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The questions sum up to 80 points. You get 20 points just for submitting the exam. (Total = 100 pts)

The midterm exam is due on Monday, May 11 at 8AM. No late submission will be allowed.

We can answer to clarification questions via email until Friday, May 8 at 6PM. After that, we'll not answer to any questions regarding the exam.

You can either handwrite your answer and scan it or type directly on the .pdf file.

### 1 Short Answer (10 pts)

(1) Please explain why phonologists posit abstract underlying representations for words.   
 Phonologists posit underlying representations as they are a way to account for variation in phonemes as they appear in a language. Phonological rules apply to these underlying forms in specific environments, which alter the surface form of phonemes. Underlying forms are a good way to account for variation which cannot be explained by a rule.

### 2 Contrast and allophones (20 pts)

The following data from Ganda exemplify the complementary distribution of [r] and [l].

kōla	'do'	wulira	'hear'	ōluganda	'Ganda language'		
wawa:bira	'accuse'	olulimi	'tongue'	lagira	'command'		
ebendera	'flag'	lu:la	'ruler'	le:rwe	'railway'		
sa:fali	'safari'	lwana	'lwana'	be:ra	'help'		is/elsewhere
bu:lira	'tell'	ɔgukira	'remember'	lja	'eat'	L	ɾ
erjato	'canoe'	lu:la	'sit'	omuliro	'fire'	o_ɾ	i_ɾ e:_w
omugole	'bride'	effirimbi	'whistle'	lumonde	'sweet potato'	a_i	e_ɾ e:_ɾ
emme:ri	'ship'	eddwaliro	'hospital'	eraddu	'lightning'	o_e	e_j
						o_u u_i	e:_i
						#_ɾ u_ɾ	i:_i
						#_j #_w	i:_i
						#_u	i_0

(2) State a generalization about where [r] and [l] are found.

[r] is found after front tense vowels, whereas [l] is found elsewhere

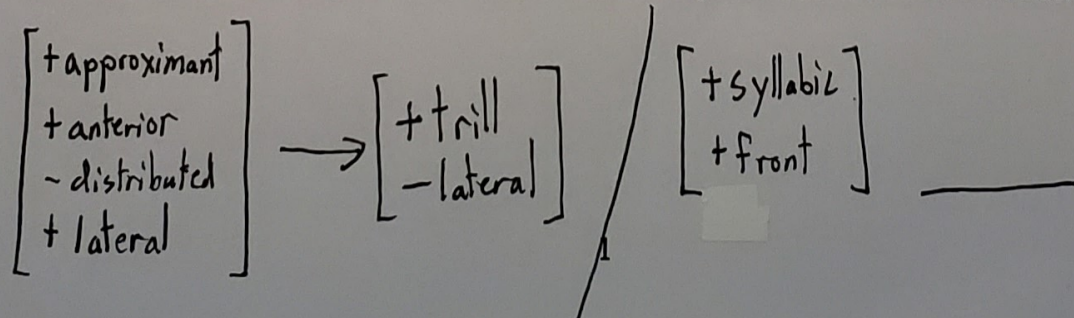
(3) Which allophone is more basic (= underlying form) in Ganda, [r] or [l]? Explain your answer.

[l] is the underlying form, as it is found in a greater variety of dissimilar environments that cannot be explained in a single rule (beginning of words, after mid and back vowels)

(4) What are the underlying representations for:

'sit' /lu:la/ 'whistle' /effirimbi/ 'accuse' /wawa:bila/ 'command' /lagira/

(5) Write a rule for deriving the distribution of Ganda liquids. Use distinctive features.





### Underlying representations (25 pts)

The following words are some examples of numerals in Tibetan.

ཅིག	'one'	ཅུ	'ten'	ཅུ་ལྔ	'nineteen'
ཏི	'four'	ཅུ་ལྔ་ཅིག	'eleven'	ཏེ་ཅུ	'forty'
ཉམ	'five'	ཅུ་བཞི	'fourteen'	ཉམ་ཅུ	'fifty'
གུ	'nine'	ཅུ་ཉམ	'fifteen'	གུ་ཅུ	'ninety'

10 - 1

4 - 10

10 - 4

10 - 5

10 - 9

(6) What kind of syllables does Tibetan have? State schematically using the C/V bracket notation (as in "(C)VC").

CV(C)

in Tibetan, morphemes can have clusters, but syllables cannot

(7) What is the order of morphemes in Tibetan numerals for teens (e.g., 14) and for multiples of ten (e.g., 40)?

"14" 10 - 4 "40" 4 - 10  
 teens: 10 - X      tens: X - 10

(8) State a descriptive generalization about the phonological alternation you see in this problem.

~~The~~ Number morphemes in Tibetan alternate between 2 surface forms: when they are not word-initial, they ~~lose~~ <sup>begin with</sup> consonant clusters, but when they are the initial consonant is deleted.

(9) What are the underlying representations and allomorphs for:

	UR	Allomorphs
'one'	/gɕiŋ/	[gɕiŋ] [ɕiŋ]
'ten'	/bɕu/	[bɕu] [ɕu]
'four'	/bɕi/	[bɕi] [ɕi]
'five'	/ŋa/	[ŋa]
'nine'	/rgu/	[rgu] [gu]

(10) Write the rule that derives this pattern.

[+consonantal] → ∅ / # \_ [+consonantal]



### 4 Rules and rule interactions (25 pts)

The following paradigms from Catalan (simplified for this question) show evidence of two rules.

Masc sg	Fem sg	Gloss	Masc sg	Fem sg	Gloss
əkəɫ	əkəɫə	'that'	səɣu	səɣurə	'sure'
nu	nuə	'nude'	sərəðo	sərəðorə	'reaper'
ʃop	ʃopə	'drenched'	siβil	siβilə	'civil'
əspes	əspesə	'thick'	fər	førtə	'strong'
baf	bafə	'short'	sor	sorðə	'deaf'
→ tot	totə	'all'	san	santə	'saint'
pək	pəkə	'little'	əlβi	əlβinə	'albino'
mal	malə	'bad'	pla	planə	'level'
kru	kruə	'raw'	sərə	sərənə	'calm'
əskep	əskepə	'shy'	al	altə	'tall'
sek	sekə	'dry'	prufun	prufundə	'deep'
gros	grosə	'large'	kur	kurtə	'short'
koʃ	koʃə	'lame'	bər	bərðə	'green'
→ brut	brutə	'dirty'	kələn	kələntə	'hot'
suβlim	suβlimə	'sublime'	fəkun	fəkundə	'bad'
maksim	maksimə	'maximal'	dəsən	dəsəntə	'decent'

Handwritten notes:   
 dental / ~~alveolar~~   
 n t d ʃ r

(11) What are the underlying representations for the masculine forms of:

'all' /tot/ 'sure' /səɣur/ 'civil' /siβil/   
 'strong' /fɔrt/ 'level' /plan/ 'deep' /prufund/

(12) State the two rules of Catalan in prose.

Rule 1: [n] and [r] are deleted in word-final position

Rule 2: word-final consonants are deleted following a sonorant consonant

(13) Now formalize your two rules in terms of distinctive features, and give them names.

	Name of the rule	Rule with distinctive features
Rule 1	Nasal & Trill Deletion	$\left[ \begin{matrix} +\text{coronal} \\ +\text{sonorant} \\ -\text{dorsal} \end{matrix} \right] \rightarrow \emptyset / \_ \#$
Rule 2	Cluster simplification (aka George's Law)	$[+\text{consonantal}] \rightarrow \emptyset / \left[ \begin{matrix} +\text{consonantal} \\ +\text{sonorant} \end{matrix} \right] \_ \#$

(continue on next page)



(14) How are these rules ordered with respect to each other? Support your answer with a derivation for masculine forms of 'all', 'sure', 'civil', and 'strong' below. What kind of interaction is this?

	'all (masc.)'	'sure (masc.)'	'civil (masc.)'	'strong(masc.)'
UR	tot	səɣur	siβil	fɔrt
Nasal/Trill Deletion	tot	səɣu	siβil	fɔrt
Cluster simplification	tot	səɣu	siβil	fɔr
Surface form	tot	səɣu	siβil	fɔr

Rule ordering type: counterfeeding

(15) Now, show a derivation with the opposite (incorrect) order and give the hypothesized surface forms that the opposite (incorrect) order would produce. What kind of interaction is this?

	'all (masc.)'	'sure (masc.)'	'civil (masc.)'	'strong(masc.)'
UR	tot	səɣur	siβil	fɔrt
Cluster simplification	tot	səɣur	siβil	fɔr
Nasal/Trill Deletion	tɔt	səɣu	siβil	fɔ
Surface form	tɔt	səɣu	siβil	fɔ

Rule ordering type: feeding

X