1. Introduction

This paper presents an analysis of the morphemic composition of passivization from a diachronic and cross-linguistic perspective. It begins with a survey of passive morphology in Classical Arabic. Modern Lebanese Arabic is then shown to have lost the Classical Arabic passive morpheme but coopted inchoative and reflexive morphology for the purpose of forming passives. In addition, Lebanese Arabic also forms passives using aux+participle constructions, much like English. Two kinds of passive participles are described, one formed by affixation of a participial prefix to a verb containing such a ‘coopted’ passive morpheme, and the other formed templatically. It is then demonstrated that the templatic passive participle is actually morphemically complex, containing distinct expressions for participle formation and valency reduction, just like the first kind of participle. English is then shown to be like Arabic. In English, contra the standard analysis, participle formation has a morphemic expression distinct from valency reduction. This new analysis of passivization in English makes sense of various incongruities of the standard analysis. It folds the behavior of valency reduction in nominalizations and middles and the behavior of participial morphology in transitives, unaccusatives, and perfectives into one generalization that exactly parallels the behavior of Arabic, exposing a previously unnoticed cross-linguistic similarity.
2. Classical Arabic

Classical Arabic verbs are formed on a “root and template” system. Within a verb, the root is expressed in the consonant tier. The three (occasionally also two or four) consonants of the root are connected to a general concept. Actual words are formed from the root by substituting the root into various templates which map the root (normally not very productively) into various syntactic categories. Often the templates also express operations over the root such as causativization, reflexivization, etc. Loosely speaking, the templates derive a category from a root. The most famous root of Arabic is *k-t-b*, which forms words related to writing. Attested, for example, are verbs *kataba* (*write*), *kattaba* (*make write*), *takaataba* (*correspond with*) and others (see the verb forms below), and nouns *kitaab* (*book*), *maktaba* (*library*), *maktab* (*office*), *kaatib* (*scribe*), etc. Another set of examples, from the root *d-r-s* relating to studying/learning, includes the verbs *darasa* (*study*), *darrasa* (*teach*) etc. and the nouns *diraasa* (*course of study*), *madrasa* (*school*), *dars* (*lesson*), *tadriis* (*instruction*), etc. The remainder of this discussion focuses on the formation of verbal categories.

Verbs are formed by substituting the root into one of ten templates. Verb formation in this manner is not strictly productive. Of the ten templates, normally only two are three are extant for a given root, and often their meanings are idiosyncratic. For example, form II is usually a causative of form I, as in the pair *kataba* (*write*) ~ *kattaba* (*make write*). But the causative *darrasa* (*teach*) from *darasa* (*learn*) has contextual connotations that are idiosyncratic; its meaning is more than merely *make learn*. This sort of limited idiosyncrasy is typical of the Arabic root and template system. The ten
forms and a very idealized guide to their signification follows. The discussion here is not intended to be complete or analytically insightful, but rather to give the reader an overview of how the system works in order to make the subsequent discussion of derivational morphology in the verbal system, particularly passive and participial morphology, less confusing. See Wright (1981) for a complete survey. In the forms below, the example root is *fa9ala* (*do*; 9 is the laryngeal fricative).

<table>
<thead>
<tr>
<th>FORM</th>
<th>Supplement</th>
<th>Example 1 (cf. Turkish -dir)</th>
<th>Example 2 (cf. German zer-)</th>
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<td><em>fa9ala</em></td>
<td>Basic</td>
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<td>II</td>
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<td>(i) Causative of I</td>
<td>(i) Intensive or repetitive of I</td>
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<td></td>
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<td>(ii)</td>
<td></td>
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<td></td>
<td></td>
<td>a. <em>fariHa</em> (be happy)</td>
<td>a. <em>farHa</em> (make happy)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>b. <em>Daraba</em> (beat)</td>
<td>b. <em>Darraba</em> (beat violently/repeatedly)</td>
</tr>
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<td><em>faa9ala</em></td>
<td>Durative of I</td>
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<td></td>
<td></td>
<td>a. <em>qatala</em> (kill)</td>
<td>a. <em>qaatala</em> (fight with)</td>
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<td></td>
<td></td>
<td>b. <em>sabaqa</em> (outrun)</td>
<td>b. <em>saabaqa</em> (run a race with)</td>
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<td>IV</td>
<td>‘af9ala’</td>
<td>Non-coercive causative of I</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>a. <em>jalasa</em> (sit down)</td>
<td>a. ‘ajlasa* (bid one to sit down)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>b. <em>9alima</em> (know)</td>
<td>b. ‘a9lama* (inform)</td>
</tr>
<tr>
<td>V</td>
<td>tafa99ala</td>
<td>Resultative of II</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>a. <em>kassara</em> (break into pieces)</td>
<td>a. <em>takassara</em> (be broken into pieces)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>b. <em>farraqa</em> (disperse)</td>
<td>b. <em>tafarraqa</em> (be dispersed)</td>
</tr>
<tr>
<td>VI</td>
<td>tafa99ala</td>
<td>Reciprocal of III</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>b. <em>kaalama</em> (talk with)</td>
<td>b. <em>takaalam</em> (talk)</td>
</tr>
<tr>
<td>VII</td>
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<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>a. <em>kasara</em> (break)</td>
<td>a. ‘inkasara* (become broken)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>b. <em>fataHa</em> (open)</td>
<td>b. ‘infataHa* (become open)</td>
</tr>
</tbody>
</table>
FORM VIII: ‘ifta9ala Reflexive of I

a. ghasala (wash) --> ‘ightasala (wash oneself)
b. faraqa (divide) --> ‘iftaraqa (divide oneself)

FORM IX: ‘if9alla Deadjectival inchoative

a. ‘aHmar (red) --> ‘iHmarra (become red)
b. ‘a9waj (curved) --> ‘i9wajja (become curved)

FORM X: ‘istaf9al Reflexive of IV

a. ‘aslama (deliver over) --> ‘istaslama (give oneself up)
b. ‘a9adda (prepare) --> ‘ista9adda (get oneself ready)

The chart below shows the ten possible forms in the perfect and imperfect (the stems are slightly different in the two tenses) in the active and passive, and the related active and passive participles. The shaded areas are relevant later.

<table>
<thead>
<tr>
<th></th>
<th>perfect active</th>
<th>perfect passive</th>
<th>imperfect active</th>
<th>imperfect passive</th>
<th>active participle</th>
<th>passive participle</th>
</tr>
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<tbody>
<tr>
<td>I</td>
<td>fa9al-a</td>
<td>fu9il-a</td>
<td>ya-f9al-u</td>
<td>yu-f9al-u</td>
<td>faa9il</td>
<td>maf9uul</td>
</tr>
<tr>
<td>II</td>
<td>fa99al-a</td>
<td>fu99il-a</td>
<td>ya-fa99il-u</td>
<td>yu-fa99al-u</td>
<td>mu-fa99il</td>
<td>mu-fa99al</td>
</tr>
<tr>
<td>III</td>
<td>faa9al-a</td>
<td>fuu9il-a</td>
<td>ya-faa9il-u</td>
<td>yu-faa9al-u</td>
<td>mu-faa9il</td>
<td>mu-faa9al</td>
</tr>
<tr>
<td>IV</td>
<td>‘af9al-a</td>
<td>‘ufril-a</td>
<td>‘urfil-u</td>
<td>yu-f9il-u</td>
<td>mu-f9il</td>
<td>mu-f9al</td>
</tr>
<tr>
<td>VI</td>
<td>tafa99al-a</td>
<td>tufru9il-a</td>
<td>ya-tafa99al-u</td>
<td>yu-tafa99al-u</td>
<td>mu-tafa99il</td>
<td>mu-tafa99al</td>
</tr>
<tr>
<td>VII</td>
<td>‘ina9al-a</td>
<td>‘unfu9il-a</td>
<td>ya-nfa9il-u</td>
<td>yu-nfa9al-u</td>
<td>mu-nfa9il</td>
<td>mu-nfa9al</td>
</tr>
<tr>
<td>VIII</td>
<td>‘inta9al-a</td>
<td>‘unftu9il-a</td>
<td>ya-nta9il-u</td>
<td>yu-nta9al-u</td>
<td>mu-nta9il</td>
<td>mu-nta9al</td>
</tr>
<tr>
<td>IX</td>
<td>‘ista9al-a</td>
<td>‘ustu9il-a</td>
<td>ya-sta9il-u</td>
<td>yu-sta9al-u</td>
<td>mu-sta9il</td>
<td>mu-sta9al</td>
</tr>
<tr>
<td>X</td>
<td>‘ista9al-a</td>
<td>‘ustu9il-a</td>
<td>ya-sta9il-u</td>
<td>yu-sta9al-u</td>
<td>mu-sta9il</td>
<td>mu-sta9al</td>
</tr>
</tbody>
</table>

The suffix -a in the perfect is the default third person masculine singular marker.

The prefix-suffix combination ya...u in the imperfect is the same. A striking aspect of the chart in (1) is the morphological expression of passive. It is expressed entirely in the vowel tier. The passive perfect shares the prosodic form of the active perfect, but the stem vowel (the vowel of the final syllable) becomes /i/, and all preceding vowels become /u/. The passive imperfect shares the prosodic form of the active imperfect, but the stem vowel becomes /a/. The vowels of the stem internal non-final syllables are not
distinct in the active and passive imperfect, but the vowel of the agreement prefix becomes /u/ in the passive. The fact that the prefix is affected indicates that the vowels of the non-final syllables have actually been overwritten with the passive /a/ of the final syllable, since if the non-stem vowels were not part of the passive morpheme whose expression is a vowel melody overwrite, then the alternation in the prefix would be non-contiguous with the alternation in the stem vowel (the hypothetically unaffected non-stem vowels would intervene), and we do not observe discontiguity in vowel melody overwrite elsewhere. So the passive morpheme has two allomorphs: [u_i] appears in the perfect, where /i/ overwrites the stem vowel and /u/ everything leftward; [u_a] appears in the imperfect, where /a/ overwrites the vowel melody of the entire stem and /u/ the vowel of the prefix. Other than the inference about the distribution of /a/ in the passive imperfect, I will leave this phenomenon unanalyzed, since the interest in the diachronic development of Lebanese lies precisely in the loss of this particular morpheme, for which its exact form is not relevant. In what follows, I will refer to this morpheme using its perfect tense allomorph [u_i].

2.1 Participle formation

The chart in (1) shows that participle formation is regular for the non-form I verbs (I will return to form I in detail in the discussion of Lebanese). They are formed by prefixation of mu- to the imperfect stem. No other alternation correlates with mu-prefixation, except in the active participles of forms V and VI, where the stem vowel /a/ of the active imperfect verb changes to /i/ in the participle. However, the /a/ in the active
stem is irregular with respect to the active imperfect stems of the other derived forms, which all have stem vowel /i/, so the appearance of /i/ in the participles is actually the expected stem vowel. I will leave the unexpected appearance of /a/ in the active imperfect stems unanalyzed, noting only that the exceptionality is in the active verb, not the active participle. The participial prefix *mu-* does not induce a change in the form of the stem.

Participle formation in the non-form I verbs therefore preserves the (underlying) vowel melody of the imperfect stem. And since the active/passive distinction is expressed though the vowel melody of the stem, participle formation preserves the expression of active and passive in the stem. Passive participles are formed by prefixing *mu-* to a passive stem. Active participles are formed by prefixing *mu-* to an active stem. *mu-* is a general derivational affix that attaches to an imperfect verbal stem and forms a participle. The passive morpheme *[u_i]* cooccurs with the participial morpheme *mu-* in the passive participles. Note that this appears to be unlike English, where passivization and participle formation are said to be encoded in a single morpheme, the participial marker -en, in alternations like write~written, take~taken etc. But I will ultimately show that Arabic and English are more similar than it seems.

Aside from a few aspects of the phenomenon which I have not attempted to analyze, both passivization and participle formation in forms II-X is straightforward. Identification of the morphemes involved is transparent. The form I participles *faa9il* and *maf9uul* are not so transparent. The participles of the form I verbs seem to contain neither the participle forming prefix *mu-* nor, in the case of the passive participle, either of the allomorphs of the passive morpheme *[u_i]* or *[u_a]*. Instead, both participle
formation and the active/passive distinction seem to be expressed non-transparently in the prosodic template itself: faa9il for the active participle and maf9uul for the passive. Neither of these forms preserve the prosodic structure of the verbal stem. The following section investigates the differences between Classical Arabic and Modern Lebanese Arabic and shows how these differences elucidate certain important properties of the morphemic composition of passivization.

3. Lebanese Arabic

The shaded areas of the chart in (1) do not exist in Lebanese Arabic--all the passives except the passive participle of form I. The absence of the passive participles of forms II-X is explained by the absence of the passive imperfect, since the former are derived from the latter. But the absence of the passive imperfect seems to just be a lexical gap. The disappearance of it and the passive perfect indicate that the passive morpheme [u_i] is missing from Lebanese Arabic.

Lebanese forms passives using two strategies. First, Lebanese Arabic has coopted verb forms V and VII as passives. Forms V and VII normally had a passive signification in Classical Arabic already, since V canonically expressed resultative aspect and VII the inchoative aspect. Both forms typically involve valency reduction with respect to their respective bases (form II for V and I for VII). In Lebanese Arabic, forms V and VII have been adopted wholesale as passives for verbs in forms II and I respectively, as in (2) for form I verbs and (3) for form II verbs. Forms V and VII are transparently derived from
forms II and I, respectively. I take the alternation in (2) and (3) to show that the prefixes

$n$- and $t$- are passive operators for forms I and II respectively.

(2)  
| a.   | keteb (write)   | nketeb (be written) |
| b.   | kasar (break)   | nkasar (be broken)  |
| c.   | na’al (copy)    | nna’al (be copied)  |
| d.   | badal (replace) | nbadal (be replaced) |
| e.   | ‘ara (read)     | n’ara (be read)     |

(3)  
| a.   | HaDDar (prepare)| tHaDDar (be prepared) |
| b.   | ballaT (pave)  | tballaT (be paved)   |
| c.   | kassar (smash) | tkassar (be smashed) |
| d.   | xarrab (destroy)| txarrab (be destroyed) |
| e.   | 9ammar (build) | t9ammar (be built)   |

3.1 Participle formation

The second strategy that Lebanese Arabic uses to express passivization is through auxiliary-plus-passive-participle constructions inherited from Classical Arabic.

Participles can be formed from the morphologically complex expressions in (2) and (3) by prefixation of $mi$-, the Lebanese descendant of Classical Arabic $mu$-. Like in Classical Arabic, $mi$- does not attach to form I verbs as such, but it does attach to derivatives of form I verbs such as form II verbs (4) and their passives (5) or $n$-prefixed passives of form I verbs (6). $mi$- therefore distributes just like in Classical Arabic: it forms a participle from any morphologically complex verb, and is not sensitive to its internal structure, e.g. whether it is active or passive. The active/passive distinction is expressed internal to the participial morpheme $mi$-, as (4) shows compared with (5).

(4)  
| a.   | mHaDDar (preparing) |
| b.   | mkassar (smashing)  |
The participial template maf9uul is retained from Classical Arabic, and, like in Classical Arabic, forms passive participles of form I verbs. So in addition to the participles of the n- derived passive of form I, maf9uul builds passive participles of form I with the same function.

In summary, form I is passivized by prefixing the morpheme n-. Forms II and III are passivized by prefixing the morpheme t-. The prefix mi- forms participles of all the morphologically complex verbs, whether they are complex in their active forms (e.g. fa9al-->mfa9al) or whether they are made complex by passivization (fa9al-->nfa9al-->minfa9al). So passivization and participle formation are strictly synthetic for the non-basic verbs and do not require much analytic sophistication to tease apart. The internal structure of maf9uul is not so transparent. A certain analytical result hangs on what the internal structure of maf9uul is, though. The participles derived by mi- display a separation between passivizing morphology (n-/t-) and participial morphology (mi-). If maf9uul participles also, in some way, display this separation, then we can draw a generalization about Arabic: valency reduction is represented separately from participle formation. The following section teases apart the internal structure of the passive
participle \textit{maf9uul} by comparing it to other classes of verb-related adjectives across Lebanese Arabic.

3.1.1 The structure of \textit{maf9uul}

\textit{Maf9uul} does not display the vowel melody /u_i/ or /u_al/, which the very fact of its existence in Lebanese Arabic corroborates (this morpheme is missing in Lebanese Arabic). But it also does not display the passive morphemes \textit{n-} or \textit{t-} either. It does contain a prefix not clearly evidenced in the other participles, however, namely \textit{ma-}. It is at first glance tempting to analyze the \textit{ma-} of \textit{maf9uul} as some form of the participle forming \textit{mi-}. But several considerations cast doubt on such a construal. First, if \textit{ma-} of \textit{maf9uul} is actually \textit{mi-}, there is no evident explanation for the difference in vowel quality between the \textit{ma-} of \textit{maf9uul} and the \textit{mi-} of the other participles. Further, the vowel of \textit{mi-} evolved from the Classical Arabic back vowel /u/ in \textit{mu-}. This diachronic change did not affect the vowel of the form I passive participle, however. It was \textit{ma-} in Classical Arabic as in Modern Lebanese Arabic. The fact that the diachronic vowel change failed to affect \textit{maf9uul} indicates that it is truly a different vowel from that of the participle forming morpheme, suggesting that \textit{ma-} of \textit{maf9uul} is a different creature altogether from the participle forming morpheme. This leaves the matter of the role of \textit{ma-} in \textit{maf9uul} unresolved for now, but this issue will be clarified shortly. The important point for now is that \textit{maf9uul} differs from the other participles in containing the prefix \textit{ma-}.

Another way in which \textit{maf9uul} is different from the other participles is that its internal prosodic structure is different. Final consonants in Arabic are extrametrical
(McCarthy and Prince (1990)), so for example form I (fa\textit{9}al) consists of two light syllables, and form II (fa\textit{99}al) consists of a heavy syllable followed by a light syllable. Participle formation through prefixation of \textit{mi-} preserves the prosodic structure of the stem: a sequence of two light syllables in the verbal stem (notated [LL]) stays [LL] (\textit{nketeb}--\textit{minketeb}) and a heavy-light sequence ([HL]) stays [HL] (tkassar-- >mitkassar). But \textit{maf9uul} formation changes [LL] to [HH] (keteb-->maktuub). This change in prosodic structure turns out to be a crucial aspect of the morphemic composition of the expression. The following section explains why.

3.1.2 A broader look at related verb/adjective pairs in Lebanese Arabic

The relation between active form I fa\textit{9}al and the passive participle maf9uul is one of several morphological alternations that relate an adjective to a verb. This section reviews three other sets of related verb-adjective pairs. Comparing the similarities and differences among them will serve to isolate what aspects of morphological form correlate with what semantico-syntactic properties across verb-adjective relations, shedding light on the morphemic composition of the form I participles and setting the stage to answer the question about why they differ so radically from the non-form I participles.
The first set of adjectives surveyed here occur in the template-suffix combination $fi9l$-een. These adjectives are clearly deverbal. They denote the state which is initiated at the endpoint of the process denoted by the verb. For example, the verb ‘eleb means fall.

The related adjective ‘ilbeen means having fallen, i.e., the state resulting from falling.

\[
\begin{align*}
(8) \quad &\begin{array}{ll}
a. & \text{‘eleb (fall)} \quad \text{‘ilbeen (fallen)} \\
b. & \text{gheri’ (sink)} \quad \text{ghir’aan (sunken)} \\
c. & \text{fehim (understand)} \quad \text{fihmeen (having understood)} \\
d. & \text{kereh (hate)} \quad \text{kirheen (hateful)} \\
e. & \text{xaaf (fear)} \quad \text{xiifeen (afraid)} \\
f. & \text{9ele’ (jam)} \quad \text{9al’een (jammed)} \\
g. & \text{9ali (rise)} \quad \text{9alyeen (risen)} \\
\end{array}
\end{align*}
\]

\[
\begin{align*}
(9) \quad &\begin{array}{ll}
a. & \text{Di9if (become weak)} \quad \text{Da9faan (weak)} \\
b. & \text{shibi9 (become full)} \quad \text{shub9aan (full)} \\
c. & \text{xewit (become crazy)} \quad \text{xewteen (crazy)} \\
d. & \text{za9il (become sad)} \quad \text{za9leen (sad)} \\
e. & \text{ta9ib (become tired)} \quad \text{ta9been (tired)} \\
f. & \text{zihi’ (become bored)} \quad \text{zih’een (bored)} \\
g. & \text{xirib (become wrecked)} \quad \text{xerbeen (wrecked)} \\
\end{array}
\end{align*}
\]

A striking property of the *fi9leen* template is that it can only form an adjective related to a verb that is non-agentive, such as unaccusatives like *fall* and *sink* as in (8a-b), or experiencer predicates like *understand, hate, fear* and so on as in (8c-e), or simple states as in (9). It cannot form adjectives from clearly agentive verbs like *write, hit, kill*, etc., as the ungrammaticality of the hypothetical forms in (10) indicates.

\[
\begin{align*}
(10) \quad &\begin{array}{ll}
a. & \text{keteb (write)} \quad *\text{kitbeen (writing)} \\
b. & \text{Darab (hit)} \quad *\text{Darbeen (hitting)} \\
c. & \text{‘etel (kill)} \quad *\text{’etleen (killing)} \\
\end{array}
\end{align*}
\]

Furthermore, when an adjective in the template *fi9leen* is related to a verb which is ambiguous between an agentive and non-agentive denotation, the adjective expresses the
non-agentive denotation, that is, it’s related to the non-agentive version of the verb, as in example (11). The verb *wreck* in Lebanese Arabic (*xarab*) displays an intransitive alternation illustrated in the pair (11a-b). But the related adjective *xirbeen* can only pattern after the non-agentive use of the verb in (11b), as the contrast (11c-d) shows, again demonstrating the sensitivity of the *fi9leen* template to non-agentivity.

(11) a. l-wleed xarab-o l-rasmeet
    the-children wrecked-mp the-drawings

    b. l-rasmeet xerb-o
    the-drawings were.wrecked-3f

    c. *l-wleed xerbeen-iin l-rasmeet
    the children (are) wrecking-p the-drawings

    d. l-rasmeet xerbeen-iin
    the-drawings (are) wrecked-p

That said, adjectives formed by *fi9leen* never differ in argument structure from the related verb. So here, unlike a passive transformation, whatever arguments the verb licenses, the adjective licenses also, whether the verb is intransitive as in (12a, d, e), or transitive, as in (12b-c).

(12) a. l-kitaab ‘eleb l-kitaab ‘ilbeen
    the-book fell the-book (is) fallen

    b. kariim fehim l-mishkle
    kariim understood the-problem

    c. kariim kereh l-film
    kariim hated the-movie

    d. kariim xaaf min l-Tayyaaraat
    kariim fears of the-airplanes

    e. l-‘irseel 9ele’ l-‘irseel 9al’een
    the-transmission jammed the-transmission (is) jammed
But the verb-adjective pairs in (8) and (9) do share a commonality with the verb-passive participle pairs in (7), namely the change in prosodic structure from [LL] in the verb to [HH] in the adjective. So *fi9leen* has a prosodic alternation in common with the passive participle *maf9uul*.

3.1.2.2 *fa9iil*

Another set of adjectives with related verbs occur in the template *fa9iil*. For example, the verb *‘arib* (become near) has a related adjective *‘ariib*, meaning just *near*, *9ati’* (wear out), has *9atii’* (worn out), and others as listed in (13).

(13) a. *‘arib* (become near)  ‘ariib (near)  
b. *9ati’* (wear out)  9atii’ (worn out)  
c. *raxiiS* (become cheap)  raxiiS (cheap)  
d. *kabir* (become large)  kabir (large)  
e. *9ariD* (become wide)  9ariiD (wide)  
f. *mariD* (become sick)  mariiD (sick)

There is an aspectual difference between adjectives in the template *fa9iil* and those in the template *fi9leen*, however. While *fi9leen* denotes the state resulting from the process denoted by the verb, and is evidently deverbal for this reason, the *fa9iil* adjectives do not denote a resulting state, appearances notwithstanding. That is, *‘ariib (near)* does not mean *having become near*, i.e. the state resulting from becoming near. Rather, it just means *near*, and nearness in this case might have always obtained; there is no implication of a change of state in these forms. Likewise, then, *raxiiS* means *cheap*, and has no implications for whether or not the element predicated on *raxiiS* was ever other than cheap. *kabir* means *large* and does not imply that the element predicated on *kabir* was ever small. Even *9atii’* (worn out; said of machines) does not imply a process of wearing
out. These facts indicate that actually the related verbs are deadjectival. All the verbs have the meaning of the adjective as a subpart. The verbalization of the adjective simply lends it the aspecual character of a change of state. That that this aspect is not preserved in the adjective suggests that the adjectives are not derived from the verbs. The change of state in the process denoted by verbs related to fi9leen adjectives is in fact preserved in the adjectives, indicating that fi9leen is deverbal. fa9iil, on the other hand, is not. This difference in the directionality of the derivation is of some interest, but since it does not bear directly on the considerations that will be taken into account to determine the morphological composition of the participles, I will continue for the time being to speak merely of related verb-adjective pairs, and not take into account the direction of the derivation.

Like the fi9leen template, adjectives in the fa9iil template share the argument structure of the related verb, as in (14).

(14) a. l-treen ‘arih 9a l-mHaTTa l-treen ‘arih 9a l-mHaTTa
    the-train approached to the-station the-train (is) near to the-station

    b. l-siyyaara 9at’-et l-siyyaara 9atii’-i
       the-car wore.out-3fs the-car (is) worn.out-fs

    c. l-wleed marD-o l-wleed mariiD-iin
       the-children became.sick-3p the-children (are) sick-p

And, also like the fi9leen template, they cannot be related to an agentive verb. The verbs in (13) are unaccusative and hypothetical agentive forms as in (15) are ungrammatical.

(15) a. keteb (write) *katiib (writing)
    b. Darab (hit) *Dariib (hitting)
    c. ‘etel (kill) *‘atiil (killing)
In the case of the *fa9iil* template, the verb-adjective relation correlates with a change in prosodic structure from [LL] to [LH], which has the heaviness of the final syllable in common with the *fi9leen* template and the passive *maf9uul* template.

3.1.2.3  *fa9l*

Lastly, a set of adjectives with related verbs exist in the template *fa9l*, such as *Sa9b* (difficult), from *Sa9ib* (become difficult), *Sexn* (hot) from *Saxan* (become hot), and others.

(16) a. *Sa9ib* (become difficult)  *Sa9b* (difficult)
b. *Saxan* (become hot)  *Sexn* (hot)
c. *Heli* (become beautiful)  *Helw* (beautiful)

Here again, the arguments licensed by the adjective are the same as those licensed by the verb.

(17) a. l-mishkle  *Sa9b*-et  l-mishkle  *sa9b*-e  
    the-problem became.difficult-3f  the-problem (is) difficult-f  
b. l-mayy  *Saxn*-et  l-mayy  *Sexn*-e  
    the-water became.hot-3f  the-water (is) hot-f  

And again, the template cannot be related to an active verb.

(18) a. keteb (write)  *katb* (writing)
b. Darab (hit)  *Darb* (hitting)
c. ‘etel (kill)  *’atl* (killing)

And again, the adjective differs from the verb prosodically in the heaviness of the final syllable, in this case the only syllable. So the *fa9l* template shares the heaviness of the final syllable with the other adjectival templates *fa9iil*, *fi9leen* and the passive participle *maf9uul*.
3.2 Summary

The previous section reviewed the behavior of three adjectival templates that occur in related verb-adjective pairs. A comparison of the commonalities and non-commonalities with the passive \textit{maf\textsubscript{9uul}} template is revealing. Semantico-syntactically, all four templates (\textit{maf\textsubscript{9uul}, fi\textsubscript{9leen}, fa\textsubscript{9iil}, and fa\textsubscript{9l}}) form non-agentive adjectives. Morphologically, all end in a heavy syllable. Again semantico-syntactically, \textit{maf\textsubscript{9uul}} differs from the other templates in that its valency is reduced with respect to the verb it is paired with. Morphologically, \textit{maf\textsubscript{9uul}} differs from the others in the presence of the prefix \textit{ma-}. The comparison across the four templates reveals that the heavy final syllable correlates with non-agentive adjective formation and the prefix \textit{ma-} with valency reduction. I propose that \textit{ma-} and the heavy final syllable are morphemic in Lebanese Arabic. The morpheme whose phonological form is heaviness in the final syllable will be notated \textit{H}.

\begin{enumerate}
\item[(19)] a. \textit{ma-} combines with a predicate and absorbs its external argument.
\item b. \textit{H} combines with a non-agentive predicate and forms an adjective.
\end{enumerate}

The prediction here is that no agentive adjective can end in a heavy syllable. The agentive adjectives are the active participles, shown below.

\begin{enumerate}
\item[(20)] I fee9il
\item II mfa99al
\item III mfaa9al
\item VIII mifta9al
\item X mistaf9al
\end{enumerate}
The active participles of the non-basic forms II, III, VIII and X satisfy the restriction vacuously, since *mi*- preserves the prosody of the underlying verb, which ends in a light syllable anyway. But the non-paradigmatic form I active participle does not preserve the prosodic structure of the related verb, but still satisfies the generalization that only non-agentive predicates end in a heavy syllable. Because the form I active participle is not forced into the form *fee9il* by a morphological paradigm, the fact that the form it has obeys the generalization supports the linguistic relevance of the generalization. The proposal in (19) makes it no accident that the form I active participle differs from the form I passive participle in exactly this way, namely that it ends in a light syllable, whereas the passive participle ends in a heavy syllable. The presence of the morpheme *H* in the active participle would be incompatible with the agentive signification of the participle. It would represent a selectional mismatch, since *H* only applies to non-agentive predicates. (19) predicts that the active participle must differ from the passive participle in exactly the way it does, supporting the proposal of the morphemic status of *H*.

*H* is a morpheme that applies only to non-agentive predicates. Unlike regular concatenative morphology, this morpheme seems to take the form of a principle relating a prosodic property (a heavy final syllable), to a semantico-syntactic property, namely the categorial status non-agentive adjective. That Arabic has a morpheme of this form is unremarkable, since the availability of such principles to the morphemic inventory is said to be precisely what distinguishes templatic languages like Arabic from synthetic languages like English (McCarthy and Prince (1986)). Nonetheless, the exact form such principles should have in the grammar is a complex matter. The possibility of reducing
some templatic morphology to concatenative processes seems promising (see Ratcliffe (1998)). It suffices in the meantime that $H$ is morphemic and has the properties it was shown to have above: it is a derivational morpheme that combines (in some way) with a non-agentive predicates and forms an adjective.

The end result of this investigation into the morphemic composition of $maf9uul$ is that $maf9uul$ is morphologically complex just like participles of the non-form I verbs. Like e.g. $mitHaDDar$ (prepared), which contains the valency reducer $t$- and the participle builder $mi$-, $maktuub$ (written) also contains a valency reducer, this time $ma$-, and a participle builder $H$. So passive participle formation in Arabic is consistently ‘spread out’ over two morphemes, one morpheme which absorbs the external argument of the related verb and a derivational morpheme which forms an adjective form the valency reduced verb.

The preceding discussion showed that in Lebanese Arabic, passivization is consistently spread out over two morphemes. In some cases, this is obvious, like in the participles of the form $minfe9il$, where the participial morpheme $mi$- occurs with the passive morpheme $n$- entirely transparently. In other cases, it is non-obvious, as in the participles of the form $maf9uul$, but a detailed look at the internal structure of $maf9uul$ based on cross-categorial similarities shows that there too, participial morphology ($H$) is distinct from passive morphology ($ma$-). The following section shows that English is like Arabic in that passive morphology is spread out over two morphemes, though it is even less obviously the case there. Yet, a close look at the distribution of the ‘passive
participial’ morpheme -en shows that -en behaves like Arabic $H$, and passive morphology is to be found elsewhere.

4. English

This section shows that English is like Arabic in that passivization is morphologically spread out over two morphemes. Passivization in English is not standardly analyzed as morphologically complex. The standard analysis of passive in the generative linguistic tradition follows Jaeggli (1986), and Baker, Johnson and Roberts (1989) to the effect that a suffix -en (with allomorphes -ed and others) combines with a transitive verb to yield a passive participle, in some way absorbing the external theta role and the accusative case licensing property of the verb. This participle then does not license a syntactic object (does not assign accusative case) and does not license an agent (does not assign the agent theta-role). The participle therefore displays a reduced valency with respect to the non-passivized transitive. It has the distribution of an adjective.

There are fine-grained distinctions among passive participles regarding to what extent they retain characteristics of verbs they are derived from, particularly what might be called ‘eventiveness’, but these differences do not bear on the points made in the present study, and I will not mention them again, instead referring to passive participles uniformly as adjectives. But see Wasow (1977), Levin and Rappaport (1986), Marantz (2000), among others on distributional distinctions among passive participles. The data in (21) seem to support the standard analysis of passivization.

(21) a. (i) John wrote the message (ii) The message was written.
    b. (i) John filed the reports. (ii) The reports were filed.
c. (i) John rode the bicycle.  (ii) The bicycle was ridden.
d. (i) John repaired the computer. (ii) The computer was repaired.

The sentences in (ii) bear the passive relation to those in (i), and differ morphologically in the presence of -en (and the auxiliary obligatory for adjectival predicates). The conclusion that participle forming -en is itself the valency reducing morpheme seems straightforward.

However, participles built from -en are not restricted to transitive bases. -en also applies to intransitive unaccusative verbs, and it preserves their argument structure when it does so.

(22)  a. (i) The passengers arrived.  (ii) The arrived passengers
     b. (i) The snow fell.   (ii) The fallen snow
     c. (i) The ice melted.  (ii) The melted ice
     d. (i) The cement solidified. (ii) The solidified cement

In (22), -en looses its passivizing function, and merely forms an adjective out of the corresponding verb. The argument licensed by the intransitive verb in (i) is also licensed by the ‘passive’ participle in (ii). The behavior of -en in (22) is therefore different from its behavior in (21), where it has the additional effect of removing an argument from the predication.

It is unlikely that two derivational affixes with the form -en are at work here, one that is passivizing and another that is not. Adjectives formed by affixation of -en always have the same semantico-aspectual character. These participles denote a resultant state, regardless of the transitivity of the stem, as (23) shows.

(23)  a. The arrived passengers
       = The passengers that are in the state resulting from arriving
     b. The fallen snow
       = The snow that is in the state resulting from falling
     c. The filed reports
       = The reports that are in the state resulting from filing (them)
d. The written messages
   = The messages that are in the state resulting from writing (them)

The behavior of the -en affix in (21) (passives) is therefore only one part of its phenomenological playing field. The one characteristic that all the occurrences of -en have in common is the verb-to-adjective derivation. Valency reduction does not seem to be an inherent property of -en, but rather comes from some aspect of the syntactic context in (21) that is not there in (22).

Whatever licenses valency reduction in (21) then would seem to not have any morphological reflex at all. If -en is only adjective-deriving, then what is responsible for valency reduction in passives does not correspond to any morpheme visible in the (ii)-sentences in (21). That is, in English, passivization seems to be non-overt. Two other constructions in English corroborate this claim. One is passive deverbal nominals, the other is middle constructions.

Nominalizations of transitive verbs typically have the form in (24a), where the agent appears prenominally in the genitive case and the patient postnominally as the object of the preposition of.

(24) a. The Romans’ destruction of the city
    b. The destruction of the city by the Romans

Noun phrases like (24a) display an alternation with expressions of the form in (24b), which parallels the passive operation in verb phrases. The subject disappears from its canonical (pre-nominal) position and may optionally surface in a so-called by-phrase. In the case of the nominals, object preposing to subject position is possible but not obligatory, since objects of nominalizations are not dependent on the nominal for case or whatever licenses syntactic objects, since the preposition of may step in to play this role.
There is no morphological reflex of the alternation between (24a) and (24b). I.e., the noun bears no morphology, least of all -en, that morphologically signals that its argument licensing properties differ in (24b) from their canonical form in (24a). Further, the nominal that heads the phrase in both (24a) and (24b) already bears derivational morphology, namely the nominalizing suffix -ion. Since -en, in the proposal being fleshed out here, is a derivational affix that sends a verb to an adjective, we do not expect to find it in nominalizations. The nominalizing morphology plays the role of lending the verbal base its surface syntactic character (noun), which is just the role that -en plays in the adjectival passives in (21) and (22). Postulating that -en is a verb-to-adjective derivational affix that is not responsible for valency reduction explains the properties of (21)-(24) in one analytical swoop. We do not expect -en in (24) because the derivational affix -ion excludes it. We do not expect any overt reflex of valency reduction (the alternation (24a-b)), because valency reduction has no morphological reflex in English.

Another construction that demonstrates the absence of any morphological reflex of valency reduction in English is the middle construction. Transitive constructions like (25a) alternate with ‘middle constructions’ in (25b). The middle construction is characterized by surpression of the external argument of the verb and object promotion to subject position, both characteristic of passive constructions. The possibility of a valency-reduced verb appearing as a tensed verb (unlike passive, which requires aux-plus-participle form) seems to be licensed by the adverb, which is obligatory.

     b. This book reads easily.

(26)  a. One translates Greek easily.
     b. Greek translates easily.
Again here, suppression of the subject plus object promotion to subject position appears without any morphological reflex. The verbs in the b-examples bear no affix which ‘signals’ the fact that their valency is reduced with respect to the a-examples.

The standard analysis of -en as a valency reducing morpheme therefore makes the standard passive construction in (21) quite exceptional. Nowhere else in English is it the case that valency reduction has any morphological reflex. This exceptionality, and the exclusion of -en in the context of other derivational morphology, as in (24), indicates that -en is a purely derivational affix not involved in valency reduction, and that valency reduction itself is non-overt.

This proposal explains the unexpected failure of valency reduction in participles of unaccusatives, the non-overtness of valency reduction in nominalizations and middles (it is non-overt everywhere) and the gross distribution of passive participles (they are predicate adjectives derived by -en). But it entails a peculiar restriction on the distribution of -en described below.

4.1 The distribution of -en

If -en is not valency reducing, the fact that passive participles must occur with valency reduction is puzzling. We saw in (22) that -en may apply to an unaccusative verb and preserve its argument structure in the derived adjective. Why can’t -en apply to a transitive verb and preserve its argument structure in the derived adjective?

(27) a. *John was written the message.  
b. *Mary was filed the reports.  
c. *Sue was ridden the bicycle.  
d. *Samantha was repaired the car.
The ungrammatical strings in (27) demonstrate that participle formation seems to require valency reduction. These data suggest that there is some connection between -en and passivization after all.

What these data show, in particular, is that -en cannot appear in the environment of an agent. Though it is not directly responsible for valency reduction, it is excluded by agentivity. It may attach to an agentive verb only in the context of valency reduction, since valency reduction removes agentivity from the picture. It may attach to an unaccusative verb as such (see (22)), since unaccusatives are already non-agentive. But the context that licenses -en in transitives is passive.

But we have seen this pattern before. These are just the licensing conditions for the Arabic morpheme $H$. Recall that $H$ is a derivational affix that sends predicates to adjectives. There is a restriction on its distribution, however, which is that it can only apply to non-agentive predicates. The evidence for this was that the all the occurrences of $H$ in which the argument structure of the adjective derived by $H$ is the same as that of the underlying predicate, the underlying predicate is non-agentive. The only cases in which $H$ occurs in the context of an agentive verb are just the cases where passivization has applied and de-agentivized the verb. That is, $H$ can only apply to transitive verbs when passivization strips away agentivity, fulfilling the requirement on $H$ that it only appear in non-agentive environments. -en is exactly the same. It applies to non-agentive predicates and derives an adjective. The only way it can apply to a transitive verb is when passivization strips away agentivity. Therefore, -en shares the non-agentivity restriction on $H$. 
There is one apparent exception to the non-agentivity restriction on -en, which is its appearance in perfective constructions.

(28)  a. Sally has written the message.
     b. Sally has filed the reports.
     c. Sally has ridden the bicycle.
     d. Sally has repaired the computer.

In these cases, there is no valency reduction and the participle seems to license an object. However, the difference between (28) and the passives in (21) is in the form of the auxiliary, not the form of the participle. What (28) shows is that have is a transitive auxiliary. It licenses a syntactic object that would not otherwise be licensed. The objects in (28) are not licensed by the participle, but by have. This claim rests on the assumption that the object is related to have in some way that underlies the licensing relation, for example, by movement of the object to a case position provided by have, with subsequent restructuring of the participle into the auxiliary. In fact, Lasnik and Saito (1991) claim that objects move to a predicate-external position in English on the basis of negative polarity licensing (29a) and binding facts (29b).

(29)  a. The prosecutors convicted nobody during any of the trials.
     b. The prosecutors convicted the two defendants during each other’s trials.

The object in (29a) and (29b) can bind each other and license the negative polarity item any in the predicate modifier during. . ., and therefore must be hierarchically superior to the modifier given standard assumptions about the syntactic configuration that negative polarity licensing and binding requires. Since the object is superior to a phrase that modifies the predicate, it must be superior to the predicate also, i.e. English has object scrambling, which is just the result that the proposal that have licenses the object in (28) requires.
The conclusion that *have* is transitive means that the perfect constructions in (28) consist of two domains. That is, they are basically biclausal, consisting of one clause containing the subject and auxiliary, which in turn embeds another clause containing the participle and its object, which the auxiliary takes as an object in what is basically an exceptional case marking (ECM) construction. The agent surfaces outside of the clause headed by the participle, making this clause agentless, fulfilling the non-agentivity restriction on the context of *-en* affixation.

5. Conclusion

This cross linguistic comparison began with the observation that the heavy final syllable of Arabic has the character of a morpheme. It derives adjectives from predicates. But it has an unusual restriction on its distribution: it only applies to non-agentive predicates. A look at the standard analysis of passivization in English showed that the premise that *-en* is a passive marker is flawed. When we look across valency reduction contexts on one hand and contexts where *-en* appears on the other we find no generality to the standard analysis in the behavior of these elements/processes. In response to this, I analyzed *-en* as a purely derivational affix, and valency reduction as a covert operation, and found that in this light, both of these processes behave uniformly across constructions (*-en* always derives an adjective and valency reduction is always covert). But the analysis entailed an unusual restriction on the distribution of the derivational morpheme *-en*: it only applies to non-agentive predicates. This means that in both English and Arabic, passive participles consist of a valency reducing morpheme/operation and an
adjective forming derivational affix with a non-agentivity restriction on its context. This makes the morphological composition of passive participles in English and Arabic entirely isomorphic, down to the non-agentivity restriction on the derivational affix.

This analysis offers a novel understanding of how passivization works in both English and Arabic, and insight into a certain cross linguistic uniformity that may be quite widespread. A very cursory look at other Germanic and Romance languages seems to indicate at least at first glance that the contexts for participial morphology are like in English. I am tentatively suggesting that valency reduction can never be compounded with derivational morphology; they are always separate. This hypothesis may lead to a rather different and possibly more insightful understanding of what valency reduction is than is currently held. The contribution of the present study is to cast the passive phenomenon in this new light.

References

