1 Introduction

As I discuss in Kremers (in preparation), Arabic deverbal nouns (*masdars*) license their objects either with accusative (1a) or with the preposition *li* (1b):

(1) a. ʼaqlaqa-nī -ntiqād-u -l-raqul-i -l-mašrūf-a
    annoyed-me criticising-NOM the-man-GEN the-project-ACC
    the man’s criticising the project annoyed me

b. ʼaqlaqa-nī -ntiqād-u -l-raqul-i *li* -l-mašrūf-i
    annoyed-me criticising-NOM the-man-GEN to the-project-GEN
    the man’s criticising of the project annoyed me

Masdar+acc allows adverbials (2a), masdar+*li* allows adjectives (2b):

(2) a. ʼaqlaqa-nī -ntiqād-u -l-raqul-i *bi* -stimrār-in hādā -l-mašrūf-a
    annoyed-me criticising-NOM the-man-GEN with persistence-GEN this the-project-ACC
    the man’s persistently criticising the project annoyed me

b. ʼaqlaqa-nī -ntiqād-u -l-raqul-i -l-mustamirr-u *li* -l-mašrūf-i
    annoyed-me criticising-NOM the-man-GEN the-persistent-NOM to the-project-GEN
    the man’s persistent criticising of the project annoyed me

In contrast, masdar+acc does not allow adjectives:¹

(3) *ʼaqlaqa-nī -ntiqād-u -l-raqul-i -l-mustamirr-u -l-mašrūf-a
    annoyed-me criticising-NOM the-man-GEN the-persistent-NOM the-project-ACC
    the man’s persistently criticising the project annoyed me

¹Somewhat unexpectedly, however, masdar+*li* does allow adverbial phrases:

(i) ʼaqlaqa-nī -ntiqād-u -l-raqul-i *bi* -stimrār-in *li* -l-mašrūf-i
    annoyed-me criticising-NOM the-man-GEN with persistence-GEN to the-project-GEN
    the man’s persistent criticising of the project annoyed me

I assume this is due to the status of *intiqād* as event nominal. Note that essentially only PP-adverbials are allowed.
Following Abney (1987), Fassi Fehri (1993) assumes that there is a masdar affix that can attach at different levels to the verb projection:

(4) Ing-of:

```
                   DP
                      |     |
                      |     D'
                      |      |
                      D   NP
                      |      |
                      N  PP
                      |    -ing
                      V   sing
                      | of the Marseillaise

(5) Poss-ing:

                   DP
                      |     |
                      |     D'
                      |      |
                      D   NP
                      |      |
                      -ing  VP
                      |      |
                      V    sing
                      | the Marseillaise
```

The problem with Abney’s analysis is that it is not clear what sort of element -ing is, and what it means for -ing to attach to a syntactic structure. Ackema & Neeleman (2004) make Abney’s analysis more explicit:

- The -ing affix is a non-finiteness affix (hence its occurrence in participles).
- The actual nominaliser is phonologically null (Yoon 1996).
- An affix must be distinguished in a syntactic AFFIX and a morphophonological /afx/.
- Syntactic subcategorisation requirements apply to the AFFIX, morphophonological restrictions apply to the /afx/.
- The mapping of the AFFIX to the /afx/ is subject to two rules:

(6) a. Linear Correspondence:
   If X is structurally external to Y, then /x/ is linearly external to /y/.

   b. Input Correspondence:
   If an AFFIX selects (a category headed by) X, then /affix/ takes /x/ as its host.

- Given Linear Correspondence, -ing cannot be the nominaliser: if attached to VP, Linear Correspondence would require it to follow all material in /vp/, which it obviously does not; (i.e., it precedes the object).
2 The morphophonological make-up of the masdar

Overview of verb stems and masdars:

<table>
<thead>
<tr>
<th>(7)</th>
<th>stem</th>
<th>perfective stem</th>
<th>masdar</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>KaTaB</td>
<td>(irregular)</td>
<td></td>
</tr>
<tr>
<td>II</td>
<td>KaTaB</td>
<td>taKTi:B</td>
<td></td>
</tr>
<tr>
<td>III</td>
<td>KaTaB</td>
<td>muKaTaBa(t)</td>
<td></td>
</tr>
<tr>
<td>IV</td>
<td>?aKTaB</td>
<td>?iKTa:B</td>
<td></td>
</tr>
<tr>
<td>V</td>
<td>taKaTaB</td>
<td>taKTaTuB</td>
<td></td>
</tr>
<tr>
<td>VI</td>
<td>taKaTaB</td>
<td>taKTaTuB</td>
<td></td>
</tr>
<tr>
<td>VII</td>
<td>nKaTaB</td>
<td>nKiTa:B</td>
<td></td>
</tr>
<tr>
<td>VIII</td>
<td>KtaTaB</td>
<td>KiTa:B</td>
<td></td>
</tr>
<tr>
<td>IX</td>
<td>KTaB:</td>
<td>KTiBa:B</td>
<td></td>
</tr>
<tr>
<td>X</td>
<td>staKTaB</td>
<td>stiKTa:B</td>
<td></td>
</tr>
<tr>
<td>XI</td>
<td>KTaTaB</td>
<td>KTiTa:B</td>
<td></td>
</tr>
<tr>
<td>XII</td>
<td>KTawTaB</td>
<td>KTiwaTa:B</td>
<td></td>
</tr>
<tr>
<td>XIII</td>
<td>KTawwaB</td>
<td>KTiwa:B</td>
<td></td>
</tr>
<tr>
<td>XIV</td>
<td>KTanBaB</td>
<td>KTinBa:B</td>
<td></td>
</tr>
<tr>
<td>XV</td>
<td>KTanBay</td>
<td>KTinBa:y</td>
<td></td>
</tr>
</tbody>
</table>

The most common vowel pattern is /i-a/, sometimes /i:-a:/ McCarthy & Prince (1990b) distinguish four morphemes in the Arabic masdar. Taking stem VII as an example:

<table>
<thead>
<tr>
<th>(8)</th>
<th>root: /fi/</th>
<th></th>
<th>(9)</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>stem marker: ((\sigma_\mu_\mu)<em>{\sigma</em>\mu})</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>nominaliser: /\textit{ka}/</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>non-finite: (-\sigma_\mu_\mu)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Assumptions:

- The masdar affix is a syntactic affix. (This accounts for accusative assignment.)
- The masdar affix is associated with a morphological structure that consists of the nominaliser and the non-finite affix.
- The syntactic V node is associated with a morphological structure that consists of the V head and the stem marker.

Problem:

- The \textsc{Masdar} affix is definitely the nominaliser, or at least contains it.
- The /masdar/ affix attaches to the verb stem (in fact, is interwoven with it.)
- Hence, when \textsc{Masdar} attaches to VP, the mapping to /masdar/ violates Linear Correspondence.
The masdar+acc construction can be assigned the tree in (10):

(10)

```
(10)     
    DP       
      /\      
     D NP     
       \     
       MASDAR 
          \   
          VP   
          /\    
         Subj V' 
            /\   
           V Obj 
             /\  
            NOML N-FIN V 
                /\  
               V ROOT 
                  /\  
                 (σµ)σµ /f\n/ 
```

3 Solution

- Arabic morphology is prosodic; prosodic morphemes map onto autosegmental tiers in phonology (McCarthy & Prince 1990a, 1990b, following Leben 1973).

- Each tier separately must be linearly ordered. The tiers are then associated with each other through several principles, at least Left-to-Right Association and Input Correspondence (Ackema & Neeleman 2004) but possibly others.

- Linear Correspondence applies to one specific tier only, the tier onto which segmental material is mapped. Call this the anchor tier.

- In the Arabic masdar, no morpheme has enough segmental material to form a prosodic word. Therefore we are forced to conclude:
  - Morphemes mapped onto a non-anchor tier may also contain segmental material: cf. the masdar morpheme.
  - Morphemes mapped onto the anchor tier may be segmentally underspecified.

- I assume that in masdars, it is the root morpheme (/f\n/ above) that maps onto the anchor tier, as it is the only substantive lexical item (member of a semantically open class). The other morphemes are derivational (members of semantically closed classes).
To account for the masdar forms, I propose two general mapping rules for the NOML and N-FIN affixes, and six idiosyncratic mapping rules that make reference to specific verb stems:

$$\begin{array}{c|c}
\text{general} & \text{idiosyncratic} \\
\hline
\text{NOML} & /u_\sigma a_\sigma/ \\
\text{N-FIN} & /-\sigma_\mu / \\
\text{NOML/V} & /u_\sigma a_\sigma/ \\
\text{N-FIN/V} & /\sigma_\mu / \\
\text{NOML/VI} & /u_\sigma a_\sigma/ \\
\text{N-FIN/VI} & /\sigma_\mu / \\
\text{NOML/II} & /u_\sigma i_\sigma/ \\
\{\text{NOML NOML N-FIN}\}/\text{III} & F(\text{PRT.PASS.f}) \\
\end{array}$$

That is:

- Stems V and VI are associated with an idiosyncratic nominaliser /u_\sigma a_\sigma/, and with an idiosyncratic non-finiteness marker \(\sigma_\mu\).
- Stem II has the regular non-finiteness marker, but an idiosyncratic nominaliser.
- In the context of a stem III marker, the morphological structure \{\text{NOML NOML N-FIN}\} is associated with the feminine passive participle.$^2$

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$^2$Which was an alternative masdar formation in Classical Arabic, the so-called masdar mīmīy, ‘m-masdar’.
References


    URL: http://user.uni-frankfurt.de/~kremers

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Leuninger, Helen (2005), Sign languages: Representation, processing, and interface conditions. ms. University of Frankfurt.

