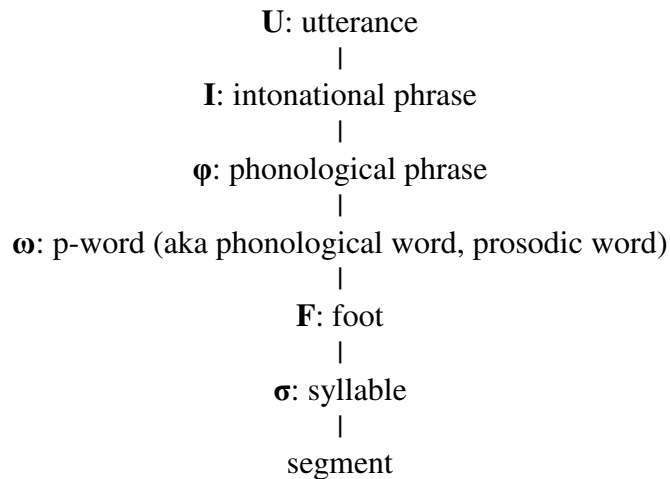**Class 1: Introduction**

Outline of today and next week
- The prosodic hierarchy as source of domains for segmental rules
- Other jobs of prosodic constituents
- P-word case studies and counteranalyses

I. The prosodic hierarchy as source of domains for segmental rules

A. The hierarchy
(1) Prosodic hierarchy—many variants exist, of course

$$\text{U: utterance}$$
$$|$$
$$\text{I: intonational phrase}$$
$$|$$
$$\text{φ: phonological phrase}$$
$$|$$
$$\text{ω: p-word (aka phonological word, prosodic word)}$$
$$|$$
$$\text{F: foot}$$
$$|$$
$$\text{σ: syllable}$$
$$|$$
$$\text{segment}$$

(2) Bibliographic note
Papers by Selkirk in the late 1970s and early 1980s first proposed this hierarchy:
- Elizabeth Selkirk (1978). On prosodic structure and its relation to syntactic structure. In T. Fretheim (ed.) *Nordic Prosody II*. Trondheim: TAPIR.
- Elizabeth Selkirk (1980). Prosodic domains in phonology: Sanskrit revisited. In Mark Aronoff & Mary-Louise Kean (eds.) *Juncture*. Saratoga, CA: Anma Libri.
- Elizabeth Selkirk (1980). The role of prosodic categories in English word stress. *Linguistic Inquiry* 11, 563-605.
- Elizabeth Selkirk (1981). On the nature of phonological representation. In J. Anderson, J. Laver & T. Meyers (eds.) *The Cognitive Representation of Speech.* Amsterdam: North Holland.
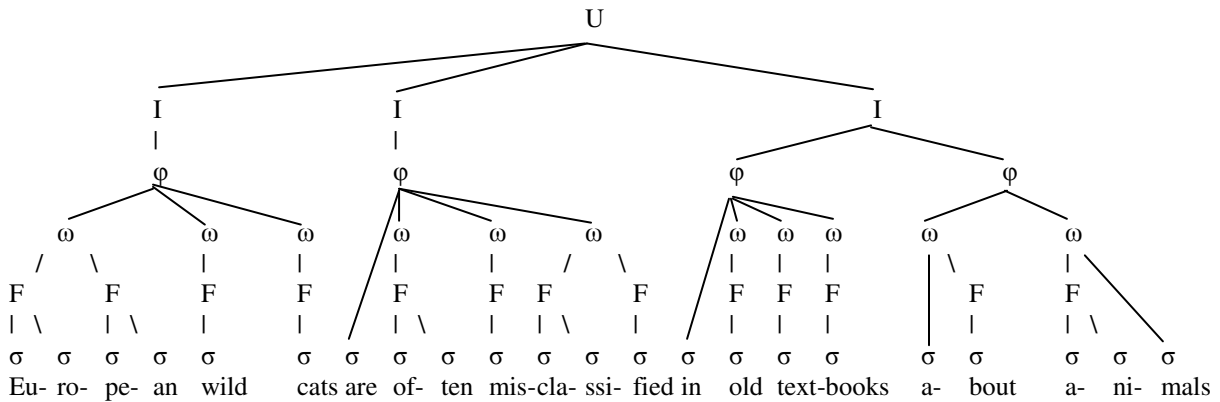
Unfortunately for readers, these papers defer discussion of various questions to a forthcoming synthesis$_i$, and by the time it$_i$ came out,[1] Selkirk had changed her mind and decided against the foot, p-word, and p-phrase.

For a more comprehensive presentation of the idea, see
- Marina Nespor & Irene Vogel (1986). *Prosodic Phonology*. Dordrecht: Foris.

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[1] Elizabeth Selkirk (1984). *Phonology and Syntax: the relation between sound and structure.* Cambridge, MA: MIT Press.

(3) Example (loosely adapted from Nespor & Vogel 1986, henceforth N&V)

```
                                        U
          ┌──────────────┬──────────────────────────────────┐
          I              I                                   I
          |              |                        ┌──────────────────┐
          φ              φ                        φ                  φ
       ┌──┴───┐       ┌──┼───┐                 ┌──┼──┐           ┌───┴───┐
       ω      ω     ω  ω    ω    ω            ω  ω  ω           ω       ω
      / \     |     |  |    |   / \           |  |  |           |       |
      F  F    F     F  F   F F   F            F  F  F           F       F
      |\ |\   |     |  |\  | |\  |            |  |  |           |       |\
      σ σ σ σ σ     σ  σ σ σ σ σ σ          σ σ σ           σ  σ      σ σ σ
    Eu- ro- pe- an  wild  cats are of- ten mis-cla- ssi- fied in  old text-books  a- bout  a- ni- mals
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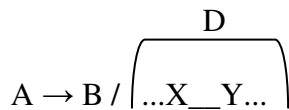
B. The theory of domains

Selkirk's main motivation in proposing the hierarchy was to account for the domains of segmental rules. She proposed that there are three ways a rule can relate to its domain.
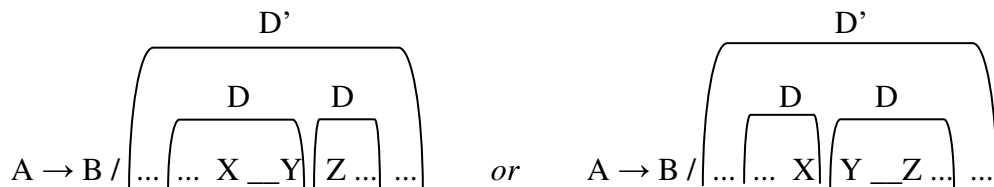
(4) Rule types
(not Selkirk's original notation)

- <u>domain span rules</u>: the structural description must be contained within a certain domain

$$A \rightarrow B \ / \ \overbrace{[\ ...X\_\_Y...\ ]}^{D}$$

- <u>domain juncture rules</u>: the structural description spans 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)
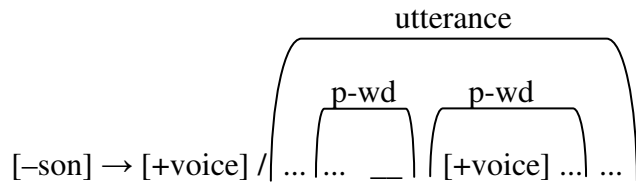
$$A \rightarrow B \ / \ \overbrace{[...[\ ... X \_\_Y][Z ...]\ ...]}^{D'} \quad or \quad A \rightarrow B \ / \ \overbrace{[...[\ ... X][Y \_\_Z ...]\ ...]}^{D'}$$

- <u>domain limit rules</u>: the structural description is at the edge of a domain D

$$A \rightarrow B \ / \ \overbrace{[\ ...X\_\_Y]}^{D} \quad\quad or \quad A \rightarrow B \ / \ \overbrace{[\ X\_\_Y...]}^{D}$$
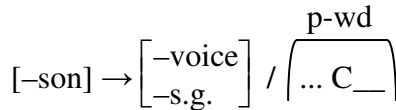
(5) Sanskrit p-word domain (Selkirk 1980)
- A non-compound N, A, or V constitutes a p-word
- In a compound, the first stem constitutes a p-word, and the second stem plus suffixes constitute another p-word.
- Exception (not discussed in the paper—just mentioned in a footnote): a "*pada*" suffix forms its own p-word.
- Not sure how prefixes fit in.

(6) Example of word-juncture rule: Final Voicing (p. 115)

$[-son] \rightarrow [+voice] /$ [diagram: utterance domain spanning two p-wd's, with $...[...\ \_\_\ ]$ and $[[+voice]\ ...]\ ...$]

(stem)$_\omega$(stem)$_\omega$ *(compound)*	sat – aha	>	sa**d**-aha	'good day'
(stem)$_\omega$(stem)$_\omega$	samyak uktam	>	samya**g** uktam	'spoken correctly'
	parivraṭ ayam	>	parivra**ḍ** ayam	
	tat namas	>	ta**d** namas	'that homage'
(stem suffix)$_\omega$	prāñc+aḥ	>	prāñ**c**aḥ	
	vac+ya	>	va**c**ya	
	marut+i	>	maru**t**i	'wind (loc.)'

- How do we know that a p-word juncture must intervene between the target and the following segment?

Why do we have to specify the superordinate domain of utterance? Selkirk claims that there are word-juncture rules in other languages whose superordinate domain in the p-phrase: that is, the two p-words in question must be in the same p-phrase; for this Sanskrit rule, they only have to be in the same utterance.

(7) Example of word-limit rule: Final Deaspiration/Devoicing (p. 120)

$[-son] \rightarrow \begin{bmatrix} -voice \\ -s.g. \end{bmatrix} /$ [diagram: p-wd spanning $[\ ...\ C\_\_]$]

(stem)$_\omega$(stem)$_\omega$	labh – sye	>	la**p**-sye	'I shall seize'
	agnimath	>	agnima**t**	'producing fire by friction'
	triṣṭubh	>	triṣṭu**p**	
(stem)$_\omega$	vīrudh	>	vīru**t**	'plant'
	tad	>	ta**t**	
	suhṛd	>	suhṛ**t**	

Crucially, these changes are supposed to occur regardless of the word's context (e.g., utterance-medial vs. utterance-final).

3

(8) Exercise

o   What is the domain of Visarga ({s,r}→ ḥ), and where is it ordered? (There are other rules
involved too)

((stem)ω)U	devas	>	devaḥ	'god'
	punar	>	punaḥ	'again'
((stem suffix)ω)U	abibhar+t	>	abibhaḥ	
((stem)ω(stem)ω)U	akar jyotiḥ	>	aka**r** jyotiḥ	
	punar api	>	puna**r** api	
	bhrātar dehi	>	bhrāta**r** dehi	
	dvār eṣā	>	dvā**r** eṣā	
	nalas nāma	>	nal**o** nāma	
	tapas – nidhi	>	tap**o**-nidhi	s / a __[C, +voice]
	devas gacchati	>	dev**o** gacchati	
	aśvas iva	>	aśva iva	s / a __ V
	devas uvāca	>	deva uvāca	
	aśvās vahanti	>	aśvā vahanti	
	hatās gajāḥ	>	hatā gajāḥ	s / ā __
	devās ūcuḥ	>	devā ūcuḥ	
	avis mama	>	avi**r** mama	
	dhenus iva	>	dhenu**r** iva	s / [–low]__[+voice]
	guṇais yuktaḥ	>	guṇai**r** yuktaḥ	

(9) Example of word-span rule: **nati** *in Classical Sanskrit (p. 123)*

$$n \rightarrow ṇ / \overbrace{... \{ṣ, r, ṛ, ṝ\} \ [\text{–cor}]_0 \underline{\ \ } \{V, n, m, y, v\}...}^{\text{p-word}}$$

(stem suffix)ω	ka**r**man+**ā**	>	karma**ṇ**ā
	dū**ṣ**+a**n**am	>	dūṣa**ṇ**am
	b**ṛ**mh+a**n**am	>	bṛmh+a**n**am
	mu**ṣ**+**nā**+ti	>	muṣ**ṇ**āti
(stem)ω(stem)ω	bra**ḥ**man - **y**aḥ	>	braḥma**n**yaḥ
	k**ṣ**ip - **n**uḥ	>	kṣip**n**uḥ

(The data here are faked: Selkirk gives data from Vedic Sanskrit, where *nati* was a p-phrase-span
rule, and mentions that in Classical Sanskrit the rule was p-word-span, though it remained
fossilized in some compounds. I've just taken her Vedic data and modified the compound
examples, so it's probably wrong in various ways.)

(10) Counteranalysis: boundary symbols
Let's use a richer inventory of symbols than SPE:

> %: utterance boundary
> @: intonational-phrase boundary
> $: p-phrase boundary
> #: p-word boundary

(and of course we need a set of rules to insert these boundary symbols in the right places)

Final Voicing (p-word-juncture on utterance domain)

$$[-son] \rightarrow [+voice] / \_\_\# (\$^* @^*)^* \# [+voice]$$

Final Deaspiration/Devoicing (p-word-limit)

$$[-son] \rightarrow \begin{bmatrix} -voice \\ -s.g. \end{bmatrix} / \_\_\#$$

Classical *nati* (p-word-span)—if syllable and foot boundaries exist, assume that they're allowed to occur anywhere in string matching the structural description.

$$n \rightarrow ṇ / \{ṣ, r, ṛ, r̄\} [-cor]_0 \_\_ \{V, n, m, y, v\}$$

Vedic *nati* (p-phrase-span)

$$n \rightarrow ṇ / \{ṣ, r, ṛ, r̄\}\#^* ([-cor]_0 \#^*)^* \_\_ \#^* \{V, n, m, y, v\}$$

(11) Selkirk on boundary symbols
Selkirk objects to the duplication of boundary symbols that occurs in domain-span rules with long structural descriptions:

Hypothetical intonational-phrase-span rule:

$$\text{(i) } A \rightarrow B / \overline{\big| ...XY\_\_WZ ...}$$

becomes

> (ii) $A \rightarrow B / X (\#^* \$^*)^* Y (\#^* \$^*)^* \_\_ (\#^* \$^*)^* W (\#^* \$^*)^* Z$

This is no more valued (by the brevity metric of SPE) than, say,

> (iii) $A \rightarrow B / X (\#^* \$^*)^* Y (\#^*)^* \_\_ (\#^* \$^*)^* W (\$^*)^* Z$

which type of rule Selkirk claims doesn't occur. (In Selkirk's theory this would translate into a messy disjunction of cases, some of which may be uninstantiable by well-formed prosodic trees—we can try to draw it).

Selkirk suggests that boundary theory could be modified with some additional conventions to work more cleanly (following earlier work of McCawley and of Stanley). For domain-span rules, for example, we could just write

(iv) A → B / %...XY__WZ...%

with the stipulation that in a rule whose structural description is surrounded by matching boundary symbols, boundaries of lower "strength" are understood to occur optionally anywhere else in the string.

- o Ideas on how we can modify the theory to deal neatly with domain-juncture rules and domain-limit rules?

(12) Counteranalysis: lexical phonology

	sat, aha	parivraṭ, ayam	vac	labh, sye	triṣṭubh	karman	brahman, yaḥ
suffixation	--	--	vac+ya	--	--	karman+ā	--
nati (word-span)	--	--	--	--	--	karmaṇā	--
Final Deaspiration/Devoicing (word-limit)	--	--	--	la**p**, sye	triṣṭu**p**	--	--
compounding	sat+aha	--	--	lap+sye	--	--	brahman+yaḥ
syntax	--	parivraṭ ayam	--	--	--	--	--
Final Voicing (word-juncture on utterance domain)	sa**d**aha	parivra**ḍ** ayam (why not ****b**arivraḍ ayam?*)	-- (why not?)	--	--	--	--

- o How can we deal with intermediate domains (p-phrase, intonational phrase)?

- o Selkirk proposes that all rules are domain-span, domain-juncture, or domain-limit, as given above. Does this limitation on rules follow from the prosodic hierarchy, or must it be an additional stipulation? How about in lexical phonology?

C. *Case study: Italian (N&V, various chapters—I don't know if there's one dialect with all)*
(13) Utterance-span rule: Gorgia Toscana (Tuscan variety)
- Rules for utterance construction thought to allow lots of variation and to be similar or identical across languages.
- Utterance ≈ sentence, but sentences can combine into an utterance if they're in certain semantic relationships.

N&V treat Gorgia Toscana as an intonational-phrase-span rule, but say that their data show occasional spirantization across intonational-phrase boundaries, too. Vogel 1997[2] treats the rule as utterance-span.

$$\begin{Bmatrix} p \\ t \\ k \end{Bmatrix} \rightarrow \begin{Bmatrix} \phi \\ \theta \\ h \end{Bmatrix} / \overbrace{\left(...[-\text{cons}] \underline{\quad} [-\text{cons}]... \right)}^{\text{utterance}}$$

[((lo 'sai   **h**o'm ɛ dif'fiʃile)ᵢₚ (**h**o'noʃʃe k'kweste 'hɔse)ᵢₚ)]
        /k/   /k/   /k/
   it know how is difficult   know   these   things
   'You know how difficult it is to know these things.'

(medial IP boundaries assumed because of "filled pause" (final lengthening) in this token—data from Vogel 1997 p. 66, but originally from others)

o   What would this look like with boundary symbols? Lexical phonology?

(14) Intonational phrase?
* Rules for intonational-phrase construction thought to allow lots of variation and to be similar or identical across languages.
* Parenthetical items, nonrestrictive relatives, tag questions, vocatives, exclamations, and some dislocated items tend strongly to form intonational phrases. Items in a list may also form intonational phrases, and what would otherwise be long intonational phrases may be broken down into smaller units that respect p-phrase boundaries.

Unclear whether there's a good example for this domain—N&V give data where Tuscan Intervocalic Spirantization applies within but not across intonational phrases:

((Santo [ʃ]elo)ᵢₚ ([tʃ]'e un verme in questa [ʃ]ilie[ʒ]a)ᵢₚ)ᵤ
         /tʃ/   /tʃ/ /dʒ/
   holy   sky   there's a worm in this   cherry
   'Good heavens, there's a worm in this cherry.'

$$\begin{Bmatrix} t\int \\ d\mathsf{3} \end{Bmatrix} \rightarrow \begin{Bmatrix} \int \\ \mathsf{3} \end{Bmatrix} / \overbrace{\left(...[-\text{cons}] \underline{\quad} [-\text{cons}]... \right)}^{\text{intonational phrase}}$$

...but Vogel 1997, without mentioning Intervocalic Spirantization, says that "rules that were originally interpreted as IPh rules are more accurately analysed as PU [phonological utterance] rules, and that the IPh only serves as the domain of intonational contours, not phonological rules" (p. 65) so perhaps the situation is the same as with Gorgia Toscana.

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[2] Irene Vogel (1997). Prosodic Phonology. In M. Maiden & M. Parry (eds.) *The Dialects of Italy*. London: Routledge.

(15) Phonological-phrase-span rule: Northern Italian Stress Retraction
- Rules for phonological-phrase construction thought to allow little variation and to differ parametrically across languages (chief parameter: direction of p-phrase formation, thought to be derivable from syntax).
- Italian: Moving from right to left, start a p-phrase with a constituent containing a lexical head X (prepositions don't count; copulas and auxiliary verbs are iffy) and end it when you hit a constituent containing a lexical head outside of X's maximal projection (or the beginning of a sentence). Optionally, if X's complement forms a non-branching (i.e., single-word) p-phrase to the right of X, join it into X's p-phrase.

(16) English examples (same rule as Italian)

(Jennifer)$_\varphi$(discovered)$_\varphi$(that her attic)$_\varphi$(had been invaded)$_\varphi$(last winter)$_\varphi$(by a family)$_\varphi$(of squirrels)$_\varphi$
(The barriers)$_\varphi$(boxed [ɪ]n)$_\varphi$(the crowd)$_\varphi$
(The sluggers)$_\varphi$(boxed)$_\varphi$([ə/Ø]n the crowd)$_\varphi$

[I've been glossing over this, but for every domain, N&V label one daughter as metrically strong (usu. left- or rightmost). For English, the rightmost member of the p-phrase is strong. When *in* is the strong element of its p-phrase, it resists reduction; when *in* is weak with respect to *crowd*, it undergoes Selkirk's "Monosyllable Rule" that reduces weak, monosyllabic function words.]

Restructuring: the English Rhythm Rule is p-phrase-span: *thìrtéen mén → thírtèen mén*

      (My sister)$_\varphi$(còmmandéers)$_\varphi$(trúcks)$_\varphi$(for fun)$_\varphi$
or   (My sister)$_\varphi$(cómmandèers trúcks)$_\varphi$(for fun)$_\varphi$
      (My sister)$_\varphi$(còmmandéered)$_\varphi$(Hárry's trúck)$_\varphi$(this morning)$_\varphi$
but   ??(My sister)$_\varphi$(cómmandèered Hárry's trúck)$_\varphi$(this morning)$_\varphi$ *(the fact that* Harry *is metrically subordinate to* truck *is perhaps a confound...)*

(Data like this are subtle enough that we probably don't want to rely on intuition like this—but the above is the prediction anyway.)

(17) Back to Northern Italian Stress Retraction

      (Sára   státa ammazzata)$_\varphi$ (la vipera)$_\varphi$ < *sará*
      will.have been killed   the adder
      'the adder has probably been killed.'

      (le cittá)$_\varphi$(mólto nórdiche)$_\varphi$(non mi piacciono)$_\varphi$ *(*cítta)*
      the cities very nordic   not me please
      'I don't like very Nordic cities.'

      (le cítta   nórdiche)$_\varphi$(non mi piacciono)$_\varphi$ *(*cítta)*
      the cities nordic   not me please
      'I don't like Nordic cities.'

- What would this look like with boundary symbols? Lexical phonology?

(18) P-word domain rule: primary stress
- Rules for p-word construction thought to allow little variation and to differ across languages.
- Italian: each stem forms its own p-word; suffixes are included, but not prefixes, unless fossilized or consonant-final (we'll reconsider the prefix question when we look at intervocalic *s*-voicing).

Italian primary stress is partly unpredictable, but must fall on one of the last three syllables. Primary stress can be diagnosed by...

Vowel Raising: [ɛ], [ɔ] are allowed only in primary-stressed syllables:

(stem)ω	t[ɔ́]sta	'toast'
(stem suffix)ω	t[ò]sta-tóre	'toaster'
(stem)ω (stem)ω	t[ɔ́]sta-páne	'bread toaster' (*toast bread*)

Vowel Lengthening: vowels in primary-stressed, open, nonfinal syllables lengthen

(stem)ω	p[á:]pero	'duck'
(stem)ω *(prefix is fossilized)*	p[à]ramétrico	'parametric'
(stem suffix)ω	abbai[á:]-va	'(it) was barking'
(prefix)ω (stem)ω	p[á:]ra-milit[á:]re	'paramilitary'
(stem)ω (stem)ω	c[á:]po-p[ó:]polo	'chief'

Also *s*-voicing, which we'll discuss in detail next week.

II. Other jobs of the prosodic hierarchy

A. *Domain of initial strengthening*
Fougeron & Keating (1997)[3] (see there too for brief literature review): explicitly compares domain-initial, -medial, and -final positions for utterance, intonational phrase, p-phrase, and p-word.

"Reiterant speech" versions, using the syllable "no", of sentences like "(89+89)*(89+89) = a lot":
(((((eighty-nine)ω)φ((plus)ω(eighty-nine)ω)φ((times)ω)φ((eighty-nine)ω)φ((plus)ω(eighty-nine)ω)φ)IP(=a lot)IP)U

Linguopalatal contact for [n] (% electrodes in electropalate contacted) was greater in initial position (left-side graphs) for utterance, intonational phrase, and phonological phrase, though not so much for p-word.

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[3] Cécile Fougeron & Patricia Keating (1997). Articulatory strengthening at edges of prosodic domains. *JASA* 101: 3728-3740.
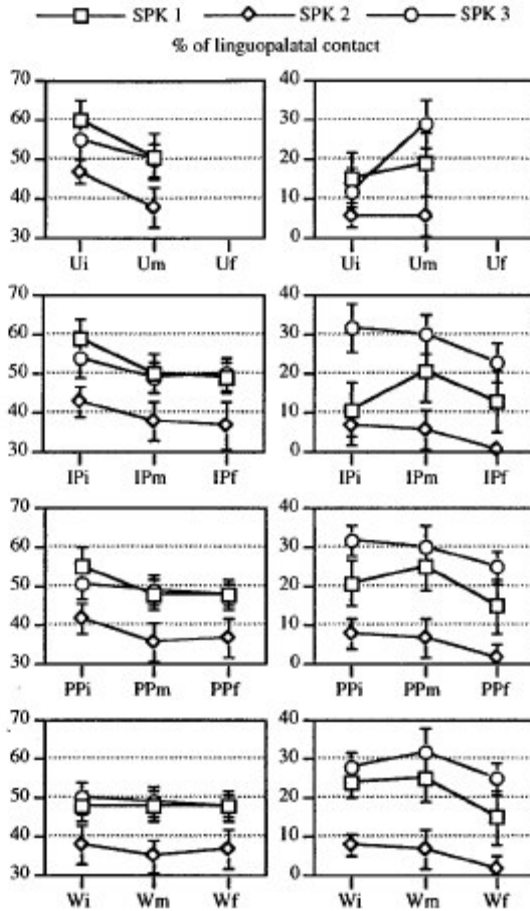
FIG. 3. Maximum linguopalatal contact for /n/'s (left) and minimum linguopalatal contact for /o/'s (right) in three positions (initial, medial, final) in each of the four prosodic domains (utterance, intonational phrase, phonological phrase, word). Speaker results are shown separately within each panel. See Table II for significance of comparisons. All data from all speakers are included here, coded exclusively. A more extreme articulation is more contact for /n/ and less contact for /o/.

(p. 3732)

B. *Domain of final lengthening*

Notice in the right-side graphs above that contact is less for [o] in final position of the three measurable domains—i.e., the vowel is lower or backer. Could reflect final lengthening.

A frequently-cited word on final lengthening is Wightman & al. 1992[4]—see next page.

0 ≈ word-clitic boundary	3 ≈ p-phrase or intermediate-phrase boundary
1 ≈ p-word boundary	4 ≈ intonational-phrase boundary
2 ≈ accentual-phrase boundary	5 ≈ "superior major tone group" boundary
	6 ≈ utterance boundary

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[4] Colin Wightman, Stefanie Shattuck-Hufnagel, Mari Ostendorf, Patti J. Prince (1992). Segmental durations in the vicinity of prosodic phrase boundaries. *JASA* 91: 1707-1717.
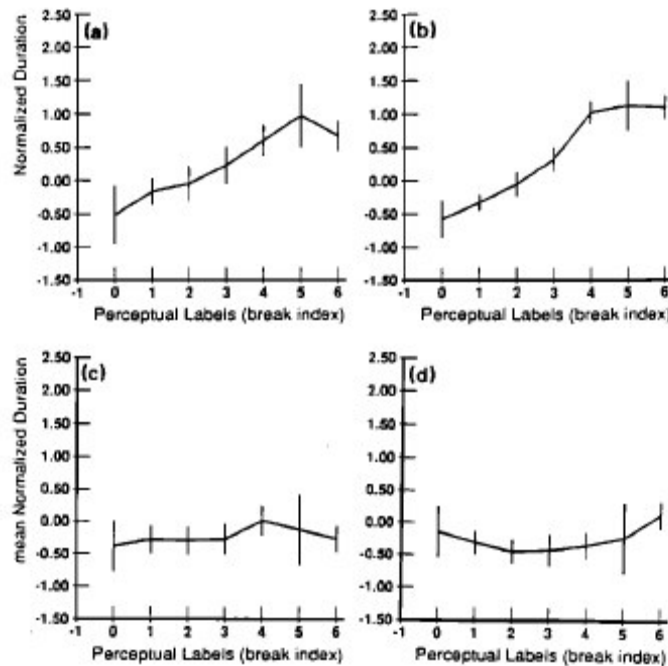
10

FIG. 4. Mean normalized duration versus the break index of the largest perceived boundary within a foot plotted for four preboundary regions within the foot: (a) The coda consonants of the last syllable before the boundary, (b) the vowel nucleus of the final syllable before the boundary, (c) all segments between the final stressed vowel and the final vowel, and (d) the final stressed vowel before the boundary. Cases (c) and (d) occur only when the word-final vowel is unstressed. The vertical bars correspond to confidence intervals: If the mean at one index is above or below the bar associated with another, the difference in lengthening associated with those two indices is statistically significant (95% protection level).   (p. 1714)

C. Intonation

Sun-Ah offers a whole course on this, so all I'll say is that, as you know, boundary tones are aligned with the edges of utterances and intonational phrases (and maybe other units like accentual phrases).

D. Phonotactic domain

The syllable and, less often the foot are sometimes proposed as the domains over which certain phonotactic—i.e., static—generalizations hold. Less common as a domain is the p-word.

Booij 1999:[5] Dutch prohibition on non-prevocalic obstruent-liquid sequences—can't be a property of (root) morphemes, because it's violated within some bound roots (p. 50):

      (cele**br**-eer)$_\omega$ 'to celebrate'
      (emi**gr**-eer)$_\omega$ 'to emigrate'

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[5] Geert Booij (1999). The role of the prosodic word in phonotactic generalizations. In T. Alan Hall (ed.) *Studies on the Phonological Word*. Amsterdam/Philadelphia: John Benjamins.

Dutch prohibition on $C_i\partial C_i$ (pp. 56-57):

(stem suffix)$_\omega$	(sted-[ə]ling)$_\omega$	'city dweller'	*(ka**l-[ə]l**ing)$_\omega$	'bald person'
	(sted-[ə]lijk)$_\omega$	'city-'	*(taa**l-[ə]l**ijk)$_\omega$	'linguistic'
(stem)$_\omega$ (stem)$_\omega$			(formu**l[ə])-(l**ijst)	'formula list'
			(fina**l[ə])-(l**ied)	'final song'

We'll see more in the Dutch case study next week.

E. Stress assignment
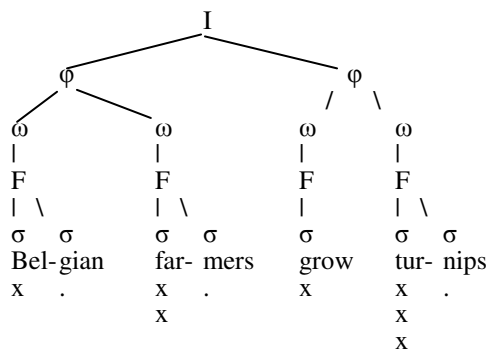
<u>syllable</u>: may bear stress, but doesn't have to
<u>foot</u>: may bear stress, but doesn't have to
<u>p-word</u>: must bear stress (in stress languages)
<u>p-phrase</u>: can be domain of stress-adjustment rules (English, Italian examples above)
<u>p-phrase and higher</u>: relative prominence is assigned to the stresses contained within the domain

```
                    I
           _____/ _____
          φ                   φ
        / | \               / \
       ω   ω             ω     ω
       |   |             |     |
       F   F             F     F
       |\  |\            |     |\
       σ σ σ  σ          σ     σ  σ
      Bel-gian far- mers grow  tur- nips
       x  .   x   .      x     x  .
       x              x
                              x
```
adapted from Hayes (1995)[6]

F. Prosodic morphology

(19) Dutch coordinate reduction (see N&V pp. 137-138)

land en tuinbouw	< (land)$_\omega$(bouw)$_\omega$ en tuinbow	'agri- and horticulture'
een elf, twaalfjarige jongen	< een (elf)$_\omega$(jarige)$_\omega$, twaalfjarige jongen	'an 11-, 12-year-old boy'
twee en drieteningen	< (twee)$_\omega$(tenigen)$_\omega$ en drietenigen	'two- and three-toed (ones)'
*blauw- en rodig	< (blauw-ig)$_\omega$ en rod-ig	'blue- and reddish'
*absurd- en banaliteit	< (absurd-iteit)$_\omega$ en banal-iteit	'absurd- and banality'

(20) Diyari (and many others) reduplication (McCarthy Prince 1986/1996[7] p. 28)

wiḻa	wiḻa-wiḻa	'woman'
kanku	kanku-kanku	'boy'
kuɭkuŋa	kuɭku-kuɭkuŋa	'to jump'
tʲilparku	tʲilpa-tʲilparku	'bird sp.'
ŋankan̪ṭi	ŋanka-ŋankan̪ṭi	'catfish'

McCarthy & Prince describe the reduplication pattern as copying the minimal p-word in Diyari, which must be at least a foot (which, in Diyari, must be disyllabic). Why not say that a foot is copied? Because while feet in general may be consonant-final in Diyari, p-words may not.

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[6] Bruce Hayes (1995). *Metrical Stress Theory: principles and case studies*. Chicago: University of Chicago Press.
[7] John McCarthy & Alan Prince (1986/1996). Prosodic Morphology 1986. Ms., UMass Amherst and Rutgers University.