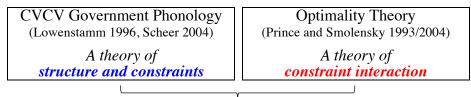
# OPTIMAL GOVERNMENT PHONOLOGY (OGP) A typology of biradical Semitic verbs

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(1) Theoretical fusion



## **Optimal Government Phonology**

- (2) An exercise in OGP: The perfective paradigm of **biradical Semitic** verbs
  - A. Inter-language/dialectal stem typology
  - B. Inter- and intra-paradigm relations
  - C. Conclusion with hope for a better future

#### A. STEM TYPOLOGY

(3) Given the template CVCVCV, we expect to find four biradical stem forms\*

Empty V <sub>2</sub> :	nadda	(nadVda) 'to burn'	Tigre (Raz 1980)
Empty V <sub>3</sub> :	garar	(gararV) 'to drag'	Hebrew
Empty V <sub>2</sub> &V <sub>3</sub> :	ħabb	$(\hbar ab V b V)$ 'to love'	Palestinian Arabic (PA) & Egyptian Arabic (EA)
All full:	*ħababa		Not attested

<sup>\*</sup>We ignore here forms with a complex onset;  $\hbar bab \ (\hbar Vbab V)$  and  $\hbar baba \ (\hbar Vbaba)$ 

(4) GP structure: Restrictions on unrealized V-slots



habba is "perfect" since the empty V is governed habb is far from perfect since it has two ungoverned empty Vs (though the final is legally ungoverned)

Nevertheless both are attested

- (5) GP structural (markedness) constraints
  - \*OV<sup>G</sup> No full governed V a.
    - Prevents realization of all Vs and thus a sequence of surface CV syllables (≈ twosided open syllable deletion; Kuroda 1967/2003)
    - Rules out *ħababa*, ...
  - \*0V1 No full final V b.
    - Prevents realization of a final vowel (≈ FINALC; McCarthy 1993)
    - Rules out ħabba
  - $*OV^{UG}$ No empty ungoverned V
    - An ungoverned V-slot is associated with segmental material
    - Rules out surface  $\hbar abb$  ( $\hbar ab VbV$ )
  - Note that the interaction between \*OV<sub>|0</sub> (b) and \*OV<sup>UG</sup> (c) reflects the d. parametric approach to the final V-slot in the GP framework.
- (6) Constraint interaction accounting for the typology – CoN1, CoN2 ➤ CoN3 (no evidence for a crucial ranking between CoN1 and CoN2)
  - Tigre (empty  $V_2$ ):  $* \odot V^G$ ,  $* \odot V^{UG} > * \odot V_1$ a.

	*OV <sup>G</sup>	*OV <sup>UG</sup>	*OV].
a. ☞ nadVda			*
b. nadVdV		*!*	
c. nadadV	*!		
d. nadada	*! *		*

Hebrew (empty  $V_2$ ):  $*OV^{UG}$ . \*OV]  $> *OV^G$ b.

Ticorew (empty	$\mathbf{v}_{3}$ ). $\mathbf{v}_{3}$	$,  \cup  V_{]_{\omega}}$	<i>-</i> 0 v
	*OV]	$*OV^{UG}$	$*OV^G$
a. garVra	*!		
b. garVrV		*!*	
c. ☞ gararV			*
d. garara	*!		**

PA (empty  $V_2 \& V_3$ ):  $* \odot V^G$ ,  $* \odot V]_{\alpha} > * \odot V^{UG}$ c.

(	, · ]ω	- ,	
	$*\odot V^G$	*OV]	$*OV^{UG}$
a. ħabVba		*!	
b. ☞ ħabVbV			**
c. ħababV	*!		
d. ħababa	*!*	*	

#### **B. PARADIGMATIC RELATIONS**

#### (7) **Paradigms**

	Base	Base + C-initial suffix
Hebrew	garar (garar <mark>V</mark> )	garar-ti (garar <mark>V</mark> ti)
Tigre	nadd-a (nad <mark>V</mark> da)	nadad-ko (nadadVko)
PA	ħabb (ħab <mark>V</mark> b <mark>V</mark> )	ћаbbe:-ti (ћаbVbeCeti)
cf. MSA	ħabb-a (ħab <mark>V</mark> ba)	ħabab-ti (ħabab <mark>V</mark> ti)
Not attested	nadd-a	*naddi-ko (nadVdiko)
	ħabb	*ħabbi-tu (ħabVbiti)

*i* / *i* - Epenthetic vowel

(8) **Q1**: Why don't we get the **intra**-paradigmatic faithful counterpart?

	Base	Base + C-initial suffix	
Empty V <sub>2</sub>	nadd-a (nad <mark>V</mark> da)	*naddi-ko (nadVdiko)	Tigre
Empty V <sub>2</sub> &V <sub>3</sub>	ħabb (ħabVbV)	*ħabbi-ti (ħabVbiti)	PA

**A1**: With a faithful suffixed form we get a **new paradigm type**, i.e. a paradigm that does not exist in the verbal system.

- (9)INTER-PARADIGM UNIFORMITY (INTERPU) a. Every two structurally contrasting paradigms contrast in meaning / function
  - INTERPU is violated by the paradigms in (8), which constitute additional paradigm b. types with no contrasting function.
  - Motivation c.
    - i. The Principle of Contrast (Clark 1987:1) "Every two forms contrast in meaning"
    - ii. Clark cites Bolinger (1977): "any word which a language permits to survive must make its semantic contribution" (p. ix); "the same holds for any construction that is physically distinct from any other construction" (p. ix-x).
  - This constraint is heavily violated in Semitic languages, where each verb class d. (binyan) has several sub-classes, where sub-classes do not have any function in the grammar. E.g.

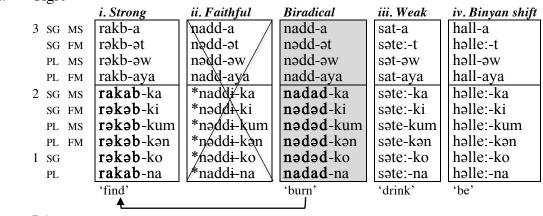
Hebrew sub-classes:	B1	B2	<i>B3</i>	<i>B4</i>	<i>B5</i>	Total
(Zadok 2012)	45	22	25	10	7	109

- i. Nevertheless, it is more likely for a language to reduce the number of paradigm types than to create new ones (Zadok 2012, Zadok and Bat-El
- ii. When two paradigm types are similar enough, verbs from the less populated paradigm migrate to the other, thus potentially reducing the number of paradigms.

(10) Back to what *does* happen

	Base	Base + C-initial suffix  Vowel-final base ⇒  Pre-C geminate splitting
Tigre	nadd-a (nadVda)	nadad-ko (nadadVko)
PA	ħabb (ħabVbV)	habbe:-ti (habVbeCeti) Geminate-final base ⇒ Pre-C vowel-final stem

- (11) The biradical paradigms in both languages are modeled on existing paradigms in the
  - language, though different ones: a. **Tigre**



b. PA ii. Faithful Biradical iii. Weak iv. Binyan shift i. Strong ħább kátab ħább rám-a rább-a 3 SG MS ħább-at SG FM kátb-at ħább-at rám-at rább-at kátab-u ħább-u/ ħább-u rám-u rább-u PL. katáb-t \*ħábbi-t ħabbé:-t ramé:-t rabbé:-t 2 SG MS \*ħáþbi-ti ramé:-ti katáb-ti **ħabbé**:-ti rabbé:-ti SG FM \*ħábbi\tu katáb-tu **ħabbé:**-tu ramé:-tu rabbé:-tu PL. katáb-t \*hábbi-t\ ħabbé:-t ramé:-t rábbé:-t 1 SG katáb-na \*ħábbi-na\ **ħabbé**:-na ramé:-na rabbé:-na PL write' 'loye' 'throw' 'educațe'

- (12) **Q2**: Given the multiple paradigms available, how is a model paradigm selected for the inflected biradicals?
  - **A2**: Intuitively, the base of the suffixed forms must be as similar as possible to the base of the paradigm.
  - **Q3**: Given this intuition, why is the strong paradigm selected with the vowel-final base (Tigre), and binyan-shift preferred for the geminate-final base (PA)?
  - **A3**: Binyan-shift allows the empty ungoverned nucleus of the base to remain empty throughout the paradigm.

## (13) Uniformity within the paradigm

- INTRAPU-OV<sup>UG</sup> An ungoverned empty V in the base a. corresponds to an empty V in the derived form
- Motivation: Preservation of the Marked (PoM): "marked elements can be b. specifically targeted for preservation. Consequently, highly marked elements can survive a process that less-marked elements undergo" (de Lacy 2006:146).
- INTRAPU-OC A realized C in the base c. corresponds to a realized C in the derived form
- \*Long Geminate (\*LongGem) d. Two identical consonants are not separated by a realized nucleus

#### (14) Constraint interaction

a.	PA					INTRAPU	INTRAPU	
	ħabb			ħab <mark>V</mark> bV	INTERPU	$-\bigcirc V^{UG}$	-⊙C	*LONGGEM
	*ħabbi-ti	a.	Epenthesis	ħab∨bi-ti	*!			
	*ħabb-ti	b.	Faithful	ħabVbV-ti	*!			
	*ħabab-ti	c.	Gem. split	ħababV-ti		*!		*
	*ħabe:-ti	d.	Degemination	ħabeCe-ti		*!	*	
	ħabbe:-ti	e. 🖙	Binyan shift	ħabVbeCe-ti			*	

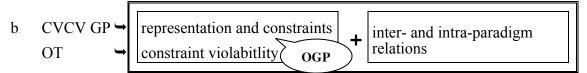
b.	Tigre					IntraPU	IntraPU	
	nadda			nadVda	INTERPU	$\text{-} \bigcirc V^{\text{UG}}$	-⊙C	*LONGGEM
	*nadda-ko	a.	Epenthesis	nadVda-ko	*!			
	*nadd-ko	b.	Faithful	nadVdV-ko	*!			
	nadad-ko	c. 🕫	Gem. split	nadadV-ko				*
	*nade:-ko	d.	Degemination	nadeCe-ko			*!	
	*nadde:-ko	e.	Binyan shift	nadVdeCe-ko			*!	

- The constraint that draws the distinction between the two language types is the c. one preserving the marked structure – INTRAPU-OV<sup>UG</sup>:
  - i. violated when the base ends in a geminate (PA)
  - ii. not violated (vacuously) when the base ends in a vowel (Tigre)
- d. The same constraint ranking explains
  - i. the exact target of the shift
  - ii. the distribution of the shift among Semitic languages

### C. CONCLUSION

#### (15) Theoretical fusion

- We showed that there is no principled contradiction between Optimality Theory on the one hand and CVCV phonology on the other.
  - i. CVCV phonology is a theory of representations and constraints that follow from these representations; it does not have an inherent principle regarding the violability of constraints.
  - ii. Optimality Theory is a theory of constraint interaction; it does not have an inherent view regarding representations.



- We applied these tools to two issues raised by biradical verbs: c.
  - The form of the 3ms.sg. base: ħabba, ħabb or ħabab i.
  - ii. The form of this base when inflected with a C-initial suffix
- d. We hope to have shown that
  - i. The two theories are not incompatible
  - Their combination can be a fruitful endeavor ii.

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