{NP}(\text{ke-ka})\ _{VP}(_{NP}\textbf{p}\text{ap-il})\ _{V}(\text{məkninta}))$ → {kega}{**p**abil məŋninda}
a-dog-NOM rice-ACC to-eat 'The dog is eating rice'

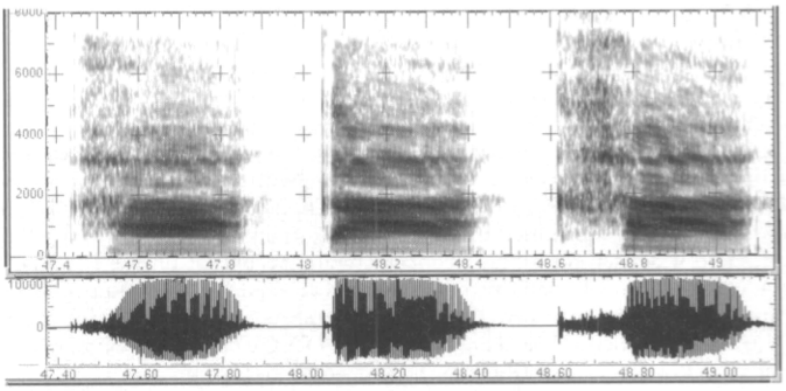


Figure 3
Spectrograms and waveforms for the three stops in Korean: (a) lenis stop (/ka/), (b) tense stop (/k'a/), (c) aspirated stop (/kʰa/).

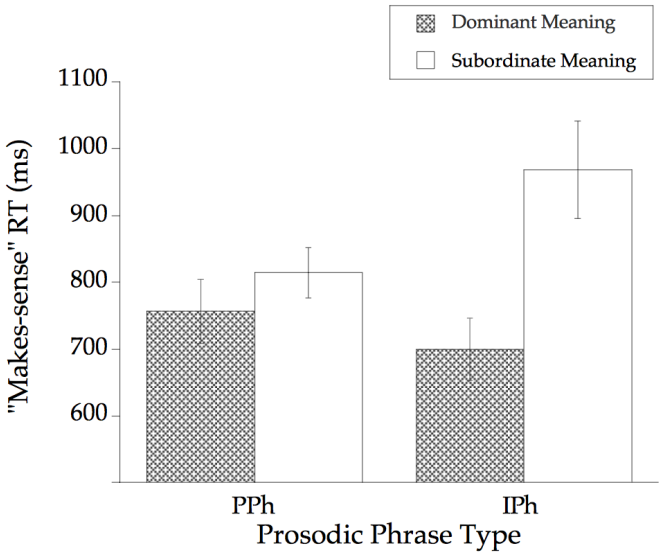
9 Processing and prosodic constituency

(34) Chunking in semantic interpretation? (Schafer, 1997)

Definition 9.1. *Interpretative domain hypothesis An intonational phrase boundary, but not a phonological phrase boundary, defines a point at which the processor performs any as yet outstanding semantic/pragmatic evaluation and integration of material within the intonational phrase.*

a. Although the glasses were ugly (L-) Stacey wore them anyway.
b. Although the glasses were ugly (L-) they held a lot of juice.
c. Although the glasses were ugly (L-H%) Stacey wore them anyway.
d. Although the glasses were ugly (L-H%) they held a lot of juice.

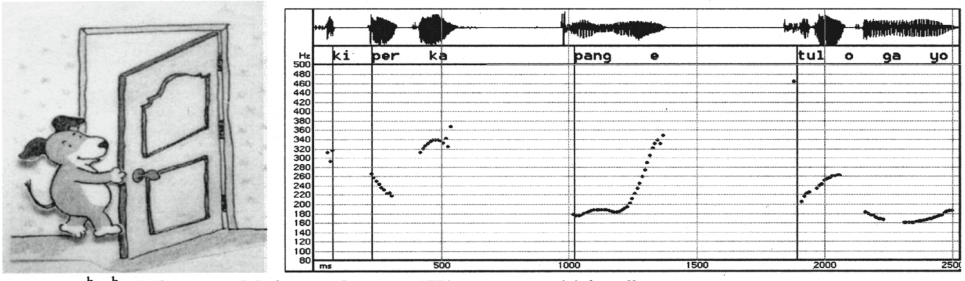
PPh & IPh Effects on Interpreting Polysemous Words (EOS)



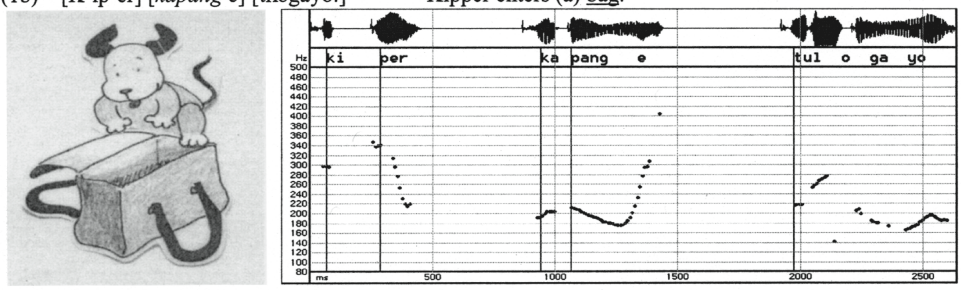
(35) Prosodically conditioned allophony: children are sensitive to lenis voicing in Korean accentual phrases in syntactic parsing (Choi and Mazuka, 2003)

(1) K^{h}ip^{h}er *ka pang* e tɨləgayo.
   a. K^{h}ip^{h}er *ka* *pang* e tɨləgayo
      $_{Ph1}$[Kipper-NOM] $_{Ph2}$[room-LOC] $_{Ph3}$[enter-PRE-DEC]
      "Kipper enters (a) *room*."
   b. K^{h}ip^{h}er *kapang* e tɨləgayo
      $_{Ph1}$[Kipper] $_{Ph2}$[bag -LOC] $_{Ph3}$[enter-PRE-DEC]
      "Kipper enters (a) *bag*."

(1a) [K^{h}ip^{h}er *ka*] [*pang* e] [tɨləgayo.] "Kipper enters (a) room."



(1b) [K^{h}ip^{h}er] [*kapang* e] [tɨləgayo.] "Kipper enters (a) bag."



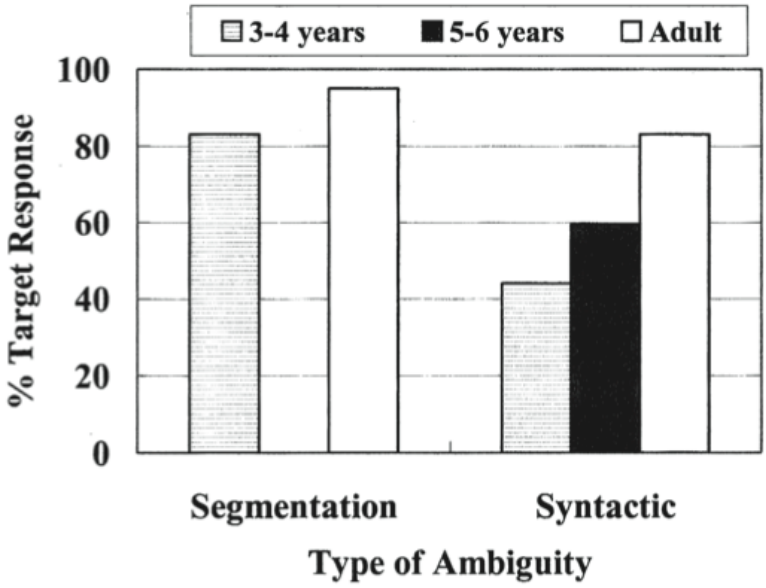


Fig. 2. Mean percentage of target responses as a function of type of ambiguity.

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