Week 5: Features and Morphological Decomposition

1 Santiago Laxopa Zapotec

Santiago Laxopa Zapotec (SLZ; *Dille'xhunh Laxup* [di˩ʒe̋ʔ˩ʐun˩ l:a˩ʂ:up^{h}˥]) is a variety of Zapotec spoken by about 1000 people in the town of Santiago Laxopa, Oaxaca, Mexico. It is a member of the Zapotecan language family, which is part of the larger Oto-Manguean language family.

Table 1: Consonant inventory for Santiago Laxopa Zapotec

	bilabial	alveolar	post-alveolar	retroflex	palatal	velar	labio-velar	uvular
stop	pː b	tː d				kː g	kʷː gʷ	
fricative		sː z	ʃː ʒ	ʂː ʐ	çː			ʁ
affricate		t͡sː d͡z	t͡ʃː					
nasal	mː	nː n						
lateral		lː l						
trill		rː						
approximate							w	

SLZ has a four phonemic vowels and three phonation types, which are shown in Table 2.[1]

Table 2: Vowel qualities in Santiago Laxopa Zapotec.

	front	central	back
high	i i̤ ḭ		u ṳ ṵ
mid	e e̤ ḛ		
low		a a̤ a̰	

SLZ also has a number of phonemic tones that are realized as differences in pitch. There are a total of five tones: High (˥), Mid (˧), Low (˩), Rising (˧˥), Falling (˥˩), which won't be discussed in this handout.

2 Natural Classes

Some natural classes (for this language) are listed below. For each natural class, Provide the features that define the class. Remember to use the least number of features possible.

[1] The high back vowel /u/ is realized as [o] in some contexts, but this is not phonemic and is restricted to certain lexical items. Additionally, older speakers tend to realize /u/ as [o] in all contexts, while younger speakers have a more stable realization of /u/ as [u] save for a few lexical items like *me'edo'* [mːe̤do̰ʔ] 'baby'.

Additionally, there is a fourth phonemic phonation type: checked. The checked vowels are realized as a complex segment consisting of a vowel followed by a glottal stop, (e.g., /a͡ʔ/). These will not be discussed in this handout.

1. [pː, tː, kː, kʷː, sː, ʃː, ʂː, çː, t͡sː, t͡ʃː] [+long, -voice, -sonorant]
2. [mː, nː, lː, rː] [+long, +sonorant, -syllabic]
3. [b, d, g, gʷ, z, ʒ, ʐ, d͡ʒ, ʁ, n, l] [-long, +voice, -sonorant]
4. [i, e, i̱, e̱, i̱, e̱] [+syllabic, +high, +front]
5. [z, ʒ, ʐ] [-long, +voice, +continuant, +strident]

3 Listing Segments

List all the segments that belong to the following natural classes.

1. [+labial] [pː, b, mː, m, kʷː, gʷ, w]
2. [+long, +sonorant] [mː, nː, lː, rː]
3. [+continuant, -long] [l, z, ʒ, ʐ, ʁ]
4. [+syllabic, +high, -constricted glottis, -spread glottis] [i, u]
5. [+syllabic, -high, -low, -constricted glottis, +spread glottis] [e̱]
6. [+dorsal, +round, -syllabic] [kʷː, gʷ, w]
7. [+dorsal, +back, -high, +continuant, -syllabic] [ʁ]
8. [+coronal, -long, -continuant, +delayed release] [d͡ʒ]

4 Rules

Write rules to capture the following generalizations. Use as few features as possible to pick out all and only the relevant inputs, outputs, and environments.

1. Long obstruents become short and aspirated word finally (e.g., /tːapː/ → [tːapʰ] ‘four’; /çːetː/ → [çːetʰ] ‘tortilla’)
   [+long, -sonorant] → [-long, +spread glottis] / __ #
2. Voiced obstruents become devoiced and fricatives word finally (e.g., /ʂːa̱g/ → [ʂːa̱x] ‘topil’; /pːad͡ʒiuʐ/ → [pːad͡ʒiuʂ] ‘hello/goodbye’)
   [+voice, -sonorant] → [-voice, +delayed release, +continuant] / __ #[2]
3. Long sonorants become voiceless when they are word initial and followed by a consonant (e.g., /rːmːed͡ʒʁw/ → [r̥ːmːed͡ʒʁw̥] ‘medicine’; /lːnːi/ → [l̥ːnːi] ‘party’)
   [+long, +sonorant] → [-voice] / # __ [-syllabic]

[2]Note: This rule also predicts that voiced affricates will become voiceless fricatives word finally, The /d͡ʒ actually just devoices. We can mention this

4. Obstruents agree in voicing with the following obstruent (e.g., /btːiʂ̬e̬/ ⟶ [ptːiʂːe̬] ‘trogon’; /ʂː-ʒin=a͡ʔ/ ⟶ [z̬ːʒina͡ʔ] ‘my work’)
   [-sonorant] ⟶ [αvoice] / __ [αvoice, -sonorant]

5 Morphological Decomposition

Isthmus Zapotec ([dɪɬd͡ʒaɬˈzaˑɬ]), is an Oto-Manguean language spoken in Oaxaca, Mexico by 104,000 speakers on the Isthmus of Tehuantepec.

(1)

a. [palu] ‘stick’	g. [spalube] ‘his stick’	m. [spalulu] ‘your stick’
b. [kuːba] ‘dough’	h. [skubabe] ‘his dough’	n. [skubalu] ‘your dough’
c. [tapa] ‘four’	i. [stapabe] ‘his four’	o. [stapalulu] ‘your four’
d. [geta] ‘tortilla’	j. [sketabe] ‘his tortilla’	p. [sketalulu] ‘your tortilla’
e. [bere] ‘chicken’	k. [sperebe] ‘his chicken’	q. [sperele] ‘your chicken’
f. [doʔo] ‘rope’	l. [stoʔobe] ‘his rope’	r. [stoʔole] ‘your rope’

Using the data above, answer the following questions:

1. Isolate the morphemes in the data above for the following morphemes:
   (a) Possessive marker: [s-]
   (b) Third-person singular: [-ba]
   (c) Second-person plural: [-lu]
2. What are the allomorphs for the following morphemes?
   (a) stick: [palu]
   (b) dough: [kuba]
   (c) four: [tapa]
   (d) tortilla: [geta] [keta]
   (e) chicken: [bere] [pere]
   (f) rope: [doʔo] [toʔo]
3. What phonological rule accounts for the alternations in the data above? Write the rule in the form of a phonological rule using features.
   [-sonorant] ⟶ [-voice] / [+del. rel., +continuent, +strident, -voice]__