No easy -fix

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

(1) **Prefix conjugation**

<table>
<thead>
<tr>
<th>ti- gambir (-u:)</th>
<th>sit. <strong>NPST</strong> (M.PL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>‘You (all) sit’</td>
<td>‘You (all) sit’</td>
</tr>
</tbody>
</table>

(2) **Suffix conjugation**

<table>
<thead>
<tr>
<th>gambar -t (-u:)</th>
<th>sit. <strong>PAST</strong> 2 (M.PL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>‘You (all) sat’</td>
<td>‘You (all) sat’</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Present, <em>XaYaZ</em> $\sqrt{ktb}$</th>
<th>Future, <em>XaYaZ</em> $\sqrt{ktb}$</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SG</strong></td>
<td><strong>PL</strong></td>
</tr>
<tr>
<td>1</td>
<td>katáv-ti</td>
</tr>
<tr>
<td>2M</td>
<td>katáv-ta</td>
</tr>
<tr>
<td>2F</td>
<td>katáv-t</td>
</tr>
<tr>
<td>3M</td>
<td>katáv</td>
</tr>
<tr>
<td>3F</td>
<td>katv-á</td>
</tr>
</tbody>
</table>

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

1. **PREFIX, MONOSYLLABIC STEM**
   - *ni-xtov* (1PL. **FUT**-write.SMPL.FUT)
   - ‘We will write.’

2. **SUFFIX, DISYLLABIC STEM**
   - *ka.tav-nu* (write.SMPL.PAST-1PL. **PAST**)
   - ‘We wrote.’
Some research questions

<table>
<thead>
<tr>
<th>Q1</th>
<th>How robust are each of the three generalizations in a language family?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q2</td>
<td>How robust are each of the three generalizations in a given language?</td>
</tr>
<tr>
<td>Q3</td>
<td>What assumptions does a comprehensive formal analysis require?</td>
</tr>
</tbody>
</table>

- 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
   - Morphophonological
   - Summary

3 Additional considerations

4 Our workshop
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.
Syntactic

In action:

```
TP
  ...
  PersonP
    Person
      pfx-
    NumberP
      Number
        pfx-
      GenderP
        Gender
          Gender
            -sfx
          VP
            ...
```
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.

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).

Morphological

In action:

1. One agreement affix might be a prefix:

\[
\begin{array}{c}
\phi \\
\mid \\
\text{Pers} \\
\mid \\
\text{Num}
\end{array}
\]

\[
\begin{array}{c}
\phi \\
\mid \\
1 \\
\mid \\
\text{PL}
\end{array} \leftrightarrow ni \Rightarrow
\begin{array}{c}
\phi \\
\mid \\
\text{XtoV}
\end{array} \Rightarrow
\begin{array}{c}
\text{ni} \\
\mid \\
\text{XtoV} \\
\mid \\
\text{PL}
\end{array}
\]

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

\[
\begin{array}{c}
\varphi \\
\mid \\
2 \\
\mid \\
\text{PL}
\end{array} \leftrightarrow ti \Rightarrow
\begin{array}{c}
\varphi \\
\mid \\
\text{XtoV}
\end{array} \Rightarrow
\begin{array}{c}
\text{ti} \\
\mid \\
\text{XtoV} \\
\mid \\
\text{u}
\end{array}
\]

(Harbour 2008; Hewett 2020)
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.


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-* ‘1PL.FUT’ a prefix but *-nu* ‘1PL.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 (meathesis) and Vocabulary Insertion.
- **Theoretical apparatus: Fission.**
- **Familiar from:** Hewett (2020)
Morphotactic

In action:

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

2. Şanfani ni-gambir 'we will sit':

\[
\begin{align*}
\alpha F_1 & \quad \beta F_2 \\
\phi & \quad \phi
\end{align*}
\]

\[
\frac{\alpha F_1}{\phi} \quad \frac{\beta F_2}{\phi}
\]

3. Fission:

4. ti-gambir-ayn 'you two will sit':

\[
\begin{align*}
\text{CAT: T} & +\text{author} \\
\text{+participant} & -\text{singular} \\
\text{-past}
\end{align*}
\]

\[
\frac{T}{\text{CAT: T}} \quad \frac{\text{Asp}}{\text{Voice}} \\
\frac{T}{\text{CAT: T}} \quad \frac{\text{Asp}}{\text{Voice}}
\]

⇒

\[
\begin{align*}
\text{CAT: T} & +\text{author} \\
\text{+participant} & -\text{singular} \\
\text{-past} \\
\text{FRAMING the} & \text{workshop}
\end{align*}
\]
The morphotactic approach

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

Discussion:

- Can derive syntactic/semantic differences between prefixes and suffixes.
- Need to encode methathesis 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 $\rightarrow$ phonology.
  (DM + OT constraints for some, Element Theory for others).

- **Familiar from:** Tucker (2010); Wallace (2013); Bendjaballah (2014); Kastner (2019, 2020); Zukoff (2022)
**Morphophonological**

**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. $v \leftrightarrow \text{(silent)}$
3. Voice $\leftrightarrow a,a / T[\text{Past}]$
### ‘he stole’

<table>
<thead>
<tr>
<th>a,a-√gnu</th>
<th>*COMPLEX: SWP</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. aágnu</td>
<td>*!</td>
</tr>
<tr>
<td>b. ga.náv</td>
<td></td>
</tr>
<tr>
<td>c. gan.vá</td>
<td>*!</td>
</tr>
</tbody>
</table>

- Basic concatenation.

### ‘he will steal’

<table>
<thead>
<tr>
<th>ji-gnov:</th>
</tr>
</thead>
</table>

- Cyclic spell-out: VoiceP, then TP.
  - ji + /o-gnu/ → ji + [gnóv] → /ji-gnóv/ → [jignóv]
- T is on the left (higher), so it’s a prefix by default, but that’s also most harmonic.
Why are some affixes suffixes? Because their phonology makes them bad prefixes.

Prefixes vs suffixes

Add REALIZEMORPHEME.

*ganvá ‘she stole’ = [T[3SG.F] [Voice [v $\sqrt{gnv}$]]]

<table>
<thead>
<tr>
<th>a_{3SG.F} + ganáv</th>
<th>Onset</th>
<th>RM</th>
<th>ALLFtRT</th>
<th>MAX</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. (a)(ga.nav)</td>
<td>*!</td>
<td></td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>b. (ga)(na.vá)</td>
<td></td>
<td>*!</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. (gan.vá)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d. (ga.náv)(a)</td>
<td>*!</td>
<td></td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>e. (ga.náv)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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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Summary

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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<table>
<thead>
<tr>
<th>Time</th>
<th>Name</th>
<th>Institution</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>12:15-12:50</td>
<td>Itamar Kastner</td>
<td>University of Edinburgh</td>
<td>No easy -fix</td>
</tr>
<tr>
<td>12:50-13:40</td>
<td>Gioia Cacchioli</td>
<td>Université de Genève</td>
<td>The Tigrinya za- prefix: A Morphological Reflex of Successive-Cyclic Movement</td>
</tr>
<tr>
<td>Break</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14:10-15:00</td>
<td>Noam Faust</td>
<td>Université de Paris 8 &amp; CNRS</td>
<td>nifʕal: a defective story</td>
</tr>
<tr>
<td>15:00-15:50</td>
<td>Iris Kamil</td>
<td>University of Vienna</td>
<td>t-Forms of the Akkadian Stative</td>
</tr>
<tr>
<td>Break</td>
<td></td>
<td></td>
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<tr>
<td>16:20-17:10</td>
<td>Ruth Kramer</td>
<td>Georgetown University</td>
<td>The Morphosyntax of Imperative Agreement in Ethiosemitic Dispatches from Babel: What the Old Testament teaches of scaffolding</td>
</tr>
<tr>
<td>17:10-18:00</td>
<td>Daniel Harbour</td>
<td>QMUL</td>
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<tr>
<td>Time</td>
<td>Speaker(s)</td>
<td>Affiliation(s)</td>
<td>Title</td>
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<tr>
<td>12:00-12:50</td>
<td>Alexander Martin</td>
<td>CNRS</td>
<td>Revisiting the prefix/suffix asymmetry: Experimental evidence from Kîîtharaka</td>
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<tr>
<td>12:50-13:40</td>
<td>Sabrina Bendjaballah</td>
<td>CNRS</td>
<td>The role of templates in the morphology of Taqbaylit Berber stative verbs</td>
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<td>Break</td>
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<tr>
<td>14:10-15:00</td>
<td>Mohamed Lahrouchi &amp; Noam Faust</td>
<td>Université de Paris 8 &amp; CNRS</td>
<td>The locus of gender in Tashlhiyt Berber nouns</td>
</tr>
<tr>
<td>15:00-15:50</td>
<td>Matthew Hewett</td>
<td>University of Chicago</td>
<td>Distributing Semitic verbal affixes across modules</td>
</tr>
<tr>
<td>Break</td>
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<td></td>
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<tr>
<td>16:20-17:10</td>
<td>Jean Lowenstamm</td>
<td>CNRS</td>
<td>Confronting the golem</td>
</tr>
<tr>
<td>17:10-18:00</td>
<td>Andrew Nevins &amp; Uri Shlonsky</td>
<td>UFRJ/UCL &amp; Université de Genève</td>
<td>Rescaffolding the bundle: Notes towards a syntactic account of Afroasiatic inflection</td>
</tr>
<tr>
<td>18:00-18:30</td>
<td>General discussion</td>
<td></td>
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</tr>
</tbody>
</table>
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

Revision of 1993 technical report, Rutgers University Center for Cognitive Science. ROA 537.


Ussishkin, Adam. 2000. The emergence of fixed prosody. Doctoral Dissertation, University of California, Santa Cruz, Santa Cruz, CA.

