

Phonology 3

stæjndʒ wimən laɪŋ in p^hændz dɪstɪbjuəriŋ soʊdʒ ɪz nɔw beɪsɪs fəɪ ə sɪstəm əv
gʌvəmənt

jə mʌðə wəz ə hæmstə, ænd jə fɑðə smelt əv eldəbeɪɪz

ɑɪ juw səgdʒestɪŋ k^howkənʌts məɪgɹeɪt?

wʌt sæd t^hajmz ɑɪ ðɪz, wɛn p^hæsiŋ ʌfɪjənz kæn seɪ nɪj æt wɪl tuw old leɪdɪz

juw mʌst k^hʌt daʊn ðə məɪtɪjəst tɹɪj ɪn ðə fɔɹəst wɪθ ə heɪɪŋ

wʌt ɪz ði eɪspɪɪd vələsəriɪ əv ən ʌnleɪdən swalɔw?

--mantɪj p^hajθən ænd ðə hoʊlɪj gɹeɪl

Arabic definite article

ʔal-qamr ‘the moon’

ʔal-faras ‘the mare’

ʔal-kitaab ‘the book’

ʔal-harb ‘the war’

ʔal-ʔab ‘the father’

ʔaʃ-ʃams ‘the sun’

ʔad-daar ‘the house’

ʔaz-zajt ‘the oil’

ʔan-nahr ‘the river’

ʔaθ-θawb ‘the garment’

(“moon letters”: q, f, k, h, ʔ...)

(“sun letters”: ʃ, d, z, n, θ...)

Coronal

bilabial	p	b	m	w			
labiodental						f	v
interdental						θ	ð
alveolar	t	d	n	l	r	s	z
postalveolar						ʃ	ʒ
palatal				j			
velar	k	g	ŋ				
uvular	q						
glottal	ʔ					h	

coronal: articulated with the tongue tip or blade

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ʔaʃ-ʃams, ʔad-**d**aar, ʔaz-**z**ajt, ʔan-**n**ahr, ʔaθ-**θ**awb...

ʔal-**q**amr, ʔal-**f**aras, ʔal-**k**itaab, ʔal-**h**arb, ʔal-ʔab...

Coronal

A rule for the Arabic definite article:

$$[l] \rightarrow C_i / \text{---} C_{i, [+coronal]}$$

(notice that [l] is also coronal...)

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(notice that [l] is also coronal...)

assimilation rule: one sound becomes more like another sound.

(saves wear and tear on articulators, and probably makes perception easier, too...)

Another assimilation rule

inedible

impossible

i[ɨ]credible...

Vowel harmony again

(remember vowel harmony?)

Vowel harmony again

Finnish vowel inventory:

	front	back
high	[i], [y]	[u]
mid	[e], [ø]	[o]
low	[æ]	[ɑ]

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[perhee-llæ] ‘at the family’

Vowel harmony again

Finnish vowel inventory:

	front	back	
high	[i], [y]	[u]	Notice that if a vowel is not round, and not low, it's front.
mid	[e], [ø]	[o]	
low	[æ]	[ɑ]	

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front

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high [i], [y]

[u]

mid [e], [ø]

[o]

low [æ]

[ɑ]

One way to think about this: there's a rule saying "give all the vowels in the word the same value for [back]...but don't create non-Finnish vowels"

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“Give all the vowels in the word the same value for [back]...but don't create any non-Finnish vowels (u, x)”

Remember Optimality Theory?

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Remember Optimality Theory?

*[+back, -round, -low] > *[\alpha back] ... [-\alpha back]

(“The most important thing is not to create back, nonlow, unrounded vowels. But as long as you don't do that, make sure all the vowels have the same value for [back]”)

“Feature spreading”

One popular approach to phenomena like vowel harmony involves allowing a feature of a sound to appear in multiple places.

p ø y d æ l l æ

Here’s the Finnish word for ‘on the table’ again...

“Feature spreading”

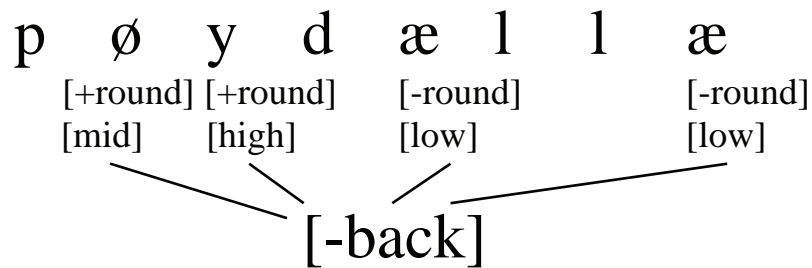
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p	ø	y	d	æ	l	l	æ
[+round]	[+round]			[-round]			[-round]
[mid]	[high]			[low]			[low]
[-back]	[-back]			[-back]			[-back]

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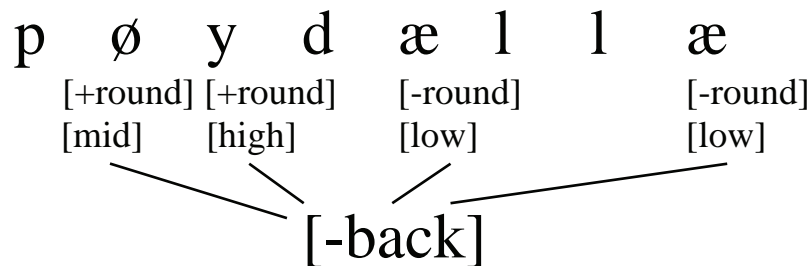
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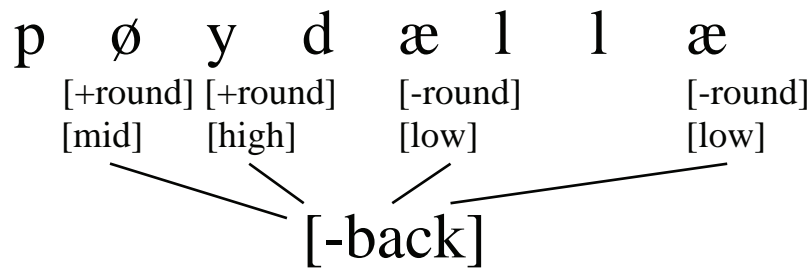
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It’s as though there’s only one [back] feature in the word, and all the vowels share it (at least, the ones that can...)

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Autosegmental Representation



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Another (much rarer) kind of harmony (Navajo)

ni-sé-ne'	'I played'
ni-sé-łkáá'	'I investigated it'
sé-zí'	'I stood'
ni-síní-ne'	'You played'
ni-síní-łkáá'	'You investigated it'
síní-zí'	'You stood'
ni-soo-ne'	'You two played'
ni-soo-łkáá'	'You two investigated it'
soo-zí'	'You two stood'

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ǰé-łbééz	'I boiled it'
ǰíní-łbééz	'You boiled it'
ǰoo-łbééz	'You two boiled it'

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ni-sé-ne'	'I played'	ni-sis-'na'	'I crawled around'
ni-síní-ne'	'You played'	ni-síní-'na'	'You crawled'
ni-soo-ne'	'You two played'	ni-soo-'na'	'You 2 crawled'
sé-zì'	'I stood'		
síní-zì'	'You stood'		
soo-zì'	'You two stood'		
ʃé-łbééʒ	'I boiled it'	ni-ʃif-nif	'I worked'
ʃíní-łbééʒ	'You boiled it'	ni-ʃíní-łnif	'You worked'
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ʃoo-łbééʒ	'You two boiled it'	ni-ʃoo-łnif	'You 2 worked'

Sibilant harmony: if there's a sibilant ([s], [z], [ʃ], [ʒ]) in the verb stem, then any sibilants in the subject prefix must match it.

More Navajo...

na-**ni**-né ‘**You** are playing’

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na- ni -né	‘ You are playing’	
naa- -né	‘ I am playing’	(na > naa, never mind why)
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ne- ii ’-né	‘ We two are playing’	(ii’ < iid)

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na- ni - l kaah	‘ You are investigating it’	

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More Navajo...

$$\int_{C_1} C_2 \rightarrow \int_{C_2}$$

(naa \int -łkaah \rightarrow naa \int kaah)

More Navajo...

$\int C_1 C_2 \rightarrow \int C_2$ (naaʃ-łkaah \rightarrow naaʃkaah)

$h C_1 C_2 \rightarrow C_{1[-voice]} C_2$ (naoh-lniʃ \rightarrow nao-łniʃ)

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*CCC!

(and: keep just the [voice] feature of the first C if you can; otherwise, delete the second C)

More work for ranked constraints: Stress

We've already talked about stress (it was part of the flapping rule)

(á[r]om, a[t^h]ómic)

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Important for intonation...

(“vocative chant”: *Laura! Pierre!*)

In languages in which a word has one fixed position for stress...
(data from WALS database, 282 relevant languages)

- 33% First syllable (e.g., Hungarian)
- 6% Second syllable (e.g., Dakota)
- <1% Third syllable (one example, Hocak)
- 18% Last (*ultimate*) syllable (e.g., French)
- 39% next-to-last (*penultimate*) syllable (e.g., Zulu, Polish)
- 4% *Antepenultimate* syllable (e.g., Georgian, Macedonian)

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Other easy-to-imagine systems don't exist;
for example, there are no languages with the rule 'stress the
syllable closest to the middle of the word'

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“Put stress as far (right, left) in the word as possible”

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We could capture these patterns with constraints saying things like;
“Don’t stress the (last, first, last two, first two) syllables”
“Put stress as far (right, left) in the word as possible”

There are other kinds of systems with multiple stresses in the word...

Pintupi

páña	‘arth’	v	v				
tjúɬaya	‘many’	v	v	v			
m ɭawàna	‘through from behind’	v	v	v	v		
púɭiŋkàlatju	‘w (sat) on th hill’	v	v	v	v	v	
tj mulìmpatjùŋku	‘our relation’	v	v	v	v	v	v
kúranjùlulìmpatjùɭa	‘the first relation’	v	v	v	v	v	v v
yúmaɭiŋkamàratjùɭaka	‘because of mother-in-law’	v	v	v	v	v	v v v v

There are other kinds of systems with multiple stresses in the word...

Passamaquoddy

túpqan	‘dirt’	v	v						
tùpqánok	‘in the dirt’	v	v	v					
wìcuhkémal	‘s/he helps h/’	v	v	v	v				
wìcùhkekému	‘s/he helps’	v	v	v	v	v			
wìcuhkètahámal	‘s/he thinks about helping h/’	v	v	v	v	v	v		
tèhsàhqapàsultíne	‘let’s walk around on top’	v	v	v	v	v	v	v	v

“stress the first syllable” >

“don’t stress the last syllable” >

“don’t allow two unstressed syllables in a row” >

“don’t allow two stressed syllables in a row”

There are other kinds of systems with multiple stresses in the word...

Tauya

nò ^ó	‘child’	v	v			
ù ^{netá}	‘mat’	v	v	v		
mò ^{mù} nepá	‘X sat and...’	v	v	v	v	
jà ^{patì} jəfó	‘my hand’	v	v	v	v	v

“stress the first syllable”, and

“stress the last syllable” >

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Another kind of stress system will have to include constraints that make reference to particular morphemes.

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(consider English *eléctric*, *electrícity*)

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górod	‘town’	oré <u>x</u>	‘nut’
górodu	‘town (dative sg.)’	oré <u>xu</u>	‘nut (dat. sg.)’
gorod <u>ám</u>	‘town (dative pl.)’	oré <u>xam</u>	‘nut (dat. pl.)’

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gorod <u>á</u> m	‘town (dative pl.)’	or <u>é</u> x <u>a</u> m	‘nut (dat. pl.)’

One way to think about this: a Russian morpheme can have a “lexical accent” as part of its specification, and then we need constraints like:

“only have one stress” > “stress lexical accents” >
“make stress as far left as possible”

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ʃokírvaar ‘Friday’

A vowel followed by 2 consonants also gets stress

arv áazi ‘door’

*If there’s a long vowel **and** a vowel followed by two consonants, stress the long vowel*

We can fruitfully think of Kashmiri stress in terms of ranked constraints...

“Don’t have more than one stress” >

“Don’t stress the final syllable” >

“Stress long vowels” >

“Stress vowels with multiple consonants after them” >

“Put stress as far to the left in the word as possible”

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24.900 Introduction to Linguistics Spring 2022Á

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