Rethinking Geminates, Long-distance Geminates, and the OCP

Sharon Rose (2000)

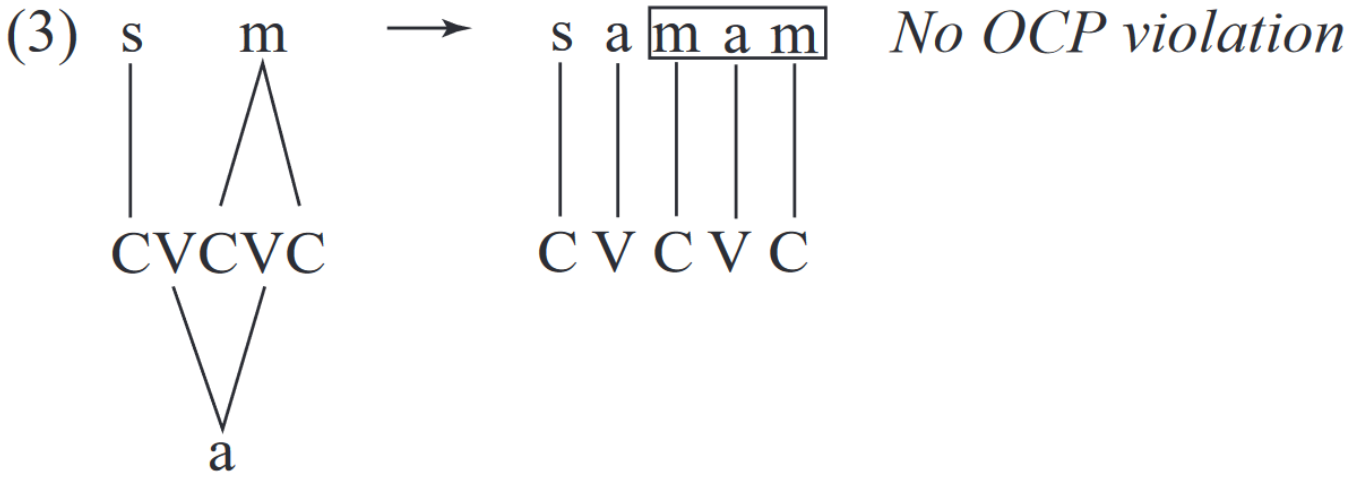
Introduction

- Rose aims to give a detailed account of the ways the OCP can be violated, and to what degree, using Optimality Theory
- She will use primarily the patterns of geminates in Semitic languages to illustrate

- Section 2 illustrates a set parameters for the OCP: place of articulation, adjacency restrictions, and morphological domains
- Section 3 shows how antigemination is handled by OT in Semitic languages
- Section 4.2 shows the importance of domain restrictions on the OCP, and distinctions between true and fake geminates in Tigrinya

Long-Distance Gemination in Semitic Languages

- Biconsonantal roots map left to right on a multiconsonantal template
- Consonant and vowel tiers are conflated, and a long-distance geminate is created that does not violate the OCP



Optimality Theory

- An alternative to derivations
- A ranked set of constraints interacts on an input (the underlying, phonemic form) to account for the output (the realization).

(31) *madda* 'he stretched'

/madad-a/	OCP	MAX$_{IO}$	NO-GEM
☞ a. madda		*	*
b. madada	*!		

*Classical Arabic

Section 2: Gutturals in Ethio-Semitic

- In 2.7 Rose says that the behavior of gutturals in Tigrinya and Tigre can be accounted for by a constraint against moraic gutturals
  - Prevents them from appearing as geminates or codas (except word-finally)
  - Epenthetic [a] is inserted to prevent guttural codas
- She also says that guttural sequences like *saʔaʔ-* are ruled out by the version of the OCP she puts forward.

Section 2: Gutturals in Ethio-Semitic

[ʔ h ʕ ħ]

- Guttural consonants in Ethio-Semitic languages resist gemination

(5)

	Type A	*Type B*		
	'whip'	'hurt'	'pull'	
Imperfective	yɨ-gərrɨf	yɨ-bɨddɨl	yɨ-sɨħɨb	(*yɨ-sɨħħɨb)
Passive imperfective	yɨ-gɨrrəf	yɨ-bɨddəl	yɨ-ssaħab	(*yɨ-saħħab)
Causative imperfective	yə-gɨrrɨf	yə-bəddɨl	yə-sħɨb	(*yə-saħħɨb)

- Roots shaped CG and GC are allowed and can be reduplicated in their entirety, however, final doubling of the guttural is not allowed
  - **saʔaʔ*

Section 2: Gutturals in Ethio-Semitic

- A simple ban on double linking of gutturals cannot account for instances where different gutturals are banned in the verb root, such as

  Caħaʔ- or *CaʕaH-*

- Tigre also disallows guttural juxtaposition across morpheme boundaries

(9)

	Singular	*Plural*		
a.	ʔɨkɨl	ʔakal	*ʔa-ʔkul	‘corn, crop’
b.	ħabɨl	ħabɨllɨt	*ʔa-ħbul	‘rope’
c.	ħɨwar	ħawrət	*ʔa-ħwur	‘foal, small donkey, camel’
d.	ħarɨb	ħarɨb	*ʔa-ħrub/*ʔa-ħarrɨb	‘water-skin’
e.	ħakɨl	ħakɨllɨt	*ʔa-ħakul/*ʔa-ħakkɨl	‘hoe’

- Rose concludes the relevant environment is two gutturals separated by a vowel, and the OCP must apply across that vowel

Section 2: Gutturals in Ethio-Semitic

- Rose points out some exceptions in Tigre
  - Negative marker /ʔi-/ and 3rd person possessive /-hu/

    ʔi-ʔi-məzzɨn *sɨmʕa-hu*

    - She claims ONSET dominates the OCP in these cases, so the gutturals remain
  - Frequentative verb forms
    - An infix /a/ is inserted before the penultimate consonant, which is reduplicated to make the beginning of the infix

(12) a.	dəgma	'tell, relate'	dəga:gəma	'tell stories occasionally'
b.	gərfa	'whip'	gəra:rəfa	'whip a little'
c.	baʔasa	'fight'	baʔa:ʔasa	'fight a little'
d.	saʕana	'load'	saʕa:ʕana	'load a little'

    - Rose claims that MAX-BR and IDENT-BR dominate the OCP

Section 2: Gutturals in Ethio-Semitic

- Tigrinya allows guttural sequences across morpheme boundaries

(14)

	Regular		*Causative*	
a.	ʕayyənə	'spoil'	ʔa-ʕayyənə	'cause to spoil'
b.	ʔasərə	'arrest'	ʔa-ʔ^{a}sərə	'cause to arrest'
c.	ʕaddəgə	'buy'	ʔa-ʕaddəgə	'cause to buy'

- As we saw earlier, Tigre does not

(9)

	Singular	*Plural*		
a.	ʔɨkɨl	ʔakal	*ʔa-ʔkul	'corn, crop'
b.	ħabɨl	ħabɨllɨt	*ʔa-ħbul	'rope'
c.	ħɨwar	ħawrət	*ʔa-ħwur	'foal, small donkey, camel'
d.	ħarɨb	ħarɨb	*ʔa-ħrub/*ʔa-ħarrɨb	'water-skin'
e.	ħakɨl	ħakɨllɨt	*ʔa-ħakul/*ʔa-ħakkɨl	'hoe'

- Rose concludes that the OCP can be restricted to certain morphological domains

Section 2: Gutturals in Ethio-Semitic

- The OCP is weakened by intervening consonants, and applies on a gradient based on the consonants similarity to one another

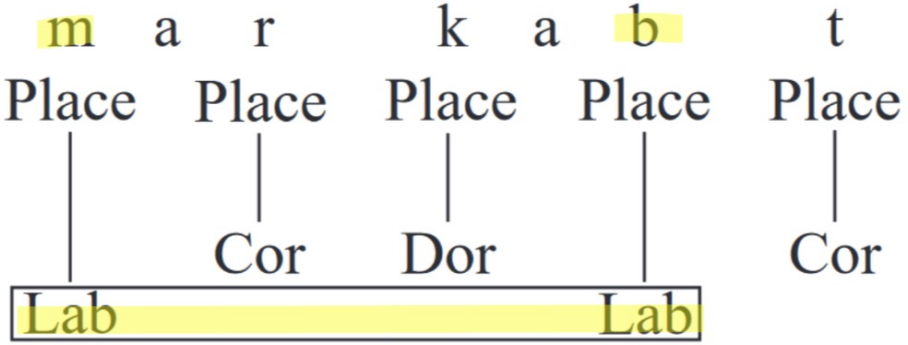
(16) a. ʕarʕa ‘cause someone to pasture cattle’
b. ʔarʔa ‘shove’
c. ħasʕa ‘lack butter/milk in food; be dry due to lack of oil’
d. ħanʔa ‘twist ankle, leg’
e. hadʔa ‘calm down’

- (Pierrehumbert 1993), (Frisch, Broe, Pierrehumbert 1997)
- (Buckley 1997)

Section 2: Gutturals in Ethio-Semitic

- When the OCP is applied to features and not segments, a tier-based approach predicts consonants not specified for that feature shouldn't block the OCP from applying

(18)



*Akkadian: the attested form is *narkabt*

- In Tigre, however, they do.

(16) a. ʕarʔa 'cause someone to pasture cattle'
b. ʔarʔa 'shove'
c. ħasʕa 'lack butter/milk in food; be dry due to lack of oil'
d. ħanʔa 'twist ankle, leg'
e. hadʔa 'calm down'

Section 2: Gutturals in Ethio-Semitic

- Rose cites Odden's adjacency parameters and suggests a new one:
  - Root adjacency
  - Syllable adjacency
  - Unbounded adjacency
  - **Consonant adjacency**
    - Two consonants in sequence are adjacent irrespective of intervening vowels
    - Applies to CC, if the consonants are nonidentical
    - If they are identical, Rose will claim in Section 3 they are geminates and do not violate the OCP

(9)

	Singular	*Plural*		
a.	ʔɨkɨl	ʔakal	*ʔa-ʔkul	'corn, crop'
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Section 2: Gutturals in Ethio-Semitic

- The OCP in Tigrinya and Tigre:
  - Applies based on place of articulation
  - Applies based on consonant adjacency
  - Applies to certain morphological domains; the stem in Tigrinya, the word in Tigre
  - Can be ranked as follows:

(20) OCP/PHARYNGEAL ≫ TEMPLATE ≫ OCP/VELAR, OCP/LABIAL ≫ OCP/CORONAL

Section 2: Gutturals in Ethio-Semitic

- Rose also says that a constraint against moraic gutturals accounts for the lack of guttural codas and geminates
  - **saʔaʔ*

(9)

	Singular	*Plural*			
a.	ʔɨkɨl	ʔakal	*ʔa-ʔkul	**ʔa-ʔ^{a}kul*	'corn, crop'

Section 3: Antigemination

- Antigemination: a phonological rule is resisted if the result would violate the OCP by creating a sequence of adjacent identical segments
  - E.g. epenthesis, syncope
- Afar resists syncope between identical consonants

(21) a.	digib-t-é	'she married'	e. digb-é		'he married'
b.	wager-t-é	'she reconciled'	f. wagr-é		'he reconciled'
c.	xarar-t-é	'she burned'	g. xarar-é	*xarré	'he burned'
d.	danan-t-é	'she was hurt'	h. danan-é	*danné	'he was hurt'

- Classical Arabic can either metathesize or syncopate a vowel between two identical consonants

(23) a.	katab-tu	'I wrote'	d. katab-a	'he wrote'
b.	samam-tu	'I poisoned'	e. samm-a	'he poisoned'
c.	madad-tu	'I stretched'	f. madd-a	'he stretched'

- The OCP is thought to apply after Tier Conflation in Afar, and before it in Classical Arabic

Section 3: Antigemination

- Rose assumes:
  - A surface sequence C_1 V C_1 violates the OCP under consonant adjacency
  - Any surface sequence C_1C_1 in a given domain is a geminate and does not violate the OCP
- For Classical Arabic, she proposes the constraint ranking:
  - OCP >> MaxIO, NO-GEM
  - NO-GEM is a ban on long consonants

(31) *madda* 'he stretched'

/madad-a/	OCP	MAX_{IO}	NO-GEM
☞ a. madda		*	*
b. madada	*!		

Section 3: Antigemination

- For Afar, she proposes the following constraint ranking:
  - NO-GEM >> Delete >> MaxIO, OCP
  - Delete is an informal constraint to capture the syncope that occurs in regular Afar verbs

(33) *digbe* 'he married'

/digib-e/	DELETE	MAX_{IO}
a. digibe	*!	
☞ b. digbe		*

(34) *danane* 'he was hurt'

/danan-e/	NO-GEM	DELETE	MAX_{IO}	OCP
☞ a. danane		*		*
b. danne	*!		*	

Section 3: Antigemination

- When a biliteral verb root reduplicates its final consonant, Chaha inserts a vowel to prevent a geminate, while Muher allows the geminate

(37)

	Root	*Imperfective*	
Muher	sd	yɨ-səd**d**-ɨm^{w}-t	'they (m.) chase'
	mz	yɨ-məz**z**-ɨm^{w}-t	'they (m.) extract from a bundle'
	df	y-a-dəf**f**-ɨm^{w}-t	'they (m.) lie in wait'
Chaha	sd	yɨ-sədɨ**d**-o	'they (m.) chase'
	mz	yɨ-məzɨ**z**-o	'they (m.) extract from a bundle'
	df	y-a-dəfɨ**f**-o	'they (m.) lie in wait'

(38) *yɨsədɨdo* 'they (m.) chase'

/yɨ-səd$_i$d$_i$-o/	NO-GEM	DEP$_{IO}$	OCP
☞ a. yɨsədɨd-o		*	*
b. yɨsədd-o	*!		

Section 3: Antigemination

(39) a. *Delete a vowel unless flanking Cs are identical* (Afar)
NO-GEM ≫ DELETE ≫ MAX, OCP
NO-GEM ≫ DELETE, OCP ≫ MAX

b. *Delete a vowel blindly* (Hindi, Klamath, Maltese Arabic, Akkadian)
DELETE ≫ MAX, NO-GEM, OCP

c. *Delete a vowel only if flanking Cs are identical* (Classical Arabic, Koya, Telugu)
OCP ≫ MAX, NO-GEM ≫ DELETE
OCP ≫ MAX ≫ DELETE, NO-GEM

(40) a. *Insert a vowel unless flanking Cs are identical* (Palestinian Arabic)
OCP ≫ INSERT ≫ DEP, NO-GEM
OCP ≫ INSERT, NO-GEM ≫ DEP

b. *Insert a vowel blindly* (Yimas, Chukchi, Hua)
INSERT ≫ DEP, NO-GEM, OCP

c. *Insert a vowel only if flanking Cs are identical* (Chaha, Lenakel)
NO-GEM ≫ DEP ≫ INSERT, OCP
NO-GEM ≫ DEP, OCP ≫ INSERT

Section 4: Fake vs. True Geminates

- True geminates are “doubly linked”, or result from total assimilation of two consonants
- Fake geminates are sequences of two identical consonants; they can result from syncope or concatenation of two morphemes

(41) a.

b.

Section 4: Fake and True Geminates

- In Tigrinya, voiceless velar stops typically spirantize (become fricatives) postvocalically
- They do not spirantize in the following data:
- These show true geminates, which do not spirantize

(49)

Perfective	*Imperfective*
kəfətə	yɨ-xəffɨt
məxərə	yɨ-məkkɨr
məx'əzə	yɨ-məkk'ɨz
bətəxə	yɨ-bəttɨx

(50)

a.	yɨ-sbər-o	[yɨsbərro]/[yɨsbəro]
b.	yɨ-btək-o	[yɨbtəkko]/[yɨbtəxo]
c.	yɨ-barɨk-o	[yɨbarɨkko]/[yɨbarɨxo]
d.	k'ətəl-u-ni	[k'ətəlunni]
e.	məxər-u-ka	[məxərukka]
f.	yɨ-t-kəfət	[yɨkkəfət]
g.	yɨ-t-k'ət'k'ət'	[yɨkk'ət'k'ət'] cf. [təx'ət'k'ət'e]

Section 4: Fake and True Geminates

- In this data, however, when two voiceless velars occur together over a morpheme boundary, the first one does spirantize

(51) a. mɨrax-ka
b. ʔamlax-kum
c. yɨ-barɨx-ka
d. barix-ki

- Rose ultimately uses this constraint ranking to account for this behavior

(56) *yɨhakku* 'they scratch off'

/yɨ-ħak$_i$k$_i$-u/	*[xx]	OCP	*[Vk]
a. yɨhaxx-u	*!		
b. yɨhaxk-u		*!	
☞ c. yɨhakk-u			*

Section 4: Fake and True Geminates

- The constraint MORPH-GEM seems to require gemination of the initial consonant of an object clitic in the gerundive form

(54) *barixukka* 'he blessed you (m.sg.)'

/barix-u-ka/	*[xx]	MORPH-GEM	*[Vk]
a. barixuxxa	*!		
b. barixuxa		*!	
☞ c. barixukka			*
d. barixuxka		*!	

- Tigrinya deals with the distinction between fake and true geminates using domain restrictions on the OCP

References

Rose, S. (2000). Rethinking geminates, long-distance geminates, and the OCP. Linguistic Inquiry, 31(1), 85–122. https://doi.org/10.1162/002438900554307