

No easy -fix

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Workshop on prefixes vs suffixes in Afroasiatic
Paris, 11 March, 2022

Şanʕani Arabic:

(Watson 1993; Hewett 2020)

(1) PREFIX CONJUGATION

ti- gambir (-u:)

2 sit.NPST (M.PL)

'You (all) sit'

(2) SUFFIX CONJUGATION

gambar -t (-u:)

sit.PAST 2 (M.PL)

'You (all) sat'

Generalizations about prefixes and suffixes in Semitic (in Afroasiatic?):

- 1 Different **phonological** profile: roughly CV vs C / C vs V / V: vs V.
- 2 Different **syntactico-semantic** profile: roughly nonpast vs past.
- 3 General **suffixing preference** (in Semitic but also in general).

Introduction

Paradigms: past and future for Modern Hebrew *katav* ‘wrote’.

	Past, $XaYaZ \sqrt{ktb}$		Future, $XaYaZ \sqrt{ktb}$	
	SG	PL	SG	PL
1	katáv-ti	katáv- nu	ji-xtóv	ni -xtóv
2M	katáv-ta	katáv-tem	ti-xtóv	ti-xtev-ú
2F	katáv-t	katáv-tem	ti-xtev-í	ti-xtev-ú
3M	katáv	katv-ú	ji-xtóv	ji-xtev-ú
3F	katv-á	katv-ú	ti-xtóv	ji-xtev-ú

Even *ni-* vs *-nu* has other phonological correlates:

(3) PREFIX, MONOSYLLABIC STEM

ni-xtov

1PL.FUT-write.SMPL.FUT

‘We will write.’

(4) SUFFIX, DISYLLABIC STEM

ka.tav-**nu**

write.SMPL.PAST-1PL.PAST

‘We wrote.’

Some research questions

- Q1 How robust are each of the three generalizations in a language family?
- Q2 How robust are each of the three generalizations in a given language?
- Q3 What assumptions does a comprehensive formal analysis require?

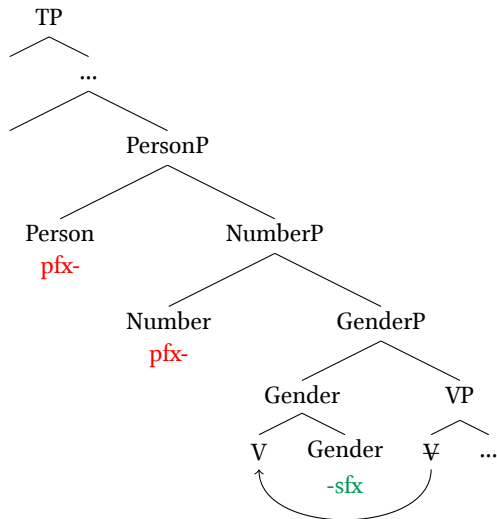
- I'll give one overview of formal analyses with an eye towards Q3.
- Caveats:
 - We're trying to find the common threads in different works.
 - I might simplify when talking about individual papers.
 - I can't synthesize everyone's contributions at once.

- 1 Introduction
- 2 Theoretical approaches to the asymmetry
 - Syntactic
 - Morphological
 - Morphotactic
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The syntactic approach

- In a nutshell:
 - Prefixes and suffixes spell out different heads in the structure.
 - A certain affix might start off higher than the verb.
 - As the verb raises, it will end up preceding that affix, turning it into a suffix.
- Theoretical apparatus: (head) movement.
- Familiar from: Ritter (1988); Pollock (1989); Shlonsky (1989, 1997); Faust (2021)
 - Albeit in different empirical domains.

In action:



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Discussion:

- Can derive syntactic/semantic differences between prefixes and suffixes.
- The fact that prefixhood vs suffixhood tracks the phonology is an accident.
- Is there independent syntactic evidence for the hierarchy?
- What triggers movement and lowering?

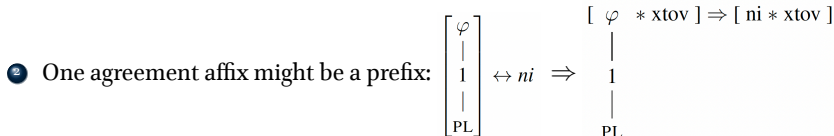
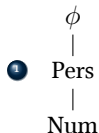
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The morphological approach

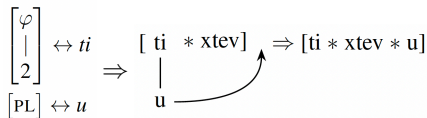
- In a nutshell:
 - Phi-features are hierarchically organized in the morphology/syntax.
 - Sometimes the feature bundle is spelled out as one affix.
 - Sometimes it's split up into prefix and suffix, according to its internal structure.
- Theoretical apparatus: spelling out hierarchical morphology postsyntactically (within Distributed Morphology).
- Familiar from: Harbour (2007, 2008, 2016)

In action:

(Harbour 2008; Hewett 2020)



③ If one VI spells out Pers, then Num will flank as a suffix:



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- Familiar from: Harbour (2007, 2008, 2016)

Discussion:

- Semantically motivated hierarchy of features.
- Derives the crosslinguistic generalization that person is a prefix and number is a suffix (or they're a prefix together).
- Why is Hebrew *ni-* 'IPL.FUT' a prefix but *-nu* 'IPL.PAST' a suffix?
- Might still rely on individual VIs being prefixes or suffixes.
- The fact that prefixhood vs suffixhood tracks the phonology is an accident.

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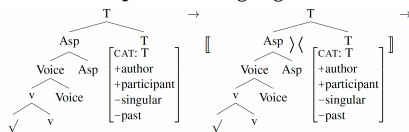
The morphotactic approach

- In a nutshell:
 - Feature nodes might be Fissioned off into two separate exponents (DM).
 - This happens before local dislocation (metathesis) and Vocabulary Insertion.
- Theoretical apparatus: Fission.
- Familiar from: Hewett (2020)

Morphotactic

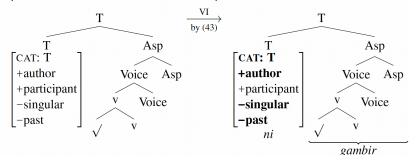
In action:

- Assume a rule that methathesizes T and Asp in the language.



- Şanʕani *ni-gambir* 'we will sit':

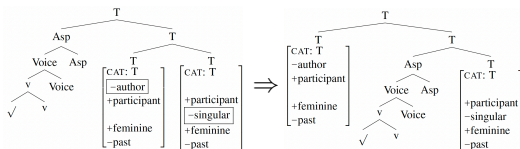
$$\begin{bmatrix} \alpha F_1 \\ \beta F_2 \\ \phi \end{bmatrix} \rightarrow \begin{bmatrix} \alpha F_1 \\ \beta F_2 \\ \phi \end{bmatrix}$$



- Fission:

$$\begin{bmatrix} \alpha F_1 \\ \phi \end{bmatrix} \rightarrow \begin{bmatrix} \alpha F_1 \\ \phi \end{bmatrix} \quad \begin{bmatrix} \beta F_2 \\ \phi \end{bmatrix}$$

- ti-gambir-ayn* 'you two will sit':



The morphotactic approach

- In a nutshell:
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 - This happens before local dislocation (metathesis) and Vocabulary Insertion.
- Theoretical apparatus: Fission.
- Familiar from: Hewett (2020)

Discussion:

- Can derive syntactic/semantic differences between prefixes and suffixes.
- Need to encode metathesis of certain elements (Arregi and Nevins 2012).
- Need to encode Fission of certain elements.
- The fact that prefixhood vs suffixhood tracks the phonology is an accident.

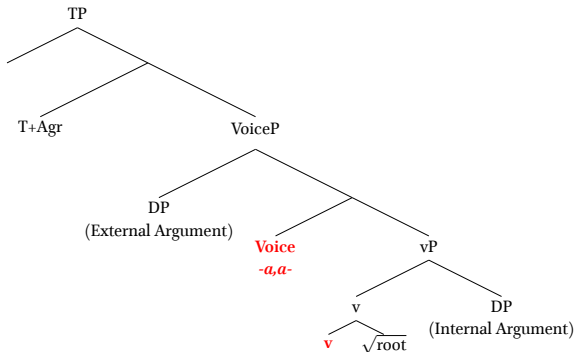
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The morphophonological approach

- In a nutshell:
 - The order of affixes mirrors their position in the syntax.
 - No internal hierarchy for phi-features.
 - Take the affix, take the stem, and find the optimal alignment of the two.
 - Tucker (2010): align the root with the right edge of the prosodic word.
 - Wallace (2013): align morphemes to edges of words.
 - Kastner (2019): avoid complex onsets, but you have to know what the stem is.
- Theoretical apparatus: Syntax → phonology.
(DM + OT constraints for some, Element Theory for others).
- Familiar from: Tucker (2010); Wallace (2013); Bendjaballah (2014); Kastner (2019, 2020); Zukoff (2022)

In action

- **Stem vowels** spell out Voice (Arad 2005) or Th (Oltra Massuet 1999; Embick 2010; Wallace 2013).
- **Higher elements** (T) are affixes.
- Let the phonology do its work.




ganav 'stole' in XaYaZ:

- 1 $\sqrt{gnv} \leftrightarrow gnv$
- 2 $v \leftrightarrow$ (silent)
- 3 Voice $\leftrightarrow a,a / T[\text{Past}]$

'he stole'

[T[Past] [Voice [v $\sqrt{\text{gnv}}$]]]

a,a- $\sqrt{\text{gnv}}$	*COMPLEX	SWP
a. aágnv	*!	
 b. ga.náv		
c. gan.vá		*!

➤ **Basic concatenation.**

➤ Graf and Ussishkin (2002): Hebrew verbs are iambic.

'he will steal'

[T[Fut] [Voice [v $\sqrt{\text{gnv}}$]]]

ji-gnov:

- $\sqrt{\text{gnv}} \leftrightarrow \text{gnv}$
- $v \leftrightarrow \emptyset$
- **T[Fut] \leftrightarrow ji-**
- Voice \leftrightarrow $\begin{cases} a,a & / \text{T[Past]} \text{ ____} \\ -o- & / \text{T[Fut]} \text{ ____} \end{cases}$

• **Cyclic** spell-out: VoiceP, then TP.

ji + /o-gnv/ \rightarrow ji + [gnóv] \rightarrow /ji-gnóv/ \rightarrow [jignóv]


• T is on the left (higher), so it's a prefix by default, but that's also most harmonic.

Morphophonological

- Why are some affixes **suffixes**?
- Because their phonology makes them bad prefixes.

Prefixes vs suffixes

- Graf and Ussishkin (2002): ONSET, ALLFTRT and MAX. (Prince and Smolensky 1993/2004)
- Add REALIZEMORPHEME. (Rose 1997; Kurisu 2001)
- *ganvá* 'she stole' = [T[3SG.F] [Voice [v $\sqrt{\text{gnv}}$]]]

a _{3SG.F} + ganáv	ONSET	RM	ALLFTRT	MAX
a. (a)(ga.nav)	*!		*	
b. (ga)(na.vá)			*!	
 c. (gan.vá)				*
d. (ga.náv)(a)	*!		*	
e. (ga.náv)		*!		*

- There are other hairy details, like interaction with stress.
- At some point I invoke ALIGN-WD, codifying the derivational history of the stem (Kastner 2019:fn2).

The morphophonological approach

- In a nutshell:
 - The order of affixes mirrors their position in the syntax.
 - No internal hierarchy for phi-features.
 - Take the affix, take the stem, and find the optimal alignment of the two.
- Theoretical apparatus: Syntax → phonology.
- Familiar from: Tucker (2010); Wallace (2013); Bendjaballah (2014); Kastner (2019); Zukoff (2022)

Discussion:

- Separate VIs are placed as prefixes or suffixes by the phonology.
- The fact that prefixhood vs suffixhood tracks the syntax/semantics of the given affix is an accident.
- Predictions for interactions with other heads, and allomorphy.
- Kastner and Tucker (submitted): if phonology is active, we can explain the correlation between noconcatenative morphology and prosodic restrictions (McCarthy 1979, 1981; Ussishkin 2000).

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Prefixes and suffixes:

- 1 Different phonological profile (prefixes are often heavier).
- 2 Different syntactico-semantic profile (roughly nonpast vs past).
- 3 Suffixation is often the default.

- Some accounts focus on one generalization or the other.
- Some try to pin down one and then derive the other.

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Additional considerations

- 1 Typology: Person-left, number-right.
 - Not just in Afroasiatic.
- 2 The suffixing preference.
 - Issues of processing.
 - Issues of learnability.
 - Issues of acquisition.
- 3 Language change.
 - Say that Proto-Semitic/Proto-Afroasiatic prefixes were heavier than suffixes.
 - And say that the descendant languages are also like that.
 - How important is that?
 - Do we want theories that could just as easily allow the opposite?

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Our workshop: Today (Pouchet)

12:15-12:50	Itamar Kastner	University of Edinburgh	No easy -fix
12:50-13:40	Gioia Cacchioli	Université de Genève	The Tigrinya <i>zə-</i> prefix: A Morphological Reflex of Successive-Cyclic Movement

Break

14:10-15:00	Noam Faust	Université de Paris 8 & CNRS	<i>nifal</i> : a defective story
15:00-15:50	Iris Kamil	University of Vienna	<i>t</i> -Forms of the Akkadian Stative

Break

16:20-17:10	Ruth Kramer	Georgetown University	The Morphosyntax of Imperative Agreement in Ethiosemitic
17:10-18:00	Daniel Harbour	QMUL	Dispatches from Babel: What the Old Testament teaches of scaffolding

Our workshop: Tomorrow (Condorcet)

12:00-12:50	Alexander Martin	CNRS	Revisiting the prefix/suffix asymmetry: Experimental evidence from Kĩtharaka
12:50-13:40	Sabrina Bendjaballah	CNRS	The role of templates in the morphology of Taqbaylit Berber stative verbs

Break

14:10-15:00	Mohamed Lahrouchi & Noam Faust	Université de Paris 8 & CNRS	The locus of gender in Tashlhiyt Berber nouns
15:00-15:50	Matthew Hewett	University of Chicago	Distributing Semitic verbal affixes across modules

Break

16:20-17:10	Jean Lowenstamm	CNRS	Confronting the golem
17:10-18:00	Andrew Nevins & Uri Shlonsky	UFRJ/UCL & Université de Genève	Rescaffolding the bundle: Notes towards a syntactic account of Afroasiatic inflection

18:00-18:30 General discussion

Thank you!

Thanks also to:

- ▶ Andrew, Mohamed and Ur for inviting me to invite myself.
- ▶ Matt Tucker for discussions as we were writing Kastner and Tucker (submitted).
- ▶ Matt Hewett for thought-provoking work that led me to revisit these issues.

References I

- Arad, Maya. 2005. *Roots and patterns: Hebrew morpho-syntax*. Dordrecht: Springer.
- Arregi, Karlos, and Andrew Nevins. 2012. *Morphotactics: Basque auxiliaries and the structure of spellout*. Dordrecht: Springer.
- Bendjaballah, Sabrina. 2014. Remarks on nonconcatenative affixation. *Brill's Annual of Afroasiatic Languages and Linguistics* 6:45–73.
- Embick, David. 2010. *Localism versus globalism in morphology and phonology*. Number 60 in Linguistic Inquiry Monographs. Cambridge, MA: MIT Press.
- Faust, Noam. 2021. Modern Hebrew prefixoids: description and morpho-syntactic analysis. *Morphology* 32:25–44. URL <https://doi.org/10.1007%2Fs11525-021-09385-7>.
- Graf, Dafna, and Adam Ussishkin. 2002. Emergent iambs: stress in Modern Hebrew. *Lingua* 113:239–270.
- Harbour, Daniel. 2007. Against PersonP. *Syntax* 10:223–242.
- Harbour, Daniel. 2008. Discontinuous agreement and the Syntax–Morphology interface. In *Phi theory: Phi-Features across modules and interfaces*, ed. Daniel Harbour, David Adger, and Susana Béjar, 185–220. Oxford: Oxford University Press.
- Harbour, Daniel. 2016. *Impossible persons*. Cambridge, MA: MIT Press.
- Hewett, Matthew. 2020. On the autonomy of Fission: Evidence from discontinuous agreement in Semitic. Ms., UChicago.
- Kastner, Itamar. 2019. Templatic morphology as an emergent property: Roots and functional heads in Hebrew. *Natural Language & Linguistic Theory* 37:571–619.
- Kastner, Itamar. 2020. *Voice at the interfaces: The syntax, semantics and morphology of the Hebrew verb*. Number 8 in Open Generative Syntax. Berlin: Language Science Press.
- Kastner, Itamar, and Matthew A. Tucker. submitted. Non-concatenative morphology. In *The Cambridge handbook of Distributed Morphology*, ed. Artemis Alexiadou, Ruth Kramer, Alec Marantz, and Isabel Oltra Massuet. Cambridge: Cambridge University Press.
- Kurusu, Kazutaka. 2001. The phonology of morpheme realization. Doctoral Dissertation, University of California, Santa Cruz, CA. ROA-490.
- McCarthy, John J. 1979. Formal problems in Semitic phonology and morphology. Doctoral Dissertation, Massachusetts Institute of Technology.
- McCarthy, John J. 1981. A prosodic theory of nonconcatenative morphology. *Linguistic Inquiry* 12:373–418.
- Oltra Massuet, Isabel. 1999. On the notion of theme vowel: A new approach to Catalan verbal morphology. Master's thesis, Massachusetts Institute of Technology, Cambridge, MA.
- Pollock, Jean-Yves. 1989. Verb movement, UG, and the structure of IP. *Linguistic Inquiry* 20:365–424.
- Prince, Alan, and Paul Smolensky. 1993/2004. *Optimality theory: Constraint interaction in generative grammar*. Malden, MA, and Oxford: Blackwell.
- Revision of 1993 technical report, Rutgers University Center for Cognitive Science. ROA 537.
- Ritter, Elizabeth. 1988. A head-movement approach to construct-state noun phrases. *Linguistics* 26:909–929.
- Rose, Sharon. 1997. Theoretical issues in comparative Ethio-Semitic phonology and morphology. Doctoral Dissertation, McGill University, Montreal, QC.

References II

- Shlonsky, Ur. 1989. The hierarchical representation of subject verb agreement. Ms., University of Haifa.
- Shlonsky, Ur. 1997. *Clause structure and word order in Hebrew and Arabic: An essay in comparative Semitic syntax*. Oxford: Oxford University Press.
- Tucker, Matthew. 2010. Roots and prosody: the Iraqi Arabic derivational verb. *Recherches Linguistique de Vincennes: Racine et Radical* 39:31–68.
- Ussishkin, Adam. 2000. The emergence of fixed prosody. Doctoral Dissertation, University of California, Santa Cruz, Santa Cruz, CA.
- Wallace, Katherine. 2013. A concatenative approach to Semitic templatic morphology. Ms., NYU. lingbuzz/002299.
- Watson, Janet C. E. 1993. *A syntax of Šanʿāni Arabic*. Wiesbaden: Harroswitz.
- Zukoff, Sam. 2022. The mirror alignment principle: Morpheme ordering at the morphosyntax-phonology interface. *Natural Language & Linguistic Theory* URL <http://dx.doi.org/10.1007/s11049-022-09537-2>.