1. Homework 3

15 *Tamil* (Tamil is a Dravidian language spoken in South India and Sri Lanka.)
In the following Tamil data, some words begin with glides while others do not. The symbol [ɖ] represents a voiced retroflex stop and the diacritic [̪] indicates dentals.

Initial j-glide			*Initial w-glide*			*No initial glide*		
a)	jeli	'rat'	f)	woɖi	'break'	k)	arivu	'knowledge'
b)	ji:	'fly'	g)	wo:laj	'palm leaf'	l)	aiṇ̪ṯu	'five'
c)	jilaj	'leaf'	h)	wu:si	'needle'	m)	a:saj	'desire'
d)	jeŋge:	'where'	i)	wujir	'life'	n)	a:ru	'river'
e)	jiɖuppu	'waist'	j)	wo:ram	'edge'	o)	a:di	'origin'

How do we define the environments?
[j] before [i e]
[w] before [u o]
Ø before [a]

i) The occurrence of these glides is predictable. Using your knowledge of natural classes, make a general statement about the distribution of the glides. (Refer to Section 2.)

ii) Assuming the glides are not present in the underlying representations, name the process that accounts for their presence in the phonetic forms. (Refer to Section 6.3.)

II. Polish

On the basis of the data in a. and b. we proposed the rule of word-final devoicing for Polish:

WFD: [-son] → [-voice] / __ #

1. Propose a rule to account for vowel alternations in c. The rule needs to use features.
2. Are the rules of WFD devoicing and the one you just proposed ordered?
3. Show derivations of 'cat,' 'club,' and 'ice' to support your analysis.

a. *Voiceless*	[trup]	'corpse'	[trupɨ]	'corpses'	/u/
	[wuk]	'bow'	[wukɨ]	'bows'	
	[kot]	'cat'	[kotɨ]	'cats'	/o/
	[sok]	'juice'	[sokɨ]	'juices'	
	[dom]	'house'	[domɨ]	'houses'	
b. *Voiced*	[klup]	'club'	[klubɨ]	'clubs'	/u/
	[trut]	'labor'	[trudɨ]	'labors'	
	[wuk]	'lye'	[wugɨ]	'lyes'	
	[vos]	'cart'	[vozɨ]	'carts'	/o/
c. *Voiced*	[lut]	'ice'	[lodɨ]	'ices'	
	[ruk]	'horn'	[rogɨ]	'horns'	/?/
	[ʒwup]	'crib'	[ʒwobɨ]	'cribs'	

III. Extra credit: Turkish vowel harmony

In class we have formulated a backness harmony rule which accounts for the alternations in the plural in Turkish. The rule was stated as follows:

(1) *Backness harmony*: $[-\text{cons}] \rightarrow [\alpha\text{back}] / \begin{bmatrix} -\text{cons} \\ \alpha\text{back} \end{bmatrix} C^{2}_{1} \_\_$

Your task now is to account for the alternations in the accusative. Write a rule (let's call it a *rounding harmony* rule) which, together with the rule in (1), will account for the data in (2).

(2)

noun	*plural*	*accusative*	*gloss*
dal	dallar	dalɯ	'branch'
kol	kollar	kolu	'arm'
kɯz	kɯzlar	kɯzɯ	'girl'
kul	kullar	kulu	'slave'
jel	jeller	jeli	'wind'
gøl	gøller	gøly	'sea'
diʃ	diʃler	diʃi	'tooth'
gyl	gyller	gyly	'rose'

What's wrong with this rule?

$$\begin{bmatrix} +\text{syllabic} \end{bmatrix} \rightarrow \begin{bmatrix} \alpha\text{ round} \end{bmatrix} / \begin{bmatrix} +\text{syllabic} \\ \alpha\text{ round} \end{bmatrix} C_1 \_\_$$

(1) Polish: List of environments

	[u]	/o/	[o]	/u/
(c)	lud	(b) voz(ɨ)	(c) lodɨ	(b) klub(ɨ)
	rug		rogɨ	trud(ɨ)
	ʒwub		ʒwobɨ	wug(ɨ)
		(a) kot(ɨ)		(a) trup(ɨ)
		sok(ɨ)		wuk(ɨ)
		dom(ɨ)		

(2) Find the (obvious, serious) error in each rule. Which environment is the best?

a. Before voiced stop
1. Raising
2. WF Devoicing
(counterbleeding)

$$o \rightarrow u \;/\; \_ \begin{bmatrix} +\text{voice} \\ -\text{nasal} \\ -\text{continuant} \end{bmatrix} \#$$

ex. /kot/, /sok/
ex. /dom/
ex. /voz/
and # ex. /vozɨ/…

b. Betw. sonorant and WF consonant
- WF Devoicing
- Raising
(unordered)

$$\begin{bmatrix} +\text{syll} \\ -\text{high} \end{bmatrix} \rightarrow \begin{bmatrix} +\text{syll} \\ +\text{high} \end{bmatrix} \;/\; \begin{bmatrix} +\text{sonorant} \end{bmatrix} \_ \text{C} \,]_{\sigma}$$

ex. [vos] … *ex. /vozɨ/…*

c. Betw. sonorant and voiceless C
1. WF Devoicing
2. Raising
(feeding)

$$\begin{bmatrix} +\text{syll} \\ +\text{low} \end{bmatrix} \rightarrow [+\text{high}] \;/\; [+\text{sonorant}] \_ [-\text{voice}]$$

ex. [vos] … *ex. [vozɨ] …*

d. Betw. voiced C and stop
- WF Devoicing
- Raising
(unordered)

$$\begin{bmatrix} +\text{syll} \\ -\text{high} \end{bmatrix} \rightarrow [+\text{high}] \;/\; \begin{bmatrix} +\text{consonant} \\ +\text{voice} \end{bmatrix} \_ [+\text{stop}]$$

ex. [kot], [sok] *ex. [dom], [vos]*

(3) What makes a good rule?

a. Works for ALL the data!
   - Try not to overspecify. (Sensible) assumptions about data you haven't seen yet are good. But for this class, we'll understand if you're not sure what makes an assumption sensible.
   - Try not to include redundant information in your rule. But again, for this class, we'll understand if you don't have time to cross out the unnecessary parts of your rule.

b. Simple: natural classes (IPA categories) and environments (neighbours, like with like)
   - Omits redundant information
   - Rules with only phonological conditions are simpler than rules which include morphological conditions.

c. Phonetically natural changes, e.g. glides are vowels with maximal constriction

2. Morphology

(4) Pronouns in Bazaar Malay (Malay-based pidgin spoken in Singapore)

a. [gwa] 'I, me'
b. [lu] 'you (SG)'
c. [dia] 'he, him, she, her, it'
d. [kita] 'us (including you)'
e. [lu oraŋ] 'you (PL)'
f. [dia oraŋ] 'they, them'
g. [kami] 'us (excluding you)'

_____ _____ _____

_____ _____ _____

(5) Simple or complex? *If complex, identify bound morphemes and roots, and draw tree structure.*

a. actionable
b. prefix
c. reform

d. rely
e. equine
f. serenity

3. Review

(6) Transcription

a. luxury _____
b. suggest _____
c. singer _____
d. strength _____
e. whiter _____
f. wider _____
g. palm _____
h. father _____
i. cot _____
j. caught _____
k. cure _____
l. poor _____
m. syrup _____
n. sir _____
o. hero _____
p. clear _____
q. orange _____
r. door _____
s. hurry _____
t. merry _____
u. Mary _____
v. marry _____

(7) **IPA categories and features.** Describe each natural class using IPA categories and features.
English contrasts /ptk bdg tʃdʒ fv θð sz ʃʒ mnŋ lɹ jw h/ *and* /iɪeɛæ ʌə uʊoɔa/

a. /ptk bdg tʃdʒ fv θð sz ʃʒ h/ _____

b. /pb fv m w/ _____

c. /ptk bdg/ _____

d. /fv θð sz ʃʒ h/ _____

e. /ʌə uʊoɔa/ _____

f. /eo/ _____

(8) **Rule ordering in Lardil (Pama-Nyungan family, Australia – Prince & Smolensky 1993: 110)**
There are two rules. What's the order? **C Loss:** Stops, nasals, glides (not liquids). **V Loss:** All V.
You don't need to know how to write this C Loss rule in features. It's a very strange class of consonants.

Underlying Stem	•Nominative•	Nonfut. Acc.	Fut. Acc.	Gloss	
a. **C** Loss from Stem					
ŋalu**k**	ŋalu	ŋalu**k**-in	ŋalu**k**-uɻ	'story'	438
wuŋkunu**ŋ**	wuŋkunu	wuŋkunu**ŋ**-in	wuŋkunu**ŋ**-kuɻ	'queen-fish'	438
waŋal**k**	waŋal	waŋal**k**-in	waŋal**k**-uɻ	'boomerang'	438
b. **V** Loss from Stem					
yiliyil**i**	yiliyil	yiliyil**i**-n	yiliyil**i**-wuɻ	'oyster sp.'	424
mayař**a**	mayař	mayař**a**-n	mayař**a**-ɻ	'rainbow'	424
c. **CV** Loss from Stem					
yukař**pa**	yukař	yukař**pa**-n	yukař**pa**-ɻ	'husband'	424
wuɻalt^{y}**i**	wuɻal	wuɻalt^{y}**i**-n	wuɻalt^{y}**i**-wuɻ	'meat'	424
ŋawuŋa**wu**	ŋawuŋa	ŋawuŋa**wu**-n	ŋawuŋa**wu**-ɻ	'termite'	425
muřkuni**ma**	muřkuni	muřkuni**ma**-n	muřkini**ma**-ɻ	'nullah'	425
d. **CCV** Loss from Stem					
muŋkumu**ŋku**	muŋkumu	muŋkumu**ŋku**-n	muŋkumu**ŋku**-ɻ	'wooden axe'	425
t^{y}umput^{y}u**mpu**	t^{y}umput^{y}u	t^{y}umput^{y}u**mpu**-n	t^{y}umput^{y}u**mpu**-ɻ	'dragonfly'	425

References

Prince, Alan & Paul Smolensky (1993). *Optimality Theory: Constraint interaction in generative grammar.* New Brunswick, NJ: Rutgers University Center for Cognitive Science. Available on Rutgers Optimality Archive as ROA 537.

Midterm 1 will cover Chapter 1 of the textbook and the last class before the exam.