THE EFFECT OF A NULL PRONOUN ON MORPHO-PHONOLOGY: ISRAELI HEBREW DEMONYMS

NOAM FAUST
Hebrew University of Jerusalem

1 Problem

As the data in (1) show, Modern Hebrew (henceforth MH) demonyms (names of populations) are formed with the suffix *-i*, and so are the related adjectives. A form like [aŋgl-**i**] is either 'an Englishman', or the adjective 'English'. In some cases, the suffix *-i* attracts stress away from bases onto itself (1a), whereas in other cases, stress remains on the base (1b). Non-native bases tend to be of the latter type; other than this relative generalization, the origin of the base is not a good predictor of stress mobility:

(1) Demonyms in Modern Hebrew[1]

    a. [sfaˈrad]   'Spain'   => [sfaraˈd-i]   'Spaniard / Spanish (adj.)'
        [carˈfat]   'France'   => [carfaˈt-i]   'Frenchman / French (adj.)'
        [gerˈman-ya] 'Germany' => [germaˈn-i]   'German (noun or adj.)'

    b. [yarˈden]   'Jordan'   => [yarˈden-i]   'Jordanian (noun or adjective)'
        [yaˈpan]   'Japan'   => [yaˈpan-i]   'Japanese (noun or adjective)'
        [kroˈat-ya]   'Croatia'   => [kroˈat-i]   'Croatian (noun or adjective)'

However, the inflections of the noun and adjective differ. In the feminine form, nouns with final mobile stress have feminines in *-a* (2a), while nouns without final mobile stress have feminines in *-i-t* (2b).[2] Adjectives, in turn, have *-i-t* regardless of base stress (2c). In the plural

---

[1] When a base ends in -(i)ya, this suffix is omitted before the demonymic and adjectival *-i*.
[2] For the full distribution of feminine suffixes in MH, see Schwarzwald (1982).

form, nouns exhibit only the plural *-im*, not *-i* (2d), whereas adjectives concatenate both exponents *-i-im* (2e).[3]

(2)   Demonyms: *-i-a* vs. *-i-t, -im* vs. *-i-im*

	a.	*b.*	*c.*	*d.*	*e.*	
noun	*demonym*	*fm.nom.*	*fm.adj.*	*nominal pl.*	*adjectival pl.*	
carˈfat	carfaˈt-**i**	carfat-i-ˈ**a**	carfaˈt-**i-t**	carfaˈt-**im**	carfaˈt-**i-**ˈ**im**	'French'
yaˈpan	yaˈpan-**i**	yaˈpan-i-**t/*a**	yaˈpan-**i-t**	yaˈpan-**im**	yaˈpan-**i-im**	'Japanese'

The goal of this paper is to motivate the differences between the inflections of the noun and the adjective. Specifically, the following three questions will be raised:

  Q1. Why is *-a* impossible in bases with non-mobile stress (*yapan-i-a)?
 **Q2.** Why is *-a* is impossible in adjectives? (*carfat-i-a* cannot be an adjective)
  Q3. Why does *-i* resist deletion in adjectives, but not in nouns?

                                                                     (*carfat-**i**-ˈ**im*** cannot be a noun)

My answer to these questions will have far-reaching consequences as to the difference between adjectival and nominal inflection. I will claim that the inflection that appears on the adjective is structurally not the inflection of the adjective, but rather the realization of features appearing on the projections of a null nominal layer. This nominal layer enables the adjective to carry phi-features while still not being referential. The proposed structure of an (agreeing) adjective is presented in (3) (the DP level is specific to those Semitic languages where adjectives agree in definiteness):

(3)   Proposed adjectival structure
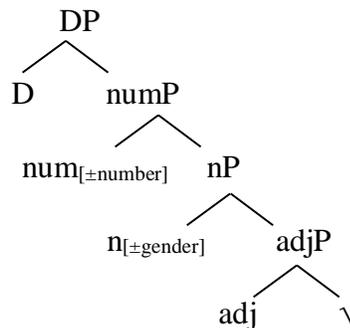
I will argue that the presence of the extra nominal layer in the adjectival structure is what renders impossible the appearance of -a on adjectives; this extra layer also forces the adjectival -i and the plural -im to concatenate, rather than coalesce as they do in nouns.

---

[3] [ii] may also reduce to [i]. The distinction is still real: the double [ii] appears only on adjectives. Moreover, an adjective qualifying an animate noun may behave like a noun: *sofrim carfatim~carftiim* 'French authors', *soferet carfatia~carfatit* 'French female author'. The important distinction is still noun vs. adjective, as nouns may only have the form in (2). The effect of animacy is thus a separate question, which will not be discussed here.

This short paper is structured as follows. Section 2 portrays the analysis in Faust (2011, 2014) regarding the phonemic form of the different affixes in question. That analysis, it is shown in section 3, implies that different morpho-phonological scenarios are involved in the addition of *-a* and *-i-t*: the former alters the base in a way that the latter doesn't. Thus, if we assume that adjectival bases may not be altered, we derive the correct distribution of the two suffixes. Section 4 then asks why adjectival bases may not be altered, and provides the answer already sketched out in (3). Section 5 discusses some possible problems and section 6 concludes.

2   Some Morpho-Phonological Preliminaries

In order to evaluate the morpho-phonological analysis in this paper, one has to be familiar with the analysis of affixes and stress in Faust (2011, 2014). This section offers a short sketch of that analysis.

One issue tackled in Faust (2011, 2014) concerns the second vowel of nouns like [ˈdegel] 'flag', which is interesting from two perspectives. First, it is unstressed, whereas the vast majority of native words in Hebrew bear final stressed. Second, it alternates with [a] in the plural [dgaˈlim]. In the paper, both facts are explained by assuming that the vowel is an underlyingly short /a/, and that short vowels in the final syllable are ignored by the stress algorithm. To explain the different qualities of the vowel it is suggested that short /a/'s are realized as [a] only in the pretonic position, because they are lengthened in this position. In most other positions, the nucleus occupied by a short /a/ will be treated as empty: if the syllabification requirements of the language call for the position to be realized, it will be realized as the epenthetic [e]. Thus, in the singular [ˈdegel], not realizing the vowel would yield a final cluster, illicit in the native MH vocabulary. In the plural [dgaˈlim], the /a/ is pretonic, and so it is lengthened and realized as [a].

The paper links this phenomenon to the near complementary distribution between two of the forms of the feminine suffix, namely unstressed [-et] and stressed [-a]. The latter is traditionally analyzed as underlyingly /at/, with the /t/ surfacing only upon additional suffixation, e.g. *šit-a* 'method' *šit-at-i* 'methodic'. Thus, there are three differences between the two affixes: the surface quality of the vowel, the floating of the /t/ in one but not the other and stress. The analysis adopts the framework of CVCV phonology (Lowenstamm 1996, Scheer 2004), where the skeletal level is made of strictly alternating C and V slots. Within this framework, all three differences between the allomorphs can be explained by assuming a single segmental stretch /at/ and a single skeletal stretch of two CV units. The two allomorphs correspond to the two possible association patterns. If the vowel occupies both V slots, it is long, and thus expected to be realized as stressed [-a], and the /t/ is expected to float (4b). For the /t/ to be realized, the /a/ must occupy only one V slot, and thus the slot is expected to be ignored by stress (because the /a/ is short) and be realized as [e] in this position (4b).

(4)   The two allomorphs of the feminine morpheme

a. stressed [-a(t)]   b. unstressed [-et]
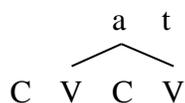
In MH, the addition of the unstressed suffix [-et] to bases with [a] in their last syllable productively transforms this [a] into [e]. For instance, the feminine form of [caˈlam] 'photographer' is [caˈlem-et]. In Faust (to appear) this is analyzed in the following manner. As represented in (5a), the base must have an underlyingly long /a:/, because we know that this vowel ends up being stressed. The feminine affix /at/ has no skeletal material of its own, and must use that of its base. It must therefore alter the association of the segments of the base to the skeleton. This results in the shortening of the base /a/. If the /t/ of the suffix is associated to the evacuated C-slot, as it is in (5b), then the vowel of the suffix will be ignored by the stress algorithm. Stress will fall on the preceding nucleus, where there is a shortened /a/. This vowel is predictably realized as [e].

(5)   The suffix /-at/ is parasitic and changes the association of the base: unstressed [-et]

    a. [cal**a**m] before suffixation   a. [caˈl**e**met] after suffixation

```
c   a   l   a   m   (+a t)        c   a   l a m a t
|  /  \  |  /  \  |               |  /  \ | | | | |
C V C VC V C V C V                C V C VC V C V C V
```

The unstressed suffix [-et] has the same segmental representation as the stressed [-a]. The two must therefore also viewed as skeletally parasitic. However, the effect on the base is in this case not detectable, because of the independently established rule of pretonic lengthening, as illustrated in (6). Before suffixation, the second vowel of [šaˈfan] 'hyrax' is underlyingly long, and thus stressed. The first vowel is short, but also pretonic, and will therefore eventually be lengthened and realized as [a]. When the suffix [-a] is added, it attracts stress [šfaˈna] 'female hyrax'. The penultimate vowel, which is now shortened, will be preserved by pretonic lengthening; the antepenultimate vowel, no longer pretonic, will be syncopated.

(6)   The suffix /-at/ is parasitic and changes the association of the base: stressed [-a]

    a. [šafan] before suffixation   d. [šfana] after suffixation

```
š  a  f  a   n   (+a t)          š  a f a n  a   t
|  |  |  /  \  |                  |  |  | | |  /  \
C V  C VC V C V                   C V  C V C V C V
```

Having established the representation for the feminine [-a] and [-et] as /-at/, let us examine the other suffixes that we will be concerned with: adjectival *-i* and plural *-im*. Since *-i* attracts stress when stress attraction is possible, the most straightforward representation of this suffix in the framework of the account above endows it with two CV units.[4] This is evidenced by the

---

[4] In principle, *-i* may also have had only one CV unit without it ever being detected, because of Pretonic Lengthening. But there is no evidence to the interaction of this suffix with the base, and so I assume that there is no reason to assume only one CV unit.

adjective *xatul-at-i* 'like a female cat' in (7), derived from *xatul-a* 'female cat' (note the reemergence of the feminine /t/ mentioned above).

(7)   The suffix *-i* has two CV units

```
x a t u l   a   t     i
| | | | | | / \ \ / \
C V C V C V C V + C V C V
```

Finally, the plural suffix *-im* behaves like *-i* with respect to stress. It has been analyzed as carrying two CV units, too, with its vowel branching on the base's final empty nucleus:

(8)   The suffix *-im* has two CV units

```
x  a  t   u   l     i   m
   |  |  |  /   \   |  /    \  \
C  V  C  V  C  V  C  V + C  V  C  V
```

A major difference between *-a(t)*, *-i* and *-im* is revealed: whereas *-a(t)* alters the association of the base segments and skeletal positions, the two other suffixes don't. This difference will play a major role in the next section, in which we return to the difference between adjectival and nominal inflections.

3   Back to Questions

Let us return to the first question regarding the demonym data, namely

Q1. Why is *-a* impossible in bases with non-mobile stress (**yapan-i-**a***)?

The *relevant* examples are, again, [yaˈpan-i] and its feminine [yaˈpan-i-t], rather than *[yapˈan-i-a], *[yapan-i-ˈa], *[yapaˈn-i-a].

A possible answer comes from the realm of Paradigm Uniformity. As we have seen above, *-a* attracts stress. Adding -t does not affect stress. If indeed stems with non-mobile stress are lexically stressed, then maybe the selection of the -t allomorph is intended to preserve lexical stress, so that all members of the paradigm would have the same stress pattern.

There are three problems with this solution. First, "lexical stress" is defined rather circularly in MH. One notes that an item has non-mobile stress and therefore defines its stress as lexical; and then explains the non-mobility of stress by claiming that the stress is lexical. Second, it is simply not true that -a may attract lexical stress: the final [a] of loans such as [ˈviza] and [diˈlema] is not stressed, and yet such words are always analyzed as feminine.5 Third, it is unclear how this answer is related to the other questions: why is this Paradigm Uniformity never violated in adjectives, regardless of stress? Moreover, in the plural, things seem to work the other

---

5 The analysis of such words as carrying final *-a* is further bolstered by the fact that like native feminine nouns with *-a*, loans recuperate the underlying /t/ in the construct state: compare [šiˈta] 'method' - [šiˈta**t** ˈfeldenkrayz] 'the Feldenkraiz method' and [diˈlema], [diˈlema**t** oˈtipron] 'The Euthypro Dilemma'.

way around: in the nominal inflection, the -i of the noun is lost, but that of the adjective is retained.

We will now see that based on the morpho-phonological generalization of the previous section, **Q1** question can be answered along with the other two questions. Let us first recall **Q2**, viz. "Why is *-a* impossible in adjectives?" I would like to advance the proposal in (9):

(9)   Proposal

      In the inflection of adjectives, association lines cannot be undone

Consider the autosegmental representation of a demonym *noun* in (10). In the masculine (10a), the suffix /-i/ with its two CV units is added. The /-i/ is associated to the final empty nucleus and to the first suffixal V-slot. The rightmost CV unit will presumably be deleted subsequently. In the feminine form of the same noun in (10b), the vowel of the suffix /-at/ occupies both of the CV units that accompany the suffix /-i/ (recall that /-at/ has no CV of its own). Crucially, the association pattern of the bases masculine is altered in the feminine, viz. the association between of the /-i/ and the first affixal V-slot is undone.

(10) Masculine *-i* and feminine *-i-a* in nouns

    a.   a n   g   l   **i**   => /angli/ => [aŋgˈli] 'an Englishman'
           | | | | **/** \
       C V C V C V C V+**C V C V**
          | | | | | \ /
    b.   a n   g   l **i**   a t => /anglia:ᵗ/ => [aŋgliˈya] 'an Englishwoman'

The representation in (10b) does not violate the principle in (9) because it is not an adjective. The same situation is presented for the parallel adjective in (11). The masculine adjective is identical to the demonym noun. In contrast, in the feminine, the realization [a] of the feminine is impossible according to the proposal, because it would necessitate the delinking of the right branch of the /-i/. For this reason, it is the /t/ of the suffix and not the /a/ which is realized.

(11) Masculine *-i* and feminine *-i-t* in adjectives

    a.   a n   g   l   **i**   => /angli/ => [aŋgli] 'an Englishman'
           | | | | **/** \
       C V C V C V C V+**C V C V**
          | | | | \ **/** \
    b.   a n   g   l **i**   a t => /anglit/ => [aŋglit] 'English (fm.adj)'

The main merit of this proposal is that it can also answer **Q3**, namely "Why does *-i* resist deletion in adjectives, but not in nouns?" Consider the nominal plural, which we have said completely overrides the suffix *-im*, /aŋgl**i**+**i**m/ => [aŋgl**i**m]. One may regard this as a process of coalescence as in (12). At the first stage, the plural suffix /-im/ is added with its two CV units to the base with the suffix /-i/. The coalescence of the two /i/'s results in the deletion of the two rightmost CV units.

(12) Vowel coalescence in nominal plurals

```
    a  n   g   l   i       i   m
    |  |   |   |  / \     /  \  |
  C V  C V C  V C V + C V C V + C V C V
```

⇩

```
    a  n   g     l   i   m
    |  |   |     |  / \  |
  C V  C V C   V C V + C V C V + C̶ V̶ C̶ V̶
```
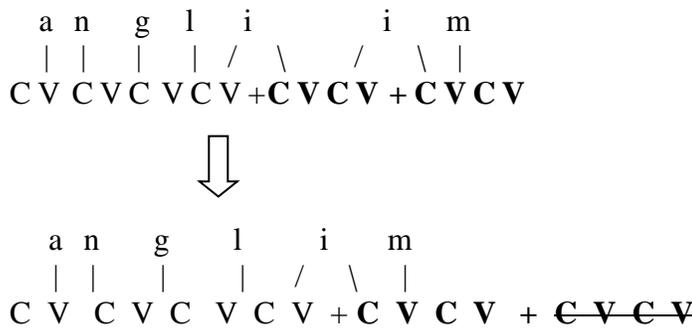
The coalescence in (12) involves the dissociation of the /i/ of the base. If my proposal in (9) is on the right track, then it is predicted that in adjectives there will be no such deletion, because dissociation is impossible in adjectives. This, as we saw, is exactly the case of the adjectival plural *angliim*.

Having answered both **Q2** and **Q3** with the proposal in (9), let us return to **Q1**, which asks why words with lexical stress always select for the [t] allomorph. We may now say that in such words, there is a general requirement to change as little as possible from the base, not just the stress. Changing the association pattern is one form of change, and thus expected to be dispreferred.

If so, the proposal above answers all three questions. In adjectives, association lines may not be undone. But now one must ask *why* this is so. Why is the masculine pattern of association more important to preserve in an adjectival base than in a nominal base? In order to answer this question, we must venture into morpho-syntax.

4 Enter Morpho-Syntax: The Difference between Adjectives and Nouns

4.1 Adjectival Agreement as Pronominal and Contextual

According to Goldenberg (1995), Semitic adjectives contain a silent "pronoun" which is co-referenced with the noun. This co-reference results in agreement. This silent pronoun is represented in (13) as X.

(13) The structure of adjectival inflection

a. *Adjective* *Noun*
          sus
    skoti X
    'Scottish horse'

b. *Adjective* *Noun*
          sus-im
    skoti X-im
    'Scottish horses'

Under Goldeberg's view, inflection on an adjective, unlike nominal inflection, is not structurally adjacent to the adjective but rather to a silent pronoun. Thus, in essence adjectives have no inflection of their own; they only seem to be inflected, when in fact it is a null pronoun that is inflected through the syntactic relation. This view recalls the distinction between inherent and contextual inflection (Booij 1995). While inherent inflection expresses a relation between the referent and the signifier, contextual inflection expresses a relation between signifiers in the syntactic structure. Thus, gender and number are inherent on nouns, but contextual on adjectives. An important difference is that Goldenberg's proposal does not necessitate an axiomatic distinction between inherent and contextual inflection; it derives this distinction through the presence of the pronoun.

There is no reason that Goldenberg's account should be limited to Semitic adjectives. Indeed, one cross-linguistic fact that this view immediately explains is the amount of regularity in nominal vs. adjectival inflection. In a great many languages, the form that nominal inflection will take is quite unpredictable; but adjectives inflect in a completely predictable manner, with very few exceptions. Hebrew, for instance, has some 200 nominal plurals whose exponent is the one typical of the opposite gender, such as *sod / sod-ot, *sod-im* 'secret.MS/PL' or *mil-a / mil-im*, *mil-ot* 'word.FMS/PL'; but this is absolutely never the case in adjectives. If indeed the inflection on the adjective is indeed never the inflection of that specific item, but rather always of the same empty pronoun, one in fact predicts that adjectival inflection will be completely regular. If adjectival inflection is like nominal inflection, the difference in regularity remains a mystery.[6]

One possible consequence of this view is that, at least for morpho-syntactic purposes such as inflection, adjectives *are* nouns. This is the view taken by Emonds (2012), wherein the author presents 21 arguments in favor of this claim, specifically about agreeing adjectives in Indo-European. The specific structure that he proposes for the adjective has it appearing as the adjunct of a null N head:[7]

(14) Adjectival structure in Emonds (2012)
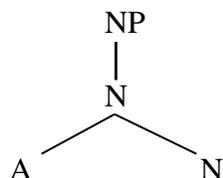
In what follows, I will propose an analysis along the lines of both Emonds and Goldenberg. The silent pronoun will emerge as the reason for the impossibility of segmental dissociation in nouns, but not in adjectives.

---

[6] Note that frequency is not a factor here, since many regular adjectives are a lot more frequent than irregular nouns.
[7] A similar claim is made in Borer & Roy (2010), where adjectives are classified into nominal adjectives and real adjectives. In the syntactic structures explored, real adjectives are always accompanied by a null pronoun.

4.2 Morpho-Syntactic Structures

Within a morpho-syntactic theory of exponence, such as Distributed Morphology (Halle and Marantz 1993, Embick 2010), the extended projection of a noun is the locus of its inflectional values. For instance, consider the structure of the plural demonym noun 'chinamen' in (15), derived from *sin* 'china'. The demonym quality is the realization of Little-n. Inflectional features I assume are features on the different heads. Gender is a feature on the *n* head, and the source of the plural marking is a feature [pl] on the head *num*.

(15) Structure of the plural demonym [sinim] 'Chinamen'
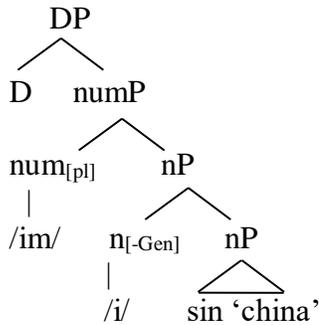
In DM, every category head demarcates a phase in the derivation, i.e. the moment when syntactic structure is translated into phonological (and subsequently phonetic) form. When the category head is merged, the syntactic structure in the complement of that head undergoes this translation. The product of this translation is frozen and thus not alterable by the product of subsequent operations.

This process is illustrated in (16) for the plural demonym *sinim*. The first phasal head to be considered is *n*; the phonological product of its merger is /sin/, phonetically stabilized as [sin]. Note that the realization of the head *n* itself is not considered yet: as mentioned, only the complement of the phasal head is realized. Next, the head *num* is merged, but because this head is not a category head, no process is triggered. It is only when D - standardly considered to be a phasal head - is merged that the realizations of both *n* and *num* are considered. The phonological process of coalescence, mentioned in (12) above, takes place as in (16b) and the resulting phonetic form is [sinim].

(16) Derivation by phase and realization of [ˈsinim] 'Chinamen'

Having established the derivation of the plural demonym, we may proceed to consider the form of the adjectival plural. First, the form of a DP with a regular *singular* noun and an adjective is shown in (17). Adjectives in MH agree not only in gender and number, but also in definiteness. This fact has two structural implications. First, the adjective is placed in [spec, DP], for the agreement operation to be a spec-head relation (Koopman 2006). Second, the adjective is itself part of a larger DP (a similar analysis exists in Kremers 2003).[8] Most importantly for the present purpose, the adjective is further embedded under an nP whose realization is null (circled). This is the structural equivalent of the empty pronoun proposed by Goldenberg, which is also part of Emonds' account.

(17) Adjectival structure includes extra nP layer (X above) *yom tov* 'good day'
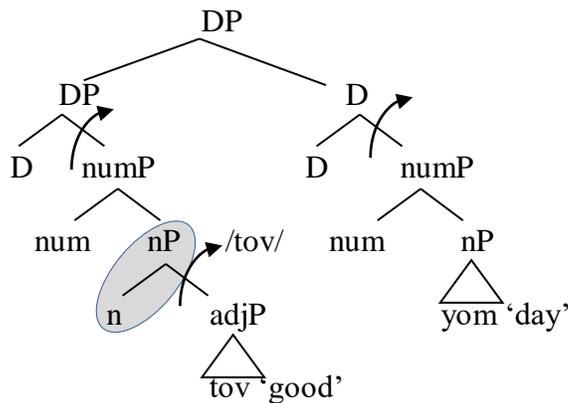
The proposed structure in (17) expresses the generalization according to which the inflection of the adjective is not its own, but rather that of an empty nominal head. Indeed, *numP* and *DP* are projected on top of the nP, not the adjP.

In terms of derivation by phase, the structure of an adjective becomes crucially distinct from that of a noun. In adjectives, the presence of the additional *n* head will separate the realization of the /i/ from the realization of inflection. This can be seen in the plural adjective [sin**ii**m] 'chinese.MPL' in (18), to be compared to (16). The phonological form of the adjectival marker is considered in the phase triggered by *n*, and frozen subsequently. The plural marker of the adjective is thus considered only at the merger of D_1, after the adjectival /i/ had been frozen for further changes.

---

[8] The placing of the adjectival DP in [spec,DP] is problematic for deriving the order Noun Adj. This issue has no bearing on the present proposal, but could be solved by right adjunction.

(18) Plural of an adjective with *-i* (agreeing nodes shaded)

DP => *salat-im sin-i-im* 'Chinese salads'
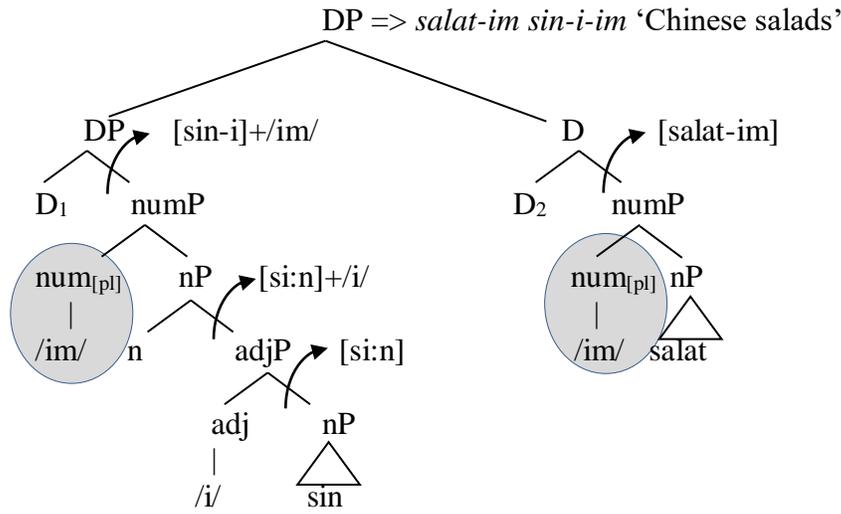
The phonological situation that results from the merger of D_1 is represented autosegmentally in (19a): the base and the suffix /-i/ are associated inalterably to skeletal positions. Unlike in (16b) above, the association of /-i/ cannot be influenced by the addition of plural /-im/. The result is (19b), with both suffixes associated and a resulting two syllables [i.im].
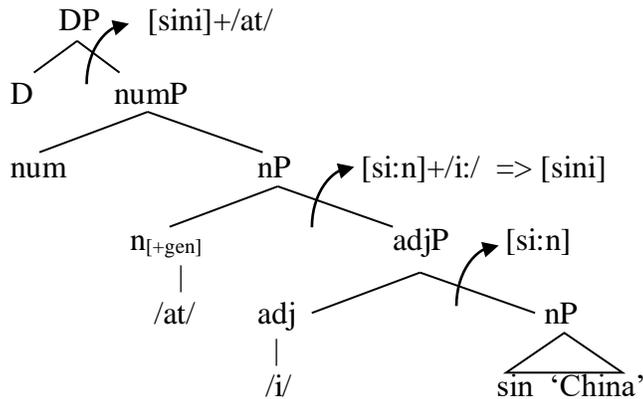
(19) Realization of *siniim* 'chinese (adj.pl.)'

```
a. Phase triggered by D₁: underlying representation
s    i    n    i              i m
|   / \   |   /    \
C V C  V C V + C V C V + C V C V


b. Phase triggered by D₁: surface representation and realization
s    i    n    i         i    m
|   / \   |  /   \    /    \   |
C V C  V C V + C V C V + C V C V  => /si:ni:i:m/ => [siniim]
```

Recall the question at the end of the preceding section: why can't adjectival inflection alter the association of the segments of its base? We may now answer that this is due to the presence of the extra nominal layer in the adjectival structure. This extra nominal layer constitutes a barrier between the derivation /-i/ and the inflection, which freezes the association of the segment /i/ to the skeleton. This barrier does not exist in the nominal structure.

It now remains to be proved that the same explanation also covers the availability of feminine [-a] in nouns vs. its impossibility in adjectives. Consider the structure of a feminine adjective with [-i] in (20). The suffix /-at/ realizes a feature on the nominal head *n*. Like the plural suffix above, it is therefore one phase apart from the adjectival /i/.
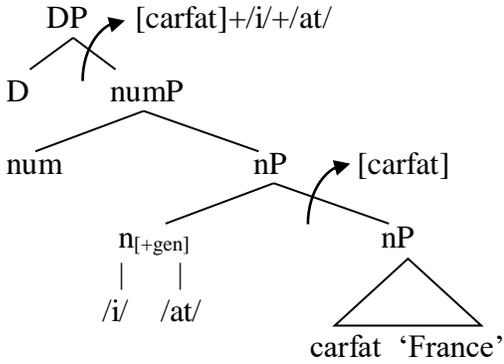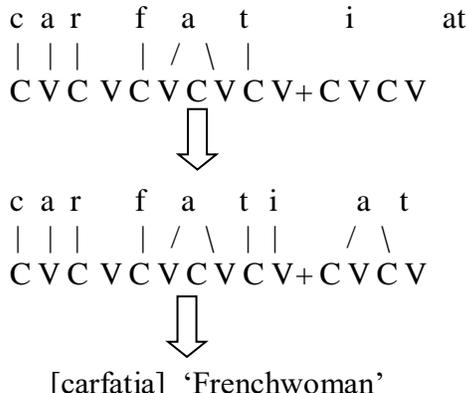
(20) The structure of a feminine adjective with *-i*

```
        DP  ➤  [sini]+/at/
       /  \
      D   numP
          /    \
        num     nP  ➤  [si:n]+/i:/  => [sini]
              /    \
        n[+gen]    adjP  ➤  [si:n]
           |       /    \
          /at/   adj     nP
                  |     /  \
                 /i/   sin 'China'
```

The prediction is thus that the base to which /-at/ is attached will be inalterable. As we saw in the previous section, because the feminine suffix /-at/ is parasitic, the only possible way for it to attach to the base is to link only the /t/, with the /a/ left afloat. This scenario is presented in (21).

(21) Realization of a feminine adjective with *-i*

a. Phase triggered by D_1: underlying representation
s   i n   i   at | / \ | / \ C V C V C V +**C V C V**
b. Phase triggered by D_1: surface representation and realization
s   i n   i a t | / \ | / \ / C V C V C V +**C V C V** => /si:ni:t/ => [sínit]

For the sake of completeness, (22) portrays the derivation of a feminine nominal demonym. In this structure, /-i/ and /-at/ appear in the same phase and are therefore free to interact. The [a] realization is possible, as it does not affect the association of segments and skeleton in the base [carfat]. In the case of demonyms with final stress (on [i]), we saw that there is no problem with transferring the stress to the [a] by having the suffix realized as [a]. Still, note that the derivation in (22b) could easily end with [it]. This is exactly the freedom that the analysis needs: as we saw, demonyms with non-mobile stress do end in [it] (e.g. [yaˈpan]-[yapan-i-t] 'Japanese').

(22) The structure of a feminine demonym with *-i*

a. syntactic structure	b. Phonological derivation
DP → [carfat]+/i/+/at/ D numP num nP → [carfat] n[+gen] nP | | /i/ /at/ △ carfat 'France'	c a r f a t i at | | | | / \ | C V C V C V C V C V + C V C V ⇩ c a r f a t i a t | | | | / \ | | / \ C V C V C V C V C V + C V C V ⇩ [carfatia] 'Frenchwoman'

The previous section proposed that adjectival and nominal inflections were different in that adjectival inflection cannot alter the association of segments and skeleton. That assumption, we saw, yielded the correct results. Still, the question was begged why it is that this association is treated differently in adjectives and nouns. This section has provided an answer: adjectives do not have an inflectional paradigm of their own. Their inflection is in fact the inflection of a null pronoun, which intervenes between the adjectival marking and the inflectional suffixes. It is this intervention that makes it impossible to alter the association of segments and skeleton.

Unlike Goldenberg's (1995) proposal, the present account is not restricted to Semitic languages. Indeed, the claim is that the regularity of adjectives as opposed to nouns *cross-linguistically* follows from differences in the morpho-syntactic structure of the two parts of speech. I leave it for further studies to see whether the more specific differences between nominal and adjectival inflections in languages other than Hebrew can be accounted for in the same manner, i.e. with an empty pronoun. Still, extending the analysis to the agreeing adjectives of all languages, and even only to all MH adjectives, raises several challenges. Before I conclude, I would like to clarify the predictions made by the account, in a way that might help face these challenges in the future.

5 Problem? Unpredictably Inflected Adjectives

In the previous section, I argued that the MH feminine suffix [-a] cannot attach to adjectives because it is skeletally parasitic and would necessarily change the association pattern of its base. However, as the examples in (23) illustrate, most non-derived adjectives do inflect with [-a]. This is equally true of some well-defined participles.

(23) Non-derived adjectives do take *-a*

	msg	*fmsg*	*mpl*	
a.	gadol	gdola	gdolim	'big'
b.	xamud	xamuda	xamudim	'cute'
c.	ragiš	regiša	regišim	'sensitive'
d.	katan	ktana	ktanim	'small'
e.	šamen	šmena	šmenim	'fat'

The items in (23) are different from those hitherto considered in two respects. First, they are not denominal. Second, they are all templatic: they all share the same template QaTvL. Still, the analysis above seems to predict that [-a] should be impossible with *any* adjective.

In fact, the analysis developed here is less specific that that. Given an adjectival base and a suffix that realizes a feature on the *n* head or on *num*, the analysis bans any *phonological* interaction between this suffix and its base. One may propose that in the case of the adjectives in (23), the feminine suffix does not directly realize the feature [+gen] on *n*, but rather a feminine allomorph of the QaTVL template, QaTVLa, which ends up realized as [QTVLa]

This solution is presented in (25). When a *feature* [+gen] appears on the null pronoun, this affects the template that will be inserted with the head *adj*: this template has a feminine allomorph, which includes [a] (the circled nodes are the trigger of allomorphy and its undergoer). Once again, the trigger of allomorphy here is not the *realization* of the gender feature on *n*, but rather only the *presence* of that feature. This inter-phasal sensibility is not ruled out by the theory (Bobaljik 2000).

(24) The structure of an underived feminine adjective
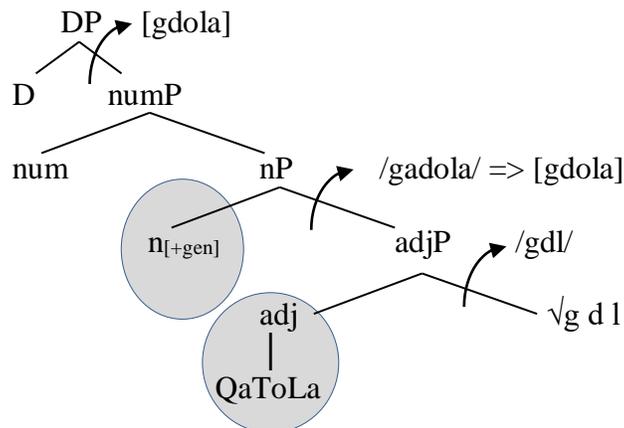
The scenario in (25) above allows one to keep the generalization about the strict relations between realizations without losing empirical adequacy. Two claims emerge. First, if adjectival inflection is expressed in any non-concatenative manner (templatic etc.), allomorphy, rather than a phonological process, must be involved. Second, root allomorphy triggered by phi-features will be rarer in adjectives than in nouns, because in the adjective, the root is one phase farther from the inflection than in nouns. I leave it for further study to see whether this explanation is in the right direction.

6   Conclusion

This paper claimed that the presence of an extra layer in the morpho-syntactic structure of adjectives freezes the autosegmental association lines in the representation of adjectives. It was shown that this freeze influences the realization of the feminine exponent and imposes a strict concatenation of the adjectival and plural markers. Beyond the facts of Hebrew, the account explains the general regularity of adjectival inflection as opposed to nominal inflection: the plural of a noun is the plural of that noun; but the plural of an adjective is the plural of the same pronoun that would appear on all other adjectives. Cases of adjectival inflection influencing the form of the base must be non-phonological.

Booij (1995) enumerates reasons to distinguish between inherent and contextual morphology. One of his conclusions is that the "strong lexicalist hypothesis" is correct, and all word-formation is done in one strictly morphological component, rather than in the syntactic component. Having inflection appear on an empty nominal layer, as is the present proposal, formalizes the distinction between the two types of inflection, while leaving the morphology within syntax.

It is often claimed against theories that compute morphology in the same module as syntax that one does not encounter the likes of syntactic operations such as movement in morphology. This paper presented one such possible parallel, with a null pronoun used for the inflection of adjectives having a reflex in the form of the inflection exponents. Here is a case of surface allomorphy which is explained by the inclusion of the syntactic entity of a null pronoun between the affix and its base.

References

Bat-El, Outi. 1989. *Phonology and Word Structure in Modern Hebrew*. PhD dissertation, UCLA.

Bobaljik, Jonathan. 2000. The Ins and Outs of Contextual Allomorphy. In *University of Maryland Working Papers in Linguistics*, volume 10, ed. K.K. Grohmann and C. Struijke, 35-71.

Borer, Hagit and Isabelle Roy. 2010. The name of the adjective. In *Adjectives: Formal Analyses in Syntax and Semantics*, ed. Patricia Cabredo Hofherr and Ora Matushansky,85–113, Amsterdam: John Benjamins.

Booij, Geert. 1995. Inherent versus contextual inflection and the split morphology hypothesis. In *Yearbook of Morphology*, ed. Geert Booij and Jaap van Marle, 1-16. Dordrecht: Kluwer.

Embick, David. 2010. *Localism versus Globalism in Morphology and Phonology*. Cambridge, Massachusets: MIT Press.

Emonds, Joseph E. 2010. Blackjack!: 21 arguments that agreeing adjectives are derived nominal. In *Of Grammar, Words, and Verses: In honor of Carlos Piera*, ed. Torrego, Esther, 171-200. Amsterdam: John Benjamins.

Faust, Noam. 2011. *La morphologie nominale de l'hébreu modern: Etudes en morpho-syntaxe*. PhD dissertation, Université Paris 7.

———. 2014. Underlying vowel length in Modern Hebrew: The many realizations of the vowel /a/. *Brill's Annual for Afro-Asiatic Languages and Linguistics* 6:156–183.

Goldenberg, Gideon. 1995. Attribution in Semitic languages. *Langues Orientales Anciennes: Philologie et Linguistique* 7-20.

Halle, Morris and Alec Marantz. 1993. Distributed morphology and the pieces of inflection. In *The View from Building* 20, ed. Kenneth Hale and S. J. Keyser, 111-176. Cambridge: MIT Press.

Kaye, Jonathan, Jean Lowenstamm and Jean-Roger Vergnaud. 1990. Constituent structure and government in phonology. *Phonology Yearbook* 7:193-231.

Kremers, Joost. 2003. Adjectival agreement in the Arabic noun phrase. In *Proceedings of ConSOLE XI*, ed. Marjo van Koppen, Joanna Sio and Mark de Vos.

Koopman, Hilda. 2006. Agreement: In defense of the "Spec head configuration". In *Agreement Systems*, ed. Cedric Boeckx, 159-199. Amsterdam: John Benjamins.

Lowenstamm, Jean. 1996. CV as the only syllable type. In *Current trends in Phonology. Models and Methods*, ed. Jacques Durand and Bernard Laks, 419-441. Salford, Manchester: ESRI.

———. 2010. *Derivational Affixes as Roots, no Exponence (Phasal Spellout meets English Stress Shift)*. Ms., Université Paris VII.

———. 2011. The phonological pattern of phi-features in the perfective paradigm of Moroccan Arabic. *Brill's annual of afroasiatic languages and linguistics* Vol. 3:140-201.

Melčuk Igor and Baruch Podolsky. 1996. Stress in Modern Hebrew nominal inflection. *Theoretical Linguistics* 22:155-194.

Podolsky, B. 1981. Hatta'am kegorem morfologi ba'ivrit hahadasa. (Stress as a morphological factor in Modern Hebrew). *Hebrew. Leshonenu* 45(2):155-156.

Scheer, Tobias. 2004. *A lateral theory of phonology. Vol 1: What is CVCV, and why should it be?* Berlin: Mouton de Gruyter.

Schwarzwald, Ora R. 1982. Feminine formation in Modern Hebrew. *Hebrew Annual Review 6*: 153-178.