

Week 8: Syllables

1. Representations

- Periods: 'magnificent' mæg.nɪ.fə.sənt
- Trees:



2. Syllabification varies somewhat from language to language but not a whole lot

3. Universal: Onset preference

Given a string containing at least one or more intervocalic consonants at least one must belong to the syllable containing the second vowel

$VCV \rightarrow V.CV$ and not $*VC.V$

$VC_1C_2V \rightarrow VC_1.C_2V$ or $V.C_1C_2V$ but not $*VC_1C_2.V$

4. Syllabifying intervocalic consonant clusters

In deciding how to syllabify VC_1C_2V , a useful diagnostic is to determine whether the cluster is found at the beginning of words. If it isn't, then syllabify as $VC_1.C_2V$. If it is, then you can't be sure; some languages syllabify as $V.C_1C_2V$, but others as $VC_1.C_2V$

5. Example: English

$VtrV$ in 'atrocious'

$/tr/$ occurs initially in many words, e.g. 'troll', 'try', 'tremendous', etc.

Conclusion: syllabification in 'atrocious' is $V.trV$

6. However, $VtrV$ in Ilokano word [kwatro] 'four' is syllabified as $[Vt.rV]$ even though $/tr/$ occurs initially in words like [tres] 'three'

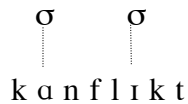
7. In absence of evidence to contrary assume the following:

- VC_1C_2V syllabified as $VC_1.C_2V$
- Also, assume $VC:V$ syllabified as $VC.:V$

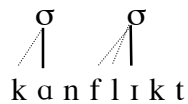
8. For syllabifying VC₁C₂C₃V follow same procedure as syllabifying VC₁C₂V; if the C₁C₂C₃ cluster exists at beginning of words, syllabify all three as onset (usually); if C₂C₃ occur in word-initial position, syllabify them as onset; otherwise syllabify only C₃ as onset.

9. Procedure for syllabifying

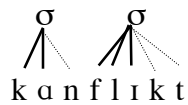
- Assign every vowel its own syllable



- Join consonants to the following syllable provided the resulting cluster can occur at the beginning of a word



- Join any remaining consonants to the preceding syllable



10. Word boundaries and syllables

- In certain languages, word boundaries must coincide with syllable boundaries

e.g. German

‘Das ist ein alter Adler’ [das]_{word}[ɪst]_{word}[aɪn]_{word}[altəʁ]_{word}[adlɛʁ]_{word}
 ‘That is an old eagle’ das.ɪst.aɪn.al.təʁ.ad.lɛʁ

- In other languages, sounds belonging to different words can be part of the same syllable

e.g. Spanish

‘Los otros estaban en el avion’ [los]_{word}[otros]_{word}[estaban]_{word}[en]_{word}[el]_{word}[avion]_{word}
 ‘The others were on the airplane’ lo.so.tro.ses.ta.βa.ne.ne.la.βjon

11. Parts of the syllable

Onset: the consonant or sequence of consonants at the beginning of a syllable

Coda: the consonant or sequence of consonants at the end of a syllable

Nucleus/Peak: the vowel or diphthong in the middle of the syllable

12. Cross-linguistic distribution of syllable types

- The most basic syllable type (found in all languages) is CV
- Languages differ in terms of whether they allow onset and/or coda clusters and how complex they may be.
- Languages differ in whether they allow onsetless syllables

Glottal epenthesis repairs onsetless syllables

German 'Das ist ein alter Adler' das.ʔist.ʔam.ʔal.təʁ.ʔad.ləʁ

13. Variation in syllable types (modified from Blevins 1995)

	V	CV	CVC	VC	CCV	CCVC	CVCC	VCC	CCVCC	CVCCC
Hawai'ian	no	yes	no	no	no	no	no	no	no	no
Cayuvava	yes	yes	no	no	no	no	no	no	no	no
Cairene	no	yes	yes	no	no	no	no	no	no	no
Mazateco	yes	yes	no	no	yes	no	no	no	no	no
Mokilese	yes	yes	yes	yes	no	no	no	no	no	no
Sedang	no	yes	yes	no	yes	yes	no	no	no	no
Klamath	no	yes	yes	no	no	no	yes	no	no	yes
Spanish	yes	yes	yes	yes	yes	yes	no	no	no	no
Finnish	yes	yes	yes	yes	yes	no	no	yes	no	no
Totonac	no	yes	yes	no	yes	yes	yes	no	yes	yes
English	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes

14. Languages differ in terms of how sonorous a sound must be to serve as a nucleus (modified from Blevins 1995)

	← Sonority →							
	More	Non-High V	High V	Rhotics	Laterals	Nasals	Fricatives	Less
								Stops
Kabardian	yes	no	no	no	no	no	no	no
Hawai'ian	yes	yes	----	no	no	no	----	no
Sanskrit	yes	yes	yes	no	no	no	no	no
Lendu	yes	yes	yes	yes	no	no	no	no
English	yes	yes	yes	yes	yes	no	no	no
Central Carrier	yes	yes	----	----	yes	yes	no	no
Imdlawn Tashlhiyt Berber	yes	yes	yes	yes	yes	yes	yes	yes

15. Onset Fortition and Coda Lenition

- **Fortition** = narrowing of constriction in oral tract
- **Lenition** = widening of constriction in oral tract

16. Onset Fortition

Argentinian Spanish: $j \rightarrow ʒ / \text{[syll } _]$
 lej ‘law’ vs. le.ʒes ‘laws’
 kom.boj ‘convoy’ vs. kom.bo.ʒes ‘convoys’

17. Coda lenition

Hupa (optional): $\eta \rightarrow \text{ũ} / _ \text{[syll]}$
 ni.ʌɔη ‘it is good’ optionally realized as ni.ʌɔũ

18. Coda deletion

French: $[+\text{nasal}] \rightarrow \emptyset / _ \text{[syll]}$
 ‘good-masc’ /bɔn/ → [bɔ̃]
 ‘goodness’ /bɔn.te/ → [bɔ̃.te]
 ‘good-fem’ /bɔ.nə/ → [bɔn]

19. Coda neutralization

Syllable-final laryngeal neutralization

German: In onset position, /b, p/ contrast occurs; in coda position, contrast neutralized to /p/
 Thai: In onset position, /b, p, p^h/ contrast occurs; in coda position, contrast neutralized to /p/

20. Epenthesis as syllable repair: Yawelmani Yokuts

Might V	Future II	Nonfuture	‘having V’ed’	Future I	Verbal Noun	gloss
paʔtal	paʔten	paʔithin	paʔitmi	paʔitnit	paʔit	‘fight’
ʔilkal	ʔilken	ʔilikhin	ʔilikmi	ʔiliknit	ʔilik	‘sing’
lihmal	lihmen	lihimhin	lihimmi	lihimnit	lihim	‘run’
ʔajjal	ʔajjen	ʔajjihin	ʔajjimi	ʔajjnit	ʔajij	‘pole a boat’

Might = al
 Future II = en
 Nonfuture = hin
 Having = mi
 Future I = nit
 Verbal Noun = root minus [i]

21. Generalization: Vowel /i/ intervenes between final two consonants of root when root is word-final or before suffix beginning with a consonant

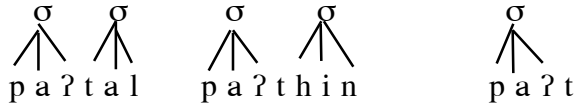
22. Epenthesis: $\emptyset \rightarrow i / C _ C\{C, \text{[word]}\}$

/paʔt+al/	/paʔt+hin/	/paʔt/	Underlying
----	paʔithin	paʔit	Epenthesis
[paʔtal]	[paʔithin]	[paʔit]	Surface

23. Why the rule can be improved if syllable structure is invoked

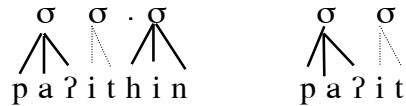
- Two environments can be collapsed as single rule
- Link is established between epenthesis and generalization that syllables may have a single onset and a single coda.

24. Epenthesis as syllable repair



25. Epenthesis (revised):

$\emptyset \rightarrow i / _ C'$ where C' indicates an unsyllabified consonant



Week 8 (continued): Abstractness

1. Phonological analyses assume a single underlying form which rule apply to yielding a surface form
2. Thus far, sounds we have posited in our underlying forms have always occurred in at least one surface form
3. Some phonologists have developed analyses in which certain underlying sounds *never* surface; this is an “abstract” analysis
4. An abstract analysis of Polish
5. Two classes of data

- Class I: [e] alternates with zero

sveter	‘sweater’	svetr-i	‘sweater nom.pl.’
vjader	‘pail gen.pl.’	vjad-r-o	‘pail nom.sg.’
meander	‘meander’	meandr-a	‘meander gen.sg.’
bimber	‘moonshine’	bimbr-u	‘moonshine gen.sg.’
sen	‘dream’	sn-u	‘dream gen.sg.’
mex	‘moss’	mx-u	‘moss gen.sg.’

- Class II: [e] does not alternate with zero

krater	‘crater’	krater-i	‘crater nom.pl.’
lider	‘leader’	lider-a	‘leader gen.sg.’
teren	‘terrain’	teren-u	‘terrain gen.sg.’

ʃmer	‘rustle’	ʃmer-u	‘rustle gen.sg.’
bʲes	‘devil’	bʲes-a	‘devil gen.sg.’
kret	‘mole’	kret-a	‘mole gen.sg.’

6. Two hypotheses

- Syncope: fails because of near minimal pairs like [svetr-ɨ] vs. [krater-ɨ]: why doesn't syncope apply in the Class II words?
- Epenthesis: seems to work, if we assume that the Class I words insert [e] in certain contexts whereas the Class II words start out with their vowels.

7. In fact, we need two epenthesis rules

- $\emptyset \rightarrow e / C _ r]_{\text{word}}$
- $\emptyset \rightarrow e / [C_0 _ C]_{\text{word}}$

8. Epenthesis would be natural as a rule, particularly in the environments where it happens in Polish; in a C + liquid cluster and in a monosyllabic word in which there would otherwise be no vowel

9. *But, epenthesis doesn't work, as we see in the following set of words.*

Class III

teatr	‘theater’
metr	‘meter’
vʲatr	‘wind, gale’
litr	‘liter’
ʃifr	‘cipher, code’

10. Thus, we have three sets of forms

- Non-alternating always with [e] (Class II)
- Non-alternating always without [e] (Class III)
- Alternating between [e] and zero (Class I)

Neither epenthesis nor syncope work as rules

11. An abstract analysis of Polish assumes that the alternating vowels are underlyingly a third type of vowel

12. Six surface vowels

i, e, a, o, u, ɨ

13. A seventh vowel /ɨ/ is present only underlyingly; this vowel is called a ‘jer’ [je.ɨ]

14. [e] alternating with \emptyset = underlying /i/
 Non-alternating [e] = underlying /e/
 Non-alternating \emptyset = underlying \emptyset

15. Rules

- Jer Lowering
 $/i/ \rightarrow e / _ C_0]_{\text{word}}$
- Jer Deletion
 $/i/ \rightarrow \emptyset$

Jer Lowering must apply before Jer Deletion

16. Some derivations

Class I		Class II		Class III	
/svetr̩/	/svetr̩-i/	/krater̩/	/krater̩-i/	/litr̩/	Underlying
sveter	----	----	----	----	Jer Lowering
----	svetr̩	----	----	----	Jer Deletion
[sveter]	[svetr̩]	[krater̩]	[krater̩i]	[litr̩]	Surface

17. This analysis is abstract, since it requires children to invent the jers in order to handle the data: *Is this realistic or not??*

18. The jer analysis actually recapitulates history; Proto-Slavic had extra high lax vowels which were subsequently lowered and those which did not were deleted just as in the synchronic jer analysis

19. But, children have no access to knowledge about the history of the language; thus, the history offers no validation for the synchronic analysis

20. A concretist alternative analysis of the Polish data (Gorecka)

21. The alternation between [e] and zero is in fact the result of epenthesis and Class III words which don't undergo epenthesis are exceptions

22. This analysis finds plausibility in certain facts

- The alternations are limited to certain environments; in fact, natural ones for epenthesis to apply in; if the alternating vowels were underlying a separate vowel, it would be strange that this vowel only surfaces in certain contexts
- innovating dialects do insert vowels in Class III words, e.g. [v^jatr̩] realized as [v^jater̩]

23. Abstractness in English (see Chomsky and Halle 1968)

'giraffe'	
/dʒəˈræfə/	underlying
dʒəˈræfə	Stress Assignment
dʒəˈræfə	Degemination
dʒəˈræf	$\epsilon \rightarrow \emptyset / _]_{\text{word}}$

24. Though abstract, the rules are all “sensible”

- Stress on CVC penult
- No geminates in English
- No word-final [ɛ] in English