SOMETHING FROM NOTHING:

a Distributed Morphology Analysis of Null Morphology in Feminine Plural Verbal Inflections in Modern Standard Arabic

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Abstract

This paper argues that complex suffixed verbal inflections in Modern Standard Arabic are bimorphic, and that in the case of the feminine plural inflections, there is a previously unrecognized null morph /∅/ among the realizations of the phi features of the feminine plural. This analysis draws on the principles of Distributed Morphology as well as incorporating an Optimality Theory model to explain how constraints in the grammar of Modern Standard Arabic interact with one another to compute the phonological consequences of the null morph.

Contents

0 Introduction

Classical Arabic was a language that distinguished purely feminine verbal inflections from masculine and mixed-gender inflections in the plural. The descendants of Classical Arabic (Modern Standard Arabic (MSA) and the colloquial dialects) have diverged from one another in the treatment of gender in plural inflections. The colloquial dialects that spread across the Middle East and North Africa have developed a syncretism of gender in the plural (realized as [-uu]), as the paradigm in Figure 0A shows. This syncretism is attested in nearly all of the colloquial dialects, from Maghrebi Arabic in northwest Africa to Hejazi Arabic on the Arabian Peninsula.

In MSA however, the gender distinction from Classical Arabic is retained. The feminine plural suffixed inflections are realized as [-na], which contrasts with the masculine plurals, realized as [-uuna] (Figure 0B). The feminine plural inflections in MSA interact with other aspects of the language in several ways, and some of these behaviors will be explored here. The peculiarities that the feminine plural inflections in MSA exhibit were in no way

		Present Indicative		
'ʕamala'		singular	dual	plural
1st	m/f	ʔa-ʕmal	ni-ʕmal	
2nd	m	ti-ʕmal	ti-ʕmal-**uu**	
	f	ti-ʕmal-ii		
3rd	m	yi-ʕmal	yi-ʕmal-**uu**	
	f	ti-ʕmal		

Figure 0A: paradigm of the verb 'to work' in colloquial (Egypt) Arabic, with gender syncretism

		Present Indicative		
'ʕamala'		singular	dual	plural
1st	m/f	ʔa-ʕmal-u	na-ʕmal-u	
2nd	m	ta-ʕmal-u	ta-ʕmal-aani	ta-ʕmal-**uuna**
	f	ta-ʕmal-iina	ta-ʕmal-aani	ta-ʕmal-**na**
3rd	m	ya-ʕmal-u	ya-ʕmal-aani	ya-ʕmal-**uuna**
	f	ta-ʕmal-u	ta-ʕmal-aani	ya-ʕmal-**na**

Figure 0B: paradigm of the verb 'to work' in MSA, with distinct feminine plural inflections

ignored by Arab grammarians. In fact, the phoneme [n] of the feminine plural inflections is so unique that it has been given its own name, *noon al-niswa*, which is translated as 'the *noon* of the women' in English (*noon* refers to the letter 'ن' /n/ in Arabic). The persistence of this phoneme (which surfaces in environments where it theoretically shouldn't) has recently been adopted as a doctrine of the feminist movement in the Middle East, with both female empowerment magazines and a popular YouTube comedienne channel bearing the name *Noon AlNiswa*.

Although absolutely not in opposition to the Arab feminist movement, I argue that the 'femininity' of the inflections in the feminine plurals isn't realized as *noon al-niswa*, but rather it's realized as a null morph /∅/ that precedes the morph /na/. In this paper, I will put forth a Distributed Morphology analysis of the suffixed inflections in MSA to provide support for the hypothesis that a null morph is present and featurally-significant in the feminine plural suffixed inflections.

It's this hypothesis that will be discussed in this paper, which is organized as follows: **Section 1** highlights the initial question that spurred this year-long research, namely why the feminine plural suffixed inflections lack an overt vowel. This section also details another instance in which null morphology is employed in MSA. **Section 2** introduces the null-morph hypothesis within the framework of Distributed Morphology, and briefly explains how features in the syntax are realized as morphs on the surface. **Section 3** analyzes the intriguing case of the feminine plurals in the subjunctive mood and defends the DM analysis by exploiting an operation called Impoverishment. **Section 4** describes two environments in which the phonotactics of MSA must accommodate the overt realization of a null morph, and this section also generates a list of possible repairs that could have been chosen (but weren't!) at the expense of realizing the null morph. **Section 5** incorporates these phonotactic constraints and repairs into an Optimality Theory model to further bolster the claim of a null morph in the feminine plural inflections. **Section 6** concludes.

1 Identifying the Null Morph

The most daunting challenge for proposing the presence of a null morph is simply providing evidence that is actually exists. A null morpheme, of course, isn't overtly perceptible to the listener, nor is it immediately recognized as an 'absence of sound' in speech. In this section, an analysis of the phonology of Modern Standard Arabic will provide some support for the hypothesis that a null morph is present in the feminine plural verbal inflections. This section also visits the morphophonology of the singular verbal inflections in the simple perfect of MSA. These inflections more clearly exhibit the use of a null morph in place of an overt vowel, which parallels the argument for a null morph in the feminine plural inflections, to be made in the next section.

1.1 Vocalic Limitations

In comparison to its colloquial counterparts, the vocalic inventory of MSA is quite small, with just three vowels in three distinct regions of the mouth: the high, front vowel [i], the high, back vowel [u], and the low, central vowel [a]. These three vowels occur in pairs of short and long vowels, with the long vowels represented in this paper as [ii], [uu], and [aa], respectively. Additionally, two diphthongs are attested in MSA: [aɪ] and [aʊ].

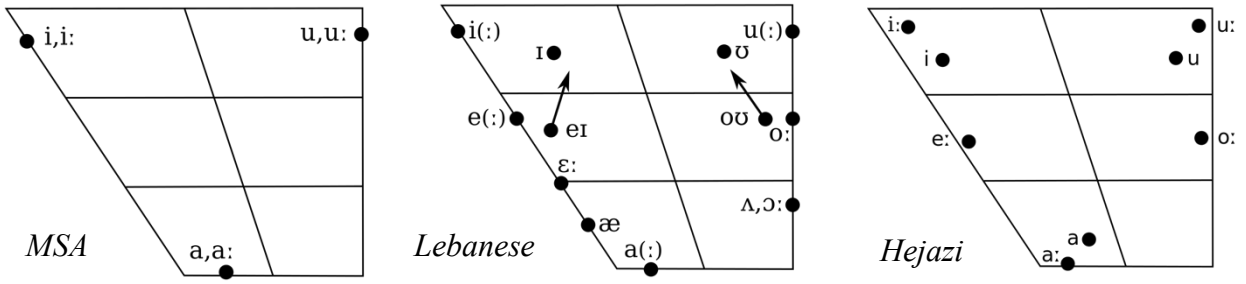

Figure 1A: the inventory of vowels in MSA is less robust than in colloquial varieties

This small set of vowels poses a problem for the suffixed verbal inflections in MSA. The inflectional paradigm below is of a regular verb in the present indicative. Nearly all non-singular verbal inflections in the indicative are composed of both a prefix and a polymorphic suffix (the exception being the first person). These polymorphic suffixes share a common pattern; that is, they

follow this 'template': [-V:nV]. In addition to the non-singular inflections, the second-person singular feminine inflection is composed of a prefix and polymorphic suffix ([-V:nV]), as well.

		Present Indicative		
'ʕamala'		singular	dual	plural
1st	m/f	ʔa-ʕmal-u	na-ʕmal-u	
2nd	m	ta-ʕmal-u	ta-ʕmal-aa-ni	ta-ʕmal-uu-na
	f	ta-ʕmal-ii-na	ta-ʕmal-aa-ni	ta-ʕmal-na
3rd	m	ya-ʕmal-u	ya-ʕmal-aa-ni	ya-ʕmal-uu-na
	f	ta-ʕmal-u	ta-ʕmal-aa-ni	ya-ʕmal-na

Figure 1B: the present indictive paradigm of the regular verb 'to work' in MSA

A majority of these inflections appear in pairs with alternating prefixes [ta-] or [ya-]. The exact nature of the [ta]/[ya] alternation is interesting; in some cases, it seems to index the gender distinction (third-person singular masculine/feminine), whereas in other cases, it doesn't distinguish gender (second-person dual masculine/feminine). It can represent distinctions in personhood (second-person plural/third-person plural), while in other inflections it doesn't reflect that distinction (second-person masculine singular/third-person feminine singular). A lot has been written on the topic (Noyer 1992, Halle 2000, Blix (unpublished), among others), but it won't be discussed further here. The crucial observation here is that in the inflections that contain both a prefix and a polymorphic suffix, the prefix is either [ta] or [ya].

1.2 The Proposal

The small vocalic inventory of MSA is evident in this analysis of polymorphic suffixed inflections, and this subsection seeks to answer the question as to why the feminine plural inflections don't seem to follow the [-V:nV] pattern that was observed earlier. To make the argument brief, it seems as though MSA simply 'ran out' of vowels to fill the necessary cells in the paradigm with unique suffixed inflections. The three vowels in the phonemic inventory of MSA are each represented in the [-V:nV] pattern for suffixed inflections: [-iina] for the second-person feminine singular, [-aani] for the dual, and [-uuna] for the second- and third-person

masculine plural. Given the [-V:nV] pattern and the available vowels in the inventory, just three unique inflections can be produced; doubled with the [ta]/[ya] alternation. The number of distinct combinations isn't enough to provide the feminine plural inflections in the second- and third-person cells with a unique vowel. Rather than having the feminine plurals composed of simply [-na], I argue that a null morph /∅/ (which can be imagined as /∅∅/) precedes the [-na], just as the long vowels precede the [-nV] in the other suffixed inflections. Crucially, this null morph carries features that spell out the feminine plural inflection when merged with the morph /na/. A more in-depth Distributed Morphology analysis of this theory will follow in the next section.

The hypothesis here can be summarized as follows: the feminine plural inflections don't overtly follow the [-V:nV] suffixed inflection pattern that other polymorphic suffixed inflections do. This is due in part to the fact that the vocalic inventory of MSA is relatively small. To broaden the range of possible morphemic combinations, MSA employs a null morph /∅/, which is the realization of phi features unique to the feminine plural inflections. Thus, although it isn't overtly evident, the feminine plural inflections do follow the [V:nV] pattern, to the extent that a long null vowel can be considered a long vowel.

1.3 Vowels and the Simple Perfect

One might be curious to know how the idea of a feature-carrying null morph [∅] in the feminine plural inflections came to be. In fact, this idea was first based on a pattern of overt vowel usage in another paradigm of MSA. The singular inflections in the simple perfect of MSA have a vowel mapping that is similar to the suffixed inflections of the present non-singulars:

		Simple Perfect	
'dhahaba'		singular	orthography
1st	m/f	dhahab-t**u**	ذهبتُ
2nd	m	dhahab-t**a**	ذهبتَ
	f	dhahab-t**i**	ذهبتِ

3rd	m	dhahaba	ذهب
	f	dhahaba-tØ	ذهبتْ

Figure 1C: these inflections follow the [u]/[a]/[i]/[Ø] pattern exhibited in the [V:nV] suffix pattern

Referencing orthography tends to be a tricky topic in linguistics, as orthography isn't always representative of phonology. However, in the case of MSA, there is usually a one-to-one representation of phones to characters. Looking just at the 'orthography' column of the highlighted cells in the paradigm and ignoring the diacritics, these scripts are identical. The distinguishing 'mark' orthographically and phonologically between these four inflections is the final vowel. It could be said that these inflections follow a [-tV] pattern. Once again, this is evidence of an 'exhaustion' of the available vowels to differentiate the inflections. The *damma* (ُ) [u] surfaces in the first-person singular, the *fatha* (َ) [a] surfaces in the second-person masculine singular, and the *kasra* (ِ) [i] surfaces in the second-person feminine singular. And again, there is an inflection that is 'missing' a vowel – the third-person feminine singular [-Ø].

Just as a null morph has been proposed in the plural feminine inflections in the present tense, the third-person feminine singular inflection in the perfect could also contain a null morph, taking the place of the vowel in the [-tV] pattern. In fact, there is even a special diacritic in MSA, the *sukuun* [ْ], which represents a 'lack of vowel' (i.e. a consonant cluster or closed syllable). In the case of the third-person feminine singular perfect inflection, the underlying representation of the corresponding cell in Figure C might look something like: [dhahabtØ], with a CVCVCC structure. As will be explained in a later section, both CV and CVCC are attested syllables in MSA. That being said, CVCC syllables surface in only 1% of total syllables in MSA, so perhaps this aversion to CVCC syllables explains why the third-person feminine singular surfaces as [dhahabatØ], or CVCVCVC. This subsection merely seeks to describe an apparent phenomenon, not to propose a concrete solution. So, we'll move on from the simple perfect.

This subsection has attempted to show how the inflections in the singular simple perfect parallel the behavior of the suffixed inflections of present indicative. That is to say that the both of these classes of inflections follow a pattern: [-V:nV] for the present indicative suffixes, and [-tV] for the singular past. In both cases, the entire (small) inventory of vowels ([u], [a], and [i]) is represented, but a null morph /∅/ needs to be implemented in order to form four (or more) distinct, non-homophonous inflections.

1.4 Summary

In this section, I have proposed my solution to the question surrounding the nature of the feminine plural inflections. In short, I have posited that the feminine plural inflections, rather than being realized as simply [-na], are actually morphologically complex and are composed of a null morph, which is realized as a surface form [-∅na]. This is attributed to the small vocalic inventory of MSA, and the need to expand the number of possible inflections to cover all of the cells in the paradigm, while remaining non-homophonous with other suffixed inflections.

To strengthen the claim that null morphs are inserted because of a lack of vowels, I analyzed another paradigm of MSA, the simple perfect. The singular inflections in the simple perfect encounter a problem similar to that of the feminine plurals in the present; there aren't enough vowels to fill the necessary cells of the paradigm. The third-person feminine singular inflection spells out a null morph instead of an overt vowel in order to remain non-homophonous with other inflections in the paradigm. I have shown two paradigms in which a null morph surfaces in place of a vowel, in order to justify how the feminine plurals covertly follow the [-V:nV] pattern.

The following section implements the principles of Distributed Morphology (Halle & Marantz 1993) in order to formalize the account of why the null morph in the feminine plurals is featurally-significant, and to further bolster the claim that a null morph exists at all. The DM

analysis will make the claim that the polymorphic suffixes (like the feminine plurals) are composed to two morphs; one which realizes the phi features and one that realizes the tense/mood features.

2 The Distributed Morphology Approach

In 1993, Morris Halle and Alec Marantz introduced the field of morphology to a realizational morphological framework called Distributed Morphology (henceforth DM). As a broad overview, the basis of the DM methodology rejects the idea of a morpheme in the traditional sense, that all syntactic and semantic features of a lexical item and its pronunciation exist and are activated together in the grammar. Rather, morphemes exist as bundles of features (i.e. [±animate]) in the syntax, which are then spelled out and associated with the respective phonologies in the PF component and with their respective meanings in the LF component. Thus, in DM, syntax and morphology become almost synonymous. The principles of DM can be further explained by using three 'lists': the Formative List, the Vocabulary Items, and the Encyclopedia.

2.1 Distributed Morphology in Brief

As we have all learned in our introductory linguistics courses, morphemes have been traditionally defined as the smallest meaningful units of language, and can be combined together to form complex, polymorphic units. In DM, however, morphemes are simply bundles of grammatical features. These features (in the case of inflectional morphemes) can encode gender, number, or personhood, among other aspects pertaining to tense, modality, and voice. Individual features originate in bundles as terminal nodes on a syntactic tree. Post-syntactic operations (Fusion, Fission, Impoverishment, etc.) can further alter these bundles. These feature bundles are what compose the Formative List in DM.

Vocabulary Items (also called *morphs*) form the second 'list' in DM, the Exponent List. In some instances, morphemes can be polymorphic; they can be composed of two or more Vocabulary Items that are serially inserted. Vocabulary Items represent the phonological form of

the morphemes, and the Exponent List comprises all of the phonological forms of all morphemes available to the speaker. After the post-syntactic operations have been carried out, the Vocabulary Items are inserted at the terminal nodes of the syntactic tree. These Vocabulary Items compete with one another for insertion, and the Vocabulary Item that is most specific to the feature bundle will win and be spelled out. It is to be noted that null morphs are included in the Exponent List.

To schematize DM thus far, we'll use an example of a hypothetical morpheme which represents the feature bundle [+α][-β][-χ]. We assume all post-syntactic operations have been completed, and this resulting bundle is a terminal node on the syntax tree. The following stage is the insertion of a Vocabulary Item(s) into this terminal node, which assigns a phonological form to the morpheme. In this example, two Vocabulary Items are competing for insertion:

[+α][-β] ↔ /-ba/ [+α][-β][-χ] ↔ /-ti/

As far as the first couple of features are concerned, both Vocabulary Items are equally strong competitors for insertion into the terminal node. However, the morph /-ti/ is a stronger competitor for insertion given that it is *more* specified to the feature bundle with the feature ([-χ]). This is an excellent example of what is known as the 'Elsewhere Condition.' The Condition states that in a competition for Vocabulary Item insertion at the terminal node, the Vocabulary Item that is most highly specified to the feature bundle will be a stronger competitor and will be inserted.

The final stage of DM is when the meanings of Vocabulary Items in context are accessed via the Encyclopedia. As the analysis of the feminine plural inflections implicate this part of DM, much else won't be said about it. Additionally, there are aspects of DM which haven't been touched upon in brief synopsis of the framework. The information above should be adequate for understanding the Distributed Morphology analysis below of the null morph in the feminine plural inflections. Essentially, the unique bundle of phi features and tense features that spell-out the

feminine plural inflections actually encode the spell-out of two distinct morphs /∅/ and /na/ which are realized on the surface as the suffixed inflection [-∅na].

2.2 Distributed Morphology and the Inflectional Paradigm of MSA

As mentioned previously, verbal inflection in MSA (and in other Semitic languages) is interesting in that the inflections typically consist of a prefix and a suffix. Keeping in line with the previous section, the DM analysis in this section will be aimed at the suffixed inflections. Even though the primary research will be focused at the feminine plurals, this analysis will examine the dual and singular suffixed inflections, as well. Taking these criteria into account, Figure 2A below exhibits a complete paradigm in MSA, but with the inflections relevant to the analysis boldened.

		Present Indicative		
'labasa'		singular	dual	plural
1st	m/f	ʔa-lbas-u	na-lbas-u	
2nd	m	ta-lbas-u	ta-lbas-**aa-ni**	ta-lbas-**uu-na**
	f	ta-lbas-**ii-na**	ta-lbas-**aa-ni**	ta-lbas-**∅-na**
3rd	m	ya-lbas-u	ya-lbas-**aa-ni**	ya-lbas-**uu-na**
	f	ta-lbas-u	ta-lbas-**aa-ni**	ya-lbas-**∅-na**

Figure 2A: the boldened inflections will be analyzed in the framework of DM

The next order of business is to generate a list of features to be considered for the DM analysis of these inflections. The first feature is possibly the most obvious, and that is the feature that distinguishes masculine and feminine inflections from one another. It will be represented by [±masculine], of which the mapping should be self-explanatory. There are no distinguishing features in the suffixed inflections to differentiate second- and third-person; those features are associated with the prefixes. There is, however, a distinction between the singular, dual, and plural inflections in the paradigm. For these features, this analysis will adopt the theory of number from Harbour (2017), which has been reproduced in Figure 2B below.

feature	singular	dual	plural
[±minimal]	+	+	-
[±atomic]	+	-	-

Figure 2B: the feature bundles to distinguish inflection number Harbour (2017)

Now, given that the suffixed inflections (including the feminine plurals) follow the suffixed pattern [-V:nV], I argue that these inflections are bimorphic – consisting of morph realized as a long vowel and morph realized as the alveolar nasal plus a short vowel. As a reminder, this analysis treats the long-vowel morph of the feminine plural inflections as the null 'long vowel' morph /∅:/ in spell-out. Treating these inflections as bimorphic suffixes is actually more intuitive than treating the entire suffix as an independent Vocabulary Item that spells out the entirety of the feature bundle (morpheme). As it will be explained afterwards, this type of analysis may be more efficient for speech production and comprehension.

Based on the principles of DM and the realization of features in the inflectional suffixes of MSA, the following would be the feature breakdown of the suffixed inflections:

Inflection		***Feature Bundle***		***Morphs***
[2sg.f]	↔	[-masculine][+minimal][+atomic][INDICATIVE]	↔	/ii/ /na/
[2du.m]	↔	[+minimal][-atomic][INDICATIVE]	↔	/aa/ /ni/
[2du.f]	↔	[+minimal][-atomic][INDICATIVE]	↔	/aa/ /ni/
[3du.m]	↔	[+minimal][-atomic][INDICATIVE]	↔	/aa/ /ni/
[3du.f]	↔	[+minimal][-atomic][INDICATIVE]	↔	/aa/ /ni/
[2pl.m]	↔	[+masculine][-minimal][-atomic][INDICATIVE]	↔	/uu/ /na/
[2pl.f]	↔	[-masculine][-minimal][-atomic][INDICATIVE]	↔	/∅/ /na/
[3pl.m]	↔	[+masculine][-minimal][-atomic][INDICATIVE]	↔	/uu/ /na/
[3pl.f]	↔	[-masculine][-minimal][-atomic][INDICATIVE]	↔	/∅/ /na/

Figure 2C: the mapping of feature bundles (morphemes) to the respective spelled-out morphs

From this schematic, several claims can be made. The first assumption is that the suffixed inflections in the dual cells are neither contrastive in gender nor in personhood and, which could reflect a morph that is underspecified for gender (spelling out only the features [+minimal][-atomic]). Additionally, the second- and third-person plurals are only contrastive in gender, not in person, so just two suffixes exist for these four cells of the paradigm. Thus, there are four distinct feature bundles and realizations to be accounted for in this analysis.

2.3 The /na/ Morph

Given that these morphs are diverse enough to spell out the suffixed inflections in nine of the fourteen cells in the indicative paradigm, it is noteworthy that they spell out a common morph /na/~/ni/. Thus, rather than being a realization of a bundle or single phi feature, I argue that the morph /na/~/ni/ is the realization of the mood feature [INDICATIVE], since this feature is shared by each of the morphemes and their spelled-out inflections in question. We can map the insertion of the morph at the terminal node of the tree to its phonological form in the following way:

[INDICATIVE] ↔ /na/

Although this morph is realized as [ni] in the dual inflections, there is reason to believe that the underlying representation of this morph is actually /na/. In fact, medieval Arab grammarians were aware of a phenomenon known in Arabic as *ʾimāla,* or 'inclination.' This term refers to the fronting and raising of the vowel [a] (both short and long) in certain phonological environments (Levin 2007). Nearly all of medieval research on this topic was focused on the fronting and raising of the long vowel [aa] to the vowel [ii], which accounts for the diphthongization of the low vowel. Medieval Arab grammarian Sībawayhi explains in his work *Kitāb II* that distinctions were made between *ʾimāla* in word-medial position and *ʾimāla* in word-final position. Work on *ʾimāla* in the following centuries touched on the raising and fronting of the shortened counterpart [a], but not in the context in which it appears in the dual suffixed inflection. However, I believe that the raising and fronting that I've posited for the /na/~/ni/ morph could certainly be explained by referring to the *ʾimāla* in other environments.

Twentieth-century research on the status of *ʾimāla* in colloquial dialects of Arabic show the same type of 'inclination' that is exhibited in the /na/~/ni/ alternation in the dual suffix. Below are a couple of examples of this word-final *ʾimāla* in Jewish Baghdadi Arabic in the 1960s:

Classical Arabic		*Jewish Baghdadi Arabic*	*gloss*
aʕma	→	aʕmi	*'blind'*
skaaġa	→	skaaġi	*'drunkards'*

(Blanc 1964)

Figure 2D: the inclination of [a] to [i] word finally from Classical Arabic to a colloquial dialect

Although there are just few examples provided in Blanc (1964), I think that they provide some evidence for the 'inclination' of [a] to [i] in the dual suffix. The most direct evidence is shown in the alternation of the word-final [a] in 'drunkards' in Figure 2D. In this example, the environment [aaCa] parallels the underlying suffixed inflection [aana] in MSA. The diachronic change of Classical Arabic to modern colloquial dialects is likely to mirror the change of Classical Arabic to MSA. Thus, the [aaCa]→[aaCi] *ʾimāla* change that is evident in the Jewish Baghdadi Arabic dialect could support a [aana]→[aani] *ʾimāla* change in MSA.

The motivation behind a type of vowel change such as *ʾimāla* rests in the economy of tongue movements. In order to articulate an inflection such as [aana], the tongue must start in a low position, raise to a high position for the closure of the alveolar nasal [n], and then return back to a low position for the articulation of the final [a]. The other suffixed inflections [iina] and [uuna] don't exhibit a behavior like *ʾimāla,* as the tongue starts in a high position (front or back), remains high for the closure of the alveolar nasal, and then moves to a low position for the final [a]. If the final [a] in the dual suffix [aana] were to be fronted and raised to [i], the tongue wouldn't have to lower following the closure of the alveolar nasal [n], preserving the tongue-movement efficiency.

This type of analysis is still consistent under the DM framework. A rule known as Readjustment hypothesizes that a single allomorph is inserted at spell-out (/na/), but subsequent allomorphs (/ni/) are derived from it in certain phonological contexts. Thus, an *ʾimāla* account of the /na/~/ni/ alternation for the spell-out of the feature [INDICATIVE] will be viable in the DM analysis of the suffixed inflection in MSA.

2.4 The Long-Vowel Morphs

As this analysis posits the spell-out of the mood feature [INDICATIVE] as the morph /na/, it is only logical to hypothesize that the phi features in the suffixed inflections are realized as the long vowel morphs /ii/, /aa/, and /uu/. As mentioned in the previous section, the suffixed inflections in MSA and other Semitic languages are interpreted in tandem with prefixed inflections. The polymorphic [-V:nV] suffixes are no exception, although their prefixed counterparts are restricted to either [ta] and [ya]. These prefixes are realizations of other feature bundles. To briefly reiterate, the prefixes [ta] and [ya] distinguish personhood in the plural inflections ([2nd person] ↔ /ta/ ; [3rd person] ↔ /ya/) and in the singular masculine inflections ([2nd person] ↔ /ta/ ; and thus in the second-person feminine, too). It is unclear what features the [ta] and [ya] spell-out in the dual prefixes, but based on the other prefixes (and for the sake of this analysis) they will reflect person and gender features. Therefore, the features that spell-out the long vowels in the suffixed inflections are those accounted for in Figure 2C (with the obvious exception of [INDICATIVE]).

The mapping of the feature bundle to the morph in which it spells out are as follows:

[-masculine][+minimal][+atomic]	↔ /ii/
[+minimal][-atomic]	↔ /aa/
[+masculine][-minimal][-atomic]	↔ /uu/

Following the number features described in Figure 2B by Harbour (2017) and the [±masculine] gender features, the mappings of the feature bundles to their respective morphs yield three distinct morphs that, when merged with the morph /na/, produce three inflectional suffixes that are able to distinguish seven of the nine paradigmatic cells that contain polymorphic suffixes.

2.5 The Null Morph

The remaining two cells refer to the feminine plural inflections, which are composed of the hypothetical null morph /∅/ and the morph that spells-out mood, /na/. In keeping with the hypothesis that the null morph is inserted in place of a long vowel, it represents the same type of

feature bundle that spells-out the long-vowel morphs, the phi features. Therefore, the DM analysis of the null morph is not much different than the DM analysis of the long-vowel morphs:

[-masculine][-minimal][-atomic] ↔ /∅/

Just as the morphs in the previous subsection merge the /na/ morph to form the suffixed inflectional morphemes [iina], [aani], and [uuna], so, too does the null morph merge with the /na/ morph to form the feminine plural inflectional morpheme [∅na].

2.6 Summary

In this section, I have referenced and described the principles of Distributed Morphology in brief and have tried to explain how this framework further can be used to formalize my hypothesis of a null morph in the feminine plural inflections in MSA. I have argued that the polymorphic suffixed inflections that fit the pattern [-V:nV] are bimorphic, and that the mood feature [INDICATIVE] is realized as the morph /na/. I have shown how the [na]~[ni] alternation exhibited in the dual suffixed inflections is simply a phonological allomorphic relationship with the underlying morph /na/, based on the observation of *ʾimāla* (‘inclination’) by medieval Arab grammarians. Continuing with this analysis, I have posited that the phi features of these bimorphic inflections are realized as the long-vowel morphs /ii/, /aa/, and /uu/. Additionally, I have shown how a null morph /∅/ in lieu of an overt long vowel in the feminine plural inflections is the realization of the same type of features (phi features) that are spelled-out as overt long vowels in the other bimorphic inflections. In the following section, I will present the odd case of subjunctive mood, and describe how the Distributed Morphology analysis above can be used to explain peculiarities in the polymorphic suffixed inflections described thus far.

3 The Subjunctive Mood

As a precaution, I have debated the labelling of the subjunctive as ‘mood,’ rather than as ‘tense.’ In MSA, there is no distinction between ‘past subjunctive,’ ‘present subjunctive,’ ‘future

subjunctive,' etc., unlike in other languages (Spanish, English, Welsh, etc.) where different tenses exhibit different inflectional paradigms in the subjunctive. In MSA, there is a single subjunctive inflectional paradigm, which is tense-independent. Thus, I am tempted to consider the subjunctive to be a tense on its own. However, in keeping with linguistic tradition, I will continue to refer to the subjunctive as a mood, rather than as an independent tense.

3.1 The Subjunctive in MSA

The subjunctive in MSA poses a problem to the Distributed Morphology analysis of the polymorphic suffixed inflections above. Namely these suffixes are absent of the /na/ morph that is inserted for the [INDICATIVE] feature. The feminine plural inflections, however, remain unchanged from the indicative to the subjunctive mood. Figure 3A shows a paradigm of the subjunctive mood:

		Subjunctive		
'labasa'		singular	dual	plural
1st	m/f	ʔa-lbas-a	na-lbas-a	
2nd	m	ta-lba-a	ta-lbas-**aaØ**	ta-lbas-**uuØ**
	f	ta-lbas-**iiØ**	ta-lbas-**aaØ**	ta-lbas-**Ø-na**
3rd	m	ya-lbas-a	ya-lbas-**aaØ**	ya-lbas-**uuØ**
	f	ta-lbas-a	ta-lbas-**aaØ**	ya-lbas-**Ø-na**

Figure 3A: the characteristic of the subjunctive in MSA: the null morph /Ø/

Compare this paradigm with the indicative paradigm in §2.2 of the same verb 'to wear.' Notice how the /na/ morph no longer surfaces in the bimorphic suffixes. This is simply because the feature bundles of these inflections no longer contain an [INDICATIVE] feature but rather a [SUBJUNCTIVE] feature, which isn't spelled-out. The morph /a/ appears in the monomorphic suffixed inflections in the singular inflections as well as the first-person plural.

The puzzle arises in the case of the feminine plural suffixed inflections, which are realized as [Ø-na] both the subjunctive and indicative moods. Keeping with the DM analysis of the present indicative inflections from the previous section, I argue that a mechanism of DM called Impoverishment (Bonet 1991) can explain why the feminine plural inflections show this behavior.

3.2 A DM Analysis of the Subjunctive

To follow the DM analysis of the present indicative mood, the analysis of the subjunctive mood in MSA will begin with the mappings of the feature bundles to their spelled-out morphs:

Inflection		***Feature Bundle***		***Morphs***
[2sg.f]	↔	[-masculine][+minimal][+atomic][SUBJUNCTIVE]	↔	/ii/ /∅/
[2du.m]	↔	[+minimal][-atomic][SUBJUNCTIVE]	↔	/aa/ /∅/
[2du.f]	↔	[+minimal][-atomic][SUBJUNCTIVE]	↔	/aa/ /∅/
[3du.m]	↔	[+minimal][-atomic][SUBJUNCTIVE]	↔	/aa/ /∅/
[3du.f]	↔	[+minimal][-atomic][SUBJUNCTIVE]	↔	/aa/ /∅/
[2pl.m]	↔	[+masculine][-minimal][-atomic][SUBJUNCTIVE]	↔	/uu/ /∅/
[2pl.f]	↔	[-masculine][-minimal][-atomic][SUBJUNCTIVE]	↔	/∅/ **/na/**
[3pl.m]	↔	[+masculine][-minimal][-atomic][SUBJUNCTIVE]	↔	/uu/ /∅/
[3pl.f]	↔	[-masculine][-minimal][-atomic][SUBJUNCTIVE]	↔	/∅/ **/na/**

Figure 3B: the subjunctive feature in the feminine plurals is realized as the morph /na/, not /∅/

As before, I posit that the long-vowel morphs and the null morph are the realizations of the phi features of the suffixed inflections; the insertion is exactly the same as in the indicative paradigm:

[-masculine][+minimal][+atomic]	↔ /ii/
[+minimal][-atomic]	↔ /aa/
[+masculine][-minimal][-atomic]	↔ /uu/
[-masculine][-minimal][-atomic]	↔ /∅/

Thus, the mood feature (realized as /na/ for [INDICATIVE]) must be realized as a different morph. In the case of the subjunctive mood, it is realized as the morph /∅/. The feminine plural inflections seem to defy the insertion of the null morph, but rather insert the morph spelled-out of the [INDICATIVE] feature, /na/. While it would be simple to posit that /na/ in this instance is simply an allomorph of /∅/ (recall the [na]~[ni] allomorphy in the indicative), that assumption of cross-modal homophony seems inadequate. Instead, I turn to the post-syntactic operation Impoverishment to explain the surfacing of /na/ in the subjunctive.

3.3 Impoverishment

Impoverishment was first described in Bonet (1991) for the treatment of Romance clitics and has been incorporated in the DM framework as a post-syntactic operation that can alter feature bundles before spell-out. Specifically, Impoverishment involves the deletion of a feature (or chain of features) from a morpheme in certain contexts, which affects the resulting spelled-out morph. Impoverishment assumes a feature hierarchy (and in some cases, a feature geometry). To schematically demonstrate how Impoverishment functions, I've extracted an example directly from Bonet (1991), which provides feature geometries of Warlpiri reflexive pronouns:

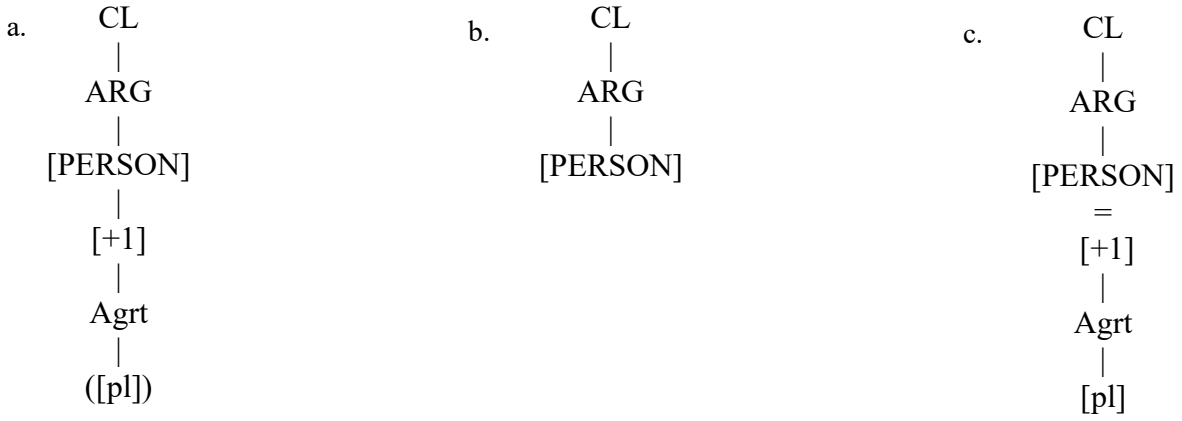

Figure 3C: the feature geometries that spell-out reflexive pronouns in Warlpiri (Bonet 1991)

The (a) geometry in Figure 3C maps-out the first-person reflexive pronouns (singular or plural), whereas the (b) geometry is associated with all other reflexive pronouns (invariant form). However, the (c) geometry is the result of the activation of the [pl] feature in the first-person. When the [pl] feature is activated, an Impoverishment rule is triggered that deletes the [+1] feature and consequently any features that are dominated by the [+1] feature (delinking). Thus, the first-person plural reflexive pronoun in Warlpiri surfaces as the invariant form represented by the (b) geometry.

Noyer (1992) (as well as Calabrese (1997)) proposes a slightly different approach to Impoverishment; one that rejects the use of feature geometries (unlike Figure 3C). This approach

relies on feature hierarchies and a system of constraints called filters. It is hypothesized that a language can have several of the filters (represented as *[1 dual], *[dual f], *[3 JUSS], etc.) which prohibit the realizations of certain combinations of features. A popular example from Noyer (1992) is the case of the first-person dual inflection in Arabic (MSA and colloquial), which doesn't surface in a predictable way (i.e. with a first-person prefix and the [-aani] dual suffix). Instead, it is realized as the first-person plural. By this filter theory, it can be said that *[1 dual] is activated in Arabic. To demonstrate this theory, I have reproduced this hierarchy of features from Noyer (1992):

a.	n-	1pl
b.	ʔ-	1
c.	t-	2
d.	-aani	du pl
e.	-na	pl f
f.	-uuna	pl
g.	-iina	f (2)
h.	t-	f
i.	-u	-perfective, +indicative
j.	-Ø	jussive
k.	y-	elsewhere
l.	-a	elsewhere

Figure 3D: the hierarchy of features in Modern Standard Arabic Noyer (1992)

As previously stated, in the filter theory certain combinations of features are prohibited according to the grammar of a language (in this case MSA). To take the example of the first-person dual, this filter would be represented as *[1 dual]. The filter theory states that in a filter such as this one, the lower-ranked feature is deleted (Impoverished), and the higher-ranked feature remains. The process can be diagrammed like so:

Input:	1 dual
Filter:	*[1 dual]
Impoverishment:	1

Figure 3E: Impoverishment of the first-person dual in MSA by filter theory Noyer (1992)

In this instance, the Impoverished first-person dual is underspecified for number. Therefore, it is realized with the unmarked number, which is [plural] in this case. This accounts for the syncretism of the first-person dual and the first-person plural that is evident in the paradigms in this paper.

3.4 Impoverishment of the Feminine Plural Subjunctive

In this analysis of the feminine plural inflections in the subjunctive, I will be utilizing the filter theory described previously. However, I will make some adjustments to Noyer (1992)'s hierarchy of features to better map onto the DM analysis that I have presented thus far.

a.	n-	1pl
b.	ʔ-	1
c.	t-	2
d.	-aa	du pl
e.	-Ø	pl f
f.	-uu	pl m (3)
g.	-ii	f (2)
h.	t-	f
i.	-na	-perfective, indicative
j.	-Ø	jussive
k.	-Ø	subjunctive
l.	y-	elsewhere
m.	-a	elsewhere

Figure 3F: a feature hierarchy based on Noyer (1992), but adjusted for the DM analysis at hand

I propose that MSA has a filter *[pl f SUBJUNCTIVE], which symbolizes a prohibition of the feminine plural inflections in the subjunctive mood. Given the adjusted hierarchy above, the feminine plural feature is more highly ranked than the subjunctive feature and is therefore retained. The subjunctive feature is Impoverished. To borrow and adjust from Noyer (1992) again:

Input:	pl f subjunctive
Filter:	*[pl f SUBJUNCTIVE]
Impoverishment:	pl f

Figure 3G: Impoverishment of the subjunctive in the feminine plurals in MSA by filter theory

In this theory, the feminine plurals are underspecified for mood. Rather than realizing the null mood morph /∅/, the morph realizing the indicative (/na/) is inserted at spell-out. For this reason, the feminine plurals are homophonous in the indicative mood and in the subjunctive mood. This hypothesis evidenced by the feminine plurals in indicative and subjunctive paradigms of other Semitic languages.

3.5 Impoverishment in Proto-Semitic?

The reason why I have chosen the filter theory to explain why the feminine plurals are cross-modally homophonous is because of the idea that a language can 'turn on' these filters (like Parameters), which would explain why linguistically related languages share similar interesting behaviors. In the case of the feminine plurals in the subjunctive, patterns similar to MSA are exhibited across the Semitic family tree. Below I have reproduced the dual and plural indicative and subjunctive paradigms of two Semitic languages: Mehri, and Ugaritic. The former is a member of the Modern South Arabian Semitic languages, whereas the latter is speculated to be an (extinct) dialect or sister language of Phoenician (also extinct).

Mehri		*Indicative*		*Subjunctive*	
'qatla'		dual	plural	dual	plural
1st	m/f	ə-…-áyən	nə-…-ən	l-ə-…-e	nə-
2nd	m	tə-…-áyən	tə-…-ən	tə-…-e	tə-…-əm
	f		tə-…-**ən**		tə-…-**ən**
3rd	m	yə-…-áyən	yə-…-ən	yə-…-e	yə-…-əm
	f	tə-…-áyən	yə-…-**ən**	tə-…-e	tə-…-**ən**

Figure 3H: the prefixed and suffixed inflections in Mehri with unchanged feminine plural suffixes

Ugaritic		*Indicative*		*Subjunctive*	
'maraSa'		dual	plural	dual	plural
1st	m/f	na-mruS-u		na-mruS	
2nd	m	ta-mrS-aa-na	ta-mruS-uu-na	ta-mruS-aa	ta-mruS-uu
	f		ta-mruS-**na**		ta-mruS-**na**
3rd	m	ya-mruS-aa-na	ta-mruS-uu-na	ya-mruS-aa	ta-mruS-uu
	f	ta-mruS-aa-na	ta-mruS-**na**	ta-mruS-aa	ta-mruS-**na**

Figure 3I: a partial paradigm of the verb 'to be ill' in Ugaritic, with unchanged fem. plural suffixes

While I am in no position to make any bold claims about Impoverishment in other Semitic languages, let alone Proto-Semitic, it is interesting to compare the issue at hand (feminine plurals in the subjunctive of MSA) cross-linguistically with sister languages to MSA. The presence of a *[pl f SUBJUNCTIVE] filter in related languages could bolster the claim that this filter is active in MSA. If it were present in Proto-Semitic, it could have been passed on to MSA. Again, this paper is not focused on historical linguistics, so I'll leave it to future studies.

3.6 Summary

In this section, I have presented the interesting case of the feminine plural inflections in the subjunctive mood. The subjunctive mood complicates the DM analysis of the previous section because the feminine plurals are homophonous cross-modally. Thus, I have introduced a post-syntactic operation of DM, Impoverishment, which deletes features of morphemes before spell-out. I have adopted the filter theory put forth by Noyer (1992) and posited that the [SUBJUNCTIVE] feature in the context of the feminine plurals is deleted, and the invariant /na/ morph realizing [INDICATIVE] is inserted instead. I have also introduced the possibility of the same filter originating in Proto-Semitic by incorporating a cross-linguistic comparison of feminine plural inflections in the indicative and subjunctive moods. In the next section, I will be analyzing two specific contexts in MSA in which the proposed null morph is accommodated in the phonology of MSA.

4 Accommodating the Null Morph

This section analyzes two environments in which the null morph in the feminine plural inflections is perceptibly present. That is to say that in these environments, the null morph's covertness interacts with other aspects of the language that would have otherwise been avoided had a long vowel been inserted, instead. These contexts to be discussed are all phonological, and reflect the root-and-pattern structure of Modern Standard Arabic.

These contexts also incorporate the syllable structure constraints if MSA. There is a small set of acceptable syllables in MSA, and they can be categorized by heaviness (Ryding 2011). Syllables in MSA cannot begin with a vowel, so often perceived 'vowel initial' syllables actually have a glottal stop [ʔ] onset. Therefore, the only 'weak' syllable allowed in MSA has CV structure. The 'heavy' class of syllables have CVC or CVV structure. Lastly are the 'super-heavy' syllables CVVC and CVCC, which primarily occur word-finally. No other syllable structures are permitted.

4.1 The Root-and-Pattern System

Lexical relationships in Semitic languages are similar in that semantically related words tend to be comprised of the same three ordered consonants, with intervening short and long vowels to distinguish the words from one another. In more academic terms, a lexeme is comprised of both a *root* containing three (or sometimes four) *radicals* in strict sequence and vowels to encode grammatical category membership, semantic relationships, and mood and aspect, among other functions. Figure 4A below shows the root-and-pattern system with three unique roots.

pattern		*gloss*		*gloss*		*gloss*
bare root	[d][r][s]	*'studying'*	[k][t][b]	*'writing'*	[t̲][ʕ][m]	*'eating'*
maCCaC(a)	madrasa	*'school'*	maktaba	*'library'*	mat̲ʕam	*'restaurant'*
CaaCiC	daaris	*'student'*	kaatib	*'author'*	t̲aaʕim	*'chef'*
maCCuuC	madruus	*'studied'*	maktuub	*'written'*	mat̲ʕuum	*'fed'*
CaC:aCa	dar:asa	*'to teach'*	kat:aba	*'to make write'*	t̲aʕ:ama	*'to savor'*

Figure 4A: the root-and-pattern system of MSA showing related meanings across verb roots

Figure 4A exemplifies quite neatly how the different lexemes are related both down the column as well as across the rows. For example, the words in the column with the root [d][r][s] share the same semantic core of 'studying.' Across the third row, another type of relationship is demonstrated. Rather than sharing a semantic relationship, these three lexemes share a grammatical relationship, specifically they are all active participles of their respective roots. In addition to the typical tri-consonantal roots like the ones above, there are roots in MSA that don't follow the usual [C1][C2][C3] template, and that's where our null morph is made evident.

4.2 'Doubled' Roots

Although consonants with three distinct radicals are the norm, roots with repeated radicals are not uncommon. In other words, lexemes in which the second and third radicals of the root are identical are frequent and well attested in MSA. These roots have been coined 'double' roots. Figure 4B fits a few doubled roots into a paradigm with patterns identical to those of Figure 4A.

pattern		*gloss*		*gloss*		*gloss*
bare root	[H][b][b]	*'loving'*	[m][r][r]	*'passing'*	[sh][k][k]	*'questioning'*
maCCaC(a)	maHbab(a)	*'loveable'*	mamrar(a)	*'passed'*	mashkak(a)	*'skeptical'*
CaaCiC	Haabib	*'lover'*	maarir	*'passer'*	shaakik	*'skeptic'*
maCCuuC	maHbuub	*'loved'*	mamruur	*'a pass'*	mashkuuk	*'questionable'*
CaC:aCa	Hab:aba	*'to make love (s/o)'*	mar:ara	*'to push through'*	shak:aka	*'to doubt'*

Figure 4B: insertion of doubled roots into the patterns from Figure 4A

Although the doubled roots can easily be fit into the patterns from Figure 4A, the morphosemantic interface is skewed slightly, as the first pattern no longer means 'place where [root] happens,' like in Figure 4A. When these doubled roots are inserted into *verbal* paradigms, however, they must adhere to the 'rules' of the pattern. In other words, the roots must be inserted in a way that doesn't create ambiguous meaning (such as homophonous inflections). The problem is usually avoided by treating the doubled consonant as a single, geminated consonant. But as an indicative paradigm will show, gemination isn't always the solution. Figure 4C shows a paradigm of a doubled verb:

		Present Indicative		
'Habba'		singular	dual	plural
1st	m/f	ʔa-Hab:-u	na-Hab-u	
2nd	m	ta-Hab:-u	ta-Hab:-aa-ni	ta-Hab:-uu-na
	f	ta-Hab:-ii-nu	ta-Hab:-aa-ni	ta-**Hbib**-Ø-na
3rd	m	ya-Hab:-u	ya-Hab:-aa-ni	ya-Hab:-uu-na
	f	ta-Hab:-u	ta-Hab:-aa-ni	ya-**Hbib**-Ø-na

Figure 4C: the present indicative paradigm of a classic doubled root in MSA 'to love'

As made clear by the bolded text, the feminine plural inflections don't follow the [CaC:] pattern of the unaffixed internal root, but rather opt for a non-geminated [CCiC] form. If you remember the constraints on MSA syllable structure from earlier in this section, the immediate

response should be to reject this form, as *[CCVC] isn't a valid syllable in MSA. However, the inflected verb needs to be analyzed across morpheme boundaries. Removing the morpheme markers from the inflected verb, the feminine plurals have a [CVC CVC CV] structure, which is perfectly permissible in MSA. If the feminine plurals *were* to follow the [CaC:] pattern, like the masculine plurals, for example, the resulting form would be *t/ya-Hab:-Øna (*[CV CVC CCV]), which is not allowed in MSA. Although one is tempted to splice the syllable structure as [CV CVCC CV], which is composed of three valid syllable structures, remember that the super-heavy CVCC syllable is dispreferred in any position other than word-finally.

The fact that MSA repairs this error in syllable structure by modifying the base root/vowel pattern attests to the need to recognize /Ø/ as a valid and meaningful (null) morph. There could've been any number of possible repairs:

1. Keep the [CaC:] pattern and disobey syllable structure rules:
   *ya-Hab:-Ø-na *[CVCVCCCV], but obeys IDENT constraint
2. Replace /Ø/ with an overt vowel and produce inflectional ambiguity:
   ya-Hab:-uu-na [CVCVCCVVCV], but homophonous with 3rd masc. plural
3. Delete the /na/ and, as a result, lose the feature [INDICATIVE]
   ya-Hab:-Ø [CVCVCC], but featurally underspecified
4. Reconfigure the [CaC:] pattern and disobey IDENT constraint:
   ya-Hbib-Ø-na [CVCCVCCV], obeys syllable structure constraints

The first repair is rejected because, as will be shown in the following section, adhering to the rules of syllable structure is ranked highly in the grammar of MSA. Additionally, the rejection of the second repair it due to the preference of MSA to have unique, non-homophonous inflections. The third repair is rejected as well, but for reasons pertaining to the spell-out of the /na/ morph. The reasoning behind the rejection of this repair occurs at the syntax-morphology interface, not at the phonological level. The takeaway from this subsection is that the null vowel in the feminine

inflections is a valid morph that exerts a heavy influence on its phonological environment. However, doubled verbs aren't the only instance in which the null morph's presence is made clear.

4.3 'Hollow' Roots

Roots that have repeated radicals aren't the only special class of roots in MSA. In addition to the doubled roots, there also exists a class of roots coined the 'hollow' roots. These roots are unique because rather than having a consonant in second position, there is a long vowel instead. Remember that, as demonstrated in Figure 4B, plugging a root into a vocalic pattern can create semantically meaningful differences between words. This is problematic because merging a long vowel radical with short vowels can create diphthongs that aren't permitted in MSA. Instead, the hollow roots find a way around the problem, as Figure 4D shows.

pattern		*gloss*		*gloss*		*gloss*
bare root	[ʕ][ii][sh]	*'living'*	[ʕ][uu][d]	*'recurring'*	[n][uu][m]	*'sleeping'*
maCCaC(a)	maʕiisha	*'life'*	-	-	manaam	*'bedroom'*
CaaCiC	ʕaa'ish	*'liver'*	ʕaa'id	*'recurrent'*	naa'im	*'sleeper'*
maCCuuC	maʕiish	*'a living'*	maʕuud	*'returned'*	manuum	*'slept'*
CaC:aCa	ʕaiisha	*'to sustain s/o'*	ʕauuda	*'to accustom s/o'*	nuuma	*'to lull s/o'*

Figure 4D: insertion of hollow roots into the patterns from Figure 4B

The hollow verbs seem to have a sort of identity crisis concerning the long vowel as the central radical. In some instances, the underlying long vowel surfaces as itself, as in *[n][uu][m]~[nuuma]*, but other times the underlying vowel surfaces as a different vowel, like in *[n][uu][m]~[manaam].* The long vowels in the roots are interacting with the short vowels in the patterns which thus affects the resulting surface form. Although an interesting topic, that's not the focus of this paper. That being said, hollow verb paradigms (like Figure 4E) reveal aspects of MSA inflectional morphology, specifically with the feminine plural and the proposed null morph.

		Present Indicative		
'ʕaasha'		singular	dual	plural
1st	m/f	ʔa-ʕiish-u	na-ʕiish-u	
2nd	m	ta-ʕiish-u	ta-ʕiish-aa-ni	ta-ʕiish-uu-na
	f	ta-ʕiish-ii-na	ta- ʕiish-aa-ni	ta-ʕ**ish**-Ø-na
3rd	m	ya-ʕiish-u	ya-ʕiish-aa-ni	ya-ʕiish-uu-na
	f	ta-ʕiish-u	ta-ʕiish-aa-ni	ya-ʕ**ish**-Ø-na

Figure 4E: indicative paradigm of the hollow verb 'to live'

Apart from the fact that the underlying vowel in the root of this verb ([ii]) is realized as [aa] in the bare verb, this paradigm exhibits something interesting. Where normally there would be a long vowel as the central radical, the feminine plurals show a reduced vowel as the central radical (perhaps even a deleted vowel altogether). The pattern of the unaffixed root in the paradigm outside of the feminine plurals is [CiiC], but feminine plurals follow a [CiC] pattern. Similarly to the doubled roots, this phenomenon can be explained by analyzing the rules of syllable structure in MSA. The masculine plurals have a [CV CVV CVV CV] syllable structure, with two heavy syllables word-medially. The feminine plurals, on the other hand, have a [CV CVC CV] syllable structure, with a single heavy syllable word-medially. Had the long vowel been retained, the syllable structure of the feminine plurals would be [CV CVVC CV], with a super-heavy syllable word-medially. Again, super-heavy syllables are dispreferred word-medially.

Assuming that there is some sort of constraint on super-heavy syllables word-medially, the rules of MSA would have a number of possible repairs to avoid a super-heavy syllable in this position. These repairs would look similar to the repairs proposed for the doubled verbs:

1. Keep the [CiiC] pattern and disobey syllable structure:
   *ya-ʔiish-Ø-na *[CCVCVVCCV], but obeys IDENT constraint
2. Replace /Ø/ with an overt vowel and produce inflectional ambiguity:
   ya-ʔiish-uu-na [CVCVVCVVCV], but homophonous with 3rd masc plural
3. Delete the /na/ and, as a result, lose the feature [INDICATIVE]
   ya-ʔiish-Ø [CVCVVC], but featurally underspecified

4. Reconfigure the [CiiC] pattern and disobey IDENT constraint:

ya-ʔish-∅-na [CVCVCCV], obeys syllable structure constraints

At the risk of sounding redundant, syllable structure involves a highly ranked set of constraints in MSA, whereas IDENT constraints (like [ii] → [i]) tend to be lower ranked and more easily broken. As demonstrated in §4.2, the fact that repairs 2 and 3 weren't chosen shows the importance of having and 'perceiving' the null morph /∅/ in the feminine plurals. It realizes important features and cannot simply be replaced or deleted for the sake of preserving syllable structure.

4.4 Summary

In this section, two distinct environments ('doubled' and 'hollow' roots) were presented that provide evidence for a necessary null morph in the feminine plurals. Whether it's altering the doubling a consonant or shortening a vowel, the null morph is visible in the grammar of Modern Standard Arabic. Several rules and constraints have been introduced in this section to further explain these phenomena. But just how do this rules and constraints interact? In the next section, these rules and constraints will be inserted into an Optimality Theory model to determine a ranking that favors the 'pronunciation' of the null morph /∅/.

5 Ranking the Constraints

At the same time that Halle & Marantz published their work on Distributed Morphology, Smolensky & Prince formally introduced a constraint-based approach to understanding phonology, Optimality Theory (OT) (1993). The OT model interprets the mappings of underlying phonological representations to surface forms as the result of interacting constraints in the grammar. In other terms, an underlying representation (input) may have several potential surface forms (outputs), but one output is 'more optimal' than the others, given the ordering of constraints in the language, so that form becomes the realized surface form. The idea is that the different

rankings of these constraints will yield different surface forms, which accounts fo the vast variability of languages across the planet (in present day as well as in the past and into the future).

5.1 Optimality Theory in Brief

Just as I attempted to do with Distributed Morphology, I will try to give a rudimentary summary of the principles and inner workings of Optimality Theory as it pertains to the analysis at hand. Although originally designed as a framework for phonology, OT can be configured in a way that can help with our analysis of the morphology of the feminine plurals in MSA. The basics of OT can be summarized as the interactions between three components: the Generator, the Constraint component, and the Evaluator. The derivation of a phonological from is schematically displayed in the form of a tableau.

The first of these components to be discussed is called the Generator. The Generator relies on the input of an underlying representation, which may or may not mirror the surface form. From this underlying representation, the Generator produces a number of potential *candidates* which will compete with one another for surface realization. The candidates (which together are called the 'candidate set') resemble the underlying representation, but with a minor (or sometimes major) difference in phonological make-up (or in some other way, as we will see).

The second component is called Constraint component. The Constraint component provides the list of possible constraints and rules that govern the grammar of a language. These constraints can reflect any aspect of phonology and are broken up into two broad categories: faithfulness constraints and markedness constraints. Faithfulness constraints assign violations to the candidates that deviate from the underlying representation in any way. The markedness constraints assign violations to any candidates that violate the rules regarding the structural well-formedness of words in the language in question. A crucial aspect of OT is that the Constraint component is universal. That is to say that all languages possess the same inventory of constraints,

with differences in ranked order. The difference in order is what makes languages unique, while at the same time can showing similar languages can differ in very subtle ways.

As an example, we can hypothesize four different constraints represented as CONA, CONB, CONC, and COND. These hypothetical languages rank these constraints in different ways:

Language	***Constraint Ranking***
L1	CONA ≫ CONB ≫ CONC ≫ COND
L2	COND ≫ CONC ≫ CONB ≫ CONA
L3	CONA ≫ CONB ≫ COND ≫ CONC
L4	CONC ≫ CONB ≫ CONA ≫ COND

Figure 5A: different constraint rankings yield different possible languages

Based on the rankings in Figure 5A, we can draw some generalizations about these proposed languages. The first thing to be noted is that the constraints decrease in strength as they move further to the right. What this means is that the right-most constraint is more likely to be violated in a given language, whereas the left-most constraint is more strictly enforced. Therefore, L1 and L2 can be considered very different from one another, since their respective constraint rankings are the exact opposite of one another. On the contrary, L1 and L3 are more similar to one another, since the left-most constraints are in an identical order. The right-most constraints swap order, but since they're more easily violable, the ranking difference may result in only a small change on the surface.

The final component is known as the Evaluator, and its role is to select the 'optimal candidate' based on which candidate was assigned the least number of violations by the ranked constraint set. As each candidate is filtered through the ranked constraints (starting from the highest-ranked and working their way to the lowest-ranked), they are assigned violations. Once a candidate receives a violation, it is stopped from competing further along in the tableau. However, it's possible that all of the candidates equally violate a constraint. Since the violations are 'equal,'

all of the candidates move forward to the next constraint. Eventually, the candidate set narrows to just a few remaining candidates. There will be a point in which one candidate incurs more violations than the other, and thus the candidate that received fewest violations is designated as the winner. This candidate is realized as the output form.

5.2 The Constraints

As mentioned previously, the OT framework can be used to support the hypothesis of the null morph in the DM analysis of the feminine plural inflections in MSA. To do this, there needs to be defined a list of constraints to be manipulated by the Constraint component. The previous section alluded to these constraints, which deal mostly with syllable structure and feature realizations. This subsection will explain in detail the constraints that will be used in this OT analysis, and how they will assign violations to the candidates.

The following constraints are a combination of both faithfulness constraints and markedness constraints. To recap, the faithfulness constraints will assign violations to candidates that differ from the underlying representation in some way. Rather than being phonologically governed, these violations will be feature-based (according to the DM analysis). The markedness constraints depicted below are generated directly from the grammar of MSA, while also upholding basic requirements of language (i.e. not realizing morphs that represent opposing values of a binary feature). With that in mind, these are the proposed constraints that will aid our analysis:

Name	*Constraint*	*Violations*
*homophony	disprefers inflections that are homophonous with other inflections	assigns a * to candidates that are homophonous with another inflection
*σCOMPσ	disprefers super-heavy syllables word-interally	assigns a * to each candidate that contains a super-heavy syllable word-internally
IDENT ([INDICATIVE])	disprefers candidates that differ from the UR in mood	assigns a * to each candidate that doesn't realize a [INDICATIVE] feature

IDENT (±minimal)	disprefers candidates that differ from the UR in (±minimal)	assigns a * to each candidate that has a morph that doesn't match (±minimal) feature of the UR
IDENT (±masculine)	disprefers candidates that differ from the UR in (±masculine)	assigns a * to each candidate that has a morph that doesn't match (±masculine) feature of the UR
IDENT (BASE)	disprefers candidates composed of a different base root from the UR	assigns a * to each candidate with a different base root structure than the UR

Figure 5B: these are the constrains that will be used in this OT analysis

5.3 The Input and Candidate Set

The final bits of information that are necessary for an OT analysis are an input and a candidate set. Since this OT model will be working in tandem with the DM analysis from section 2, the input and candidates will be somewhat different from those in standard OT, in which the realization of syntactic features is irrelevant to well-formedness. While representing the phonological realizations of underlying features, the morphs that are in competition with once another must also be featurally specified and represented. Thus, the generation of a candidate set must reflect the feature bundles and their possible phonological realizations.

First, however, should be the generation of the input. Hypothetically, the Generator has access to infinite morphs and phonological outputs. To streamline the analysis, we'll toss out the /ʐta/, /dʒlu/, and /fɲʁ/ morphs in favor of the morphs that are more relevant to the problem at hand, namely the MSA inflectional morphs defined earlier (/ta/, /ya/, /ii/, /aa/, /uu/, /∅/, /na/) and the small set of verb roots from previous figures. For this analysis, the input will consist of a feature bundle: the package of features that will aptly specify the insertion of the feminine plural in the indicative. Based on the DM analysis, this input bundle would look like this:

[-masculine][-minimal][-atomic][INDICATIVE]

Additional features would be necessary to distinguish second- and third-person, which spell-out the prefixes of the plural inflections. To be brief, these will be represented simply as [2] and [3].

In the OT analysis to follow, the input will always be the third-person feminine plural. The last component needed in the input bundle is the feature that spells-out the base verb root.

If we recall from earlier, the derivation of words in MSA (and Semitic languages in general) follows a root-and-pattern system, where a semantic concept is represented by a sequence of three (sometimes four) consonants called *radicals.* This tri-consonantal *root* is plugged into *patterns* which form words with predictable semantic meaning. This system was highlighted by Figure 4A in §4.1, in which different roots were inserted into patterns to form nouns and participles.

Like the nominal derivations, patterns exist for verbal derivations, as well. These verbal 'patterns' are typically called 'Forms,' and although there are ten basic Forms for verbs in MSA, fifteen derived Forms are attested. In MSA, verbs can take on different grammatical or semantic interpretations based on the form in which they are realized. For example, Form I is typically associated with the basic meaning of the verb. The root q-T-ʕ has the basic semantic meaning of 'cutting.' The derived form of this root in Form I means simply 'to cut,' and is realized [qaTaʕa]. In fact, nearly all roots follow the 'CaCaCa' pattern in Form I, with the exceptions being the 'doubles' and 'hollow' roots. Form II is (usually) the transitive realization of the root. Thus, Form II of q-T-ʕ can be interpreted as 'to cut something,' and is realized with a geminated medial radial [qaTTaʕa]. Again, while the 'CaCCaCa' is they typical pattern of Form II derived forms, the 'doubled' and 'hollow' verbs don't follow this pattern.

Since the OT analysis to follow is meant to portray the realization of the null morph in the context of Form I 'doubled' and 'hollow' verbs, the input must include information regarding the structure of the 'base root.' In other words, there has to be a structure in the input that accounts for consonantal structure of the derived form of the 'doubled' and 'hollow' verb roots. I will call this structure the 'base,' and it will represent the unaffixed verb. In the 'doubled' roots, the base is

√CVC:, and in the 'hollow' roots, the base is √CVVC. It is crucial to define this 'base structure' in the input because different derived forms will uniquely affect the word syllable structure.

Lastly comes the candidate set. In theory, the candidate set should be infinitely long, representing all feature combinations, repairs, and phonological realizations. To save some time, I'll cut it down a bit. To do this, I'll start by removing candidates that spell-out the second-person, since this feature is realized as prefix (/ta/) and therefore not relevant to the analysis of the suffixed inflections. Additionally, I'll work backwards from the list of potential repairs that I posited in §4.2 and §4.3 and generate only the candidates that would be realized from such repairs.

The first of the four repairs to be represented isn't actually a repair at all. Rather, it's the candidate that is identical to the feature bundle in the input. Candidate (a) is this feature bundle:

[3](√CVC:/√CVVC)[-masculine][-minimal][-atomic][INDICATIVE]

The roots in parentheses spell-out a 'doubled' root or a 'hollow' root, respectively. The second potential repair to preserve syllable structure is to insert a long-vowel morph in place of the null morph /∅/. As the DM analysis shows, each of the long-vowel morphs is the realization of a distinct bundle of phi features. Thus, the feature bundle spelling-out a long-vowel morph, while preserving the syllable structure, will differ from the input bundle. To save space, this repair will be represented by a single candidate (even though there are three long-vowel morphs). Trying not to deviate too far away from the input feature bundle, candidate (b) is the following feature bundle:

[3](√CVC:/√CVVC)[+minimal][-atomic][INDICATIVE]

Note that changing the [-minimal] feature above to [+minimal] also deletes the gender feature in the bundle. This is because the [+minimal][-atomic] bundle spells-out the dual morph /aa/, which doesn't specify gender. Thus, different candidates exist for each of the long-vowel morphs in Figure 5C. Had I chosen to demonstrate this repair with the morph /uu/, the bundle would be:

[3](√CVC:/√CVVC)[+masculine][-minimal][-atomic][INDICATIVE]

This OT analysis will just consider the bundle that spells-out the /aa/ morph for this repair.

The third potential repair entailed the deletion of the final CV syllable of the inflection, which is the /na/ morph. Again, using the DM analysis as a guide, the morph /na/ is the realization of the mood feature [INDICATIVE]. For this morph not to surface, it must not be included in the candidate feature bundle. Like the previous repair, this repair will be represented by one candidate, rather than the multiple candidates possible. Therefore, candidate (c) will be this feature bundle:

[3](√CVC:/√CVVC)[-masculine][-minimal][-atomic]

Finally, the last repair posited is the repair that alters the structure of the base root in order to preserve syllable structure. In the 'doubled' roots, this repair would be the epenthesis of a short vowel in the geminated consonant. In the case of the 'hollow' roots, the repair is the shortening of the central vowel. To represent these repairs, the final candidate, candidate (d) will be this bundle:

[3](√CCVC/√CVC)[-masculine][-minimal][-atomic][INDICATIVE]

Again, the structure of the base root will be one of the options in parentheses (doubled/hollow).

Since this analysis considers both phonologically-conditioned and morphologically-conditioned constraints into the tableaux, the phonological realizations of the feature bundles that will be considered will be reproduced (from Section 2) below:

[3]	↔ /ya/
[-masculine][+minimal][+atomic]	↔ /ii/
[+minimal][-atomic]	↔ /aa/
[+masculine][-minimal][-atomic]	↔ /uu/
[-masculine][-minimal][-atomic]	↔ /Ø/
[INDICATIVE]	↔ /na/

Figure 5C: proposed phonological realizations of inflectional feature bundles

These realizations will help with the interpretation of the tableaux to follow.

5.4 The OT Analysis

Now that all of the components have been set, the OT analysis can begin. The analysis here will consist of two tableaux, the first representing the 'doubled' roots, and the second representing the 'hollow' roots. The candidates will be sent through the tableaux and, based on the constraints and their ranking, the candidate that is the most specified to the input while obeying the higher-ranked phonotactic constraints will be the optimal candidate and inserted.

	/{[3]√CVC: [-masculine] [-minimal] [-atomic] [INDICATIVE]}/	*homophony	*σCOMPσ	IDENT ([INDICATIVE])	IDENT (±min)	IDENT (±masculine)	IDENT (BASE)
a	{[3] √CVC: [-masculine] [-minimal] [-atomic] [INDICATIVE]}		*!				
b	{[3] √CVC: [+minimal] [-atomic] [INDICATIVE]}	*!			*	*	
c	{[3] √CVC: [-masculine] [-minimal] [-atomic]}			*!			
☞d	{[3]√CCVC [-masculine] [-minimal] [-atomic] [INDICATIVE]}						*

Tableau 1: the correct ranking of constraints for the 'doubled' roots

Candidate (d) is inserted as the optimal candidate in this tableau. For a simple derivation, the doubled verb root 'to love' from §4.2 will be inflected given the feature bundle from (d):

(d) [3] √CVCC[-masculine][-minimal][-atomic] [INDICATIVE] ↔ /ya/-/Hbib/-/Ø/-/na/

The resulting insertion of morphs from the (d) bundle provides the attested third-person feminine plural inflection [yaHbibØna]. Although candidiate (d) violates the IDENT (BASE) constraint, it does

not violate any of the higher-ranked constraints. The two highest-ranked constraints (*homophony and *σCOMPσ) knock out both candidates (b) and (a), respectively. Insertion would look like this:

(a) [3] √CVC: [-masculine][-minimal][-atomic] [INDICATIVE] ↔ /ya/-/Hab:/-/∅/-/na/

(b) [3] √CVC: [+minimal][-atomic] [INDICATIVE] ↔ /ya/-/Hab:/-/aa/-/na/

Like the tableau illustrates, (a) violates *σCOMPσ because the resulting form *[yaHab:∅na] has a complex syllable word-medially, and (b) violates *homophony because the resulting form [yaHab:aana] is homophonous with the third-person dual inflections (following the phonological readjustment [na]~[ni]). The (c) bundle is also rejected because it is underspecified for mood:

(c) [3] √CVC: [-masculine][-minimal][-atomic] ↔ /ya/-/Hab:/-/∅/

Thus, (d) is the inserted because it is phonologically well-formed and featurally specific.

Next, a hollow-root input is tested using the same constraint ranking as in Tableau 1:

	/{[3]√CVVC [-masculine] [-minimal] [-atomic] [INDICATIVE]}/	*homophony	*σCOMPσ	IDENT ([INDICATIVE])	IDENT (±min)	IDENT (±masculine)	IDENT (BASE)
a	{[3]√CVVC [-masculine] [-minimal] [-atomic] [INDICATIVE]}		*!				
b	{[3]√CVVC [+minimal] [-atomic] [INDICATIVE]}	*!			*	*	
c	{[3]√CVVC [-masculine] [-minimal] [-atomic]}			*!			
☞d	{[3]√CVC [-masculine] [-minimal] [-atomic] [INDICATIVE]}						*

Tableau 2: the correct ranking of constraints for the 'hollow' roots

Similarly to the previous derivation, candidate (d) is selected as the optimal candidate because although it violates a low-ranking constraint, it adheres to the higher-ranked constraints. The 'hollow' root 'to live' from §4.3 will be inflected in the following derivations:

(d) [3]√CVC [-masculine][-minimal][-atomic] [INDICATIVE] ↔ /ya/-/ʕish/-/∅/-/na/

The base root in (d) is not identical to the input base root, but the bundle as a whole is maximally specified and phonologically well-formed. Here are the derivations for candidates (a)-(c):

(a) [3] √CVVC [-masculine][-minimal][-atomic] [INDICATIVE] ↔ /ya/-/ʕiish/-/∅/-/na/

(b) [3] √CVVC [+minimal][-atomic] [INDICATIVE] ↔ /ya/-/ʕiish/-/aa/-/na/

(c) [3] √CVVC [-masculine][-minimal][-atomic] ↔ /ya/-/ʕiish/-/∅/

Again, just as in the previous derivations, candidates (a) and (c) are not selected as the optimal candidate because they violate the highly ranked *σCOMPσ and *homophony (respectively). Candidate (a) is realized *[yaʕiish∅na], which contains a word-medial super-heavy syllable, and candidate (b) is realized [yaʕiishaana], which is well-formed (following phonological readjustment) but homophonous with the third-person dual inflections. Lastly, candidate (c) is thrown out because it is underspecified for mood. Thus, (d) is the correct optimal candidate.

In support of the rankings I have posited above, the following tableaux of the 'doubled' roots schematize rankings that don't realize the optimal candidate as the output. There's no need to double the number of tableaux to account for the 'hollow' roots, since the rankings are consistent for both classes of roots. In the first tableau, the constraint that prohibits the manipulation of the base root of the verb, ranked lowest in the tableaux above, has been ranked above the constraints *homophony and *σCOMPσ. In the second tableau, the same constraint has been ranked higher than *σCOMPσ, but still lower than *homophony. The outputs of both tableaux are non-optimal.

	/{[3]√CVC: [-masculine] [-minimal] [-atomic] [INDICATIVE]}/	IDENT (BASE)	*homophony	*σCOMPσ	IDENT ([INDICATIVE])	IDENT (±min)	IDENT (±masculine)
a	{[3]√CVC: [-masculine] [-minimal] [-atomic] [INDICATIVE]}			*!			
b	{[3]√CVC: [+minimal] [-atomic] [INDICATIVE]}		*!			*	*
💣c	{[3]√CVC: [-masculine] [-minimal] [-atomic]}				*		
☹d	{[3]√CCVC [-masculine] [-minimal] [-atomic] [INDICATIVE]}	*!					

Tableau 3: this ranking of constraints for the 'doubled' roots yields the wrong candidate

Ranking the IDENT (BASE) constraint higher than both *homophony and *σCOMPσ does not yield the preferred candidate (d) ([yaHbibØna]), but rather selects the non-optimal candidate (c) ([yaHbibØ]). With this ranking, the candidate with an identical base root structure (but morphologically underspecified) is chosen over the candidate that is maximally specified but manipulates the base root structure to adhere to phonological constraints. The following constraint ranking also yields a non-optimal candidate:

	/{[3]√CVC: [-masculine] [-minimal] [-atomic] [INDICATIVE]}/	*homophony	IDENT (BASE)	*σCOMPσ	IDENT ([INDICATIVE])	IDENT (±min)	IDENT (±masculine)
a	{[3]√CVC: [-masculine] [-minimal] [-atomic] [INDICATIVE]}			*!			

b	{[3]√CVC: [+minimal] [-atomic] [INDICATIVE]}	*!				*	*
💣c	{[3]√CVC: [-masculine] [-minimal] [-atomic]}				*		
☹d	{[3]√CCVC [-masculine] [-minimal] [-atomic] [INDICATIVE]}		!*				

Tableau 4: this ranking of constraints for the 'doubled' roots yields the wrong candidate

The same non-optimal candidate ((c)) is inserted even when IDENT (BASE) is ranked slightly lower than in Tableau 3. Again, this ranking favors a morphologically underspecified output ([yaHbibØ]) instead of the preferred candidate (d) that alters the base root structure.

5.5 Summary

This section has introduced and utilized another framework to formalize the hypothesis that a null morph is realized in the feminine plural suffixed inflections in MSA. Optimality Theory is an excellent model for revealing instances of null morphology because it schematizes how different constraints interact with one another to ensure the null morph is 'pronounced.' Thus, it not only helps to bolster the theory at hand, but it also gives insights into the grammar of MSA.

I have proposed an OT model that incorporates both morphological and phonological constraints within the Constraint component. I have also explained the input in this model consists of a feature bundle that can be generated by referring to the DM analysis that was proposed earlier in this paper. Additionally, I have generated a list of plausible candidates for the candidate set, each of which incorporates the repairs that were mentioned in the previous section. While the candidate set presented is in no way exhaustive, it provides a sampling of candidates that are theoretically in competition with one another for insertion and spell-out in the grammar of MSA.

The results of this OT analysis provide evidence that the phonotactics of MSA are manipulated in order to accommodate the null morph. The candidate that spelled out the insertion of an overt vowel in place of the null morph was rejected for violating the *homophony constraint, even though it received no violations from *σCOMPσ. On the other hand, the candidate that was identical to the input feature bundle (spelling-out the null morph without adjusting the base root structure) was rejected because it violated the *σCOMPσ constraint, even though it was the most featurally-specific and didn't receive violations from *homophony. The optimal candidate was the one that was specified for both the phi features and the tense features from the input, while at the same time sacrificing the base root structure. In short, this analysis shows that MSA chooses to adjust the base structure of the verb rather than to be underspecified for the feminine plurals.

6 Conclusion

In the fourth century BCE, Sanskrit grammarian Pāṇini introduced the concept of null morphology in his Sanskrit grammar *Aṣṭādhyāyī.* The idea that important features of grammar exist covertly in language was revolutionary, to say the least. Null morphology is realized in languages across the globe, from present-tense inflections in English to the feminine plural genitive case marking in Slavic languages. In this paper, I have introduced another instance of null morphology; in this case, in the feminine plural suffixed inflections in Modern Standard Arabic.

I have argued that contrary to previous work on inflectional morphology in MSA, the phi features that are unique to the feminine plural inflections are not realized by the morph /na/, but rather they spell-out a null morph /∅/. To validate this hypothesis, I have employed two linguistic frameworks developed in the nineties: Distributed Morphology and Optimality Theory. The DM approach from earlier schematized mappings of features in the syntax to the morphs that they spell-out in the inflectional paradigm. The OT model explained how and why two classes of verb roots

in MSA ('doubled' & 'hollow') accommodate the insertion of a null morph in the feminine plural. Together, these frameworks have provided an abundance of evidence in support of the null morph.

In the very beginning of this paper, I pointed out that the *noon al-niswa,* the alveolar nasal sound [n] in the /na/ morphs of the feminine plural inflections, has been adopted as a unifying symbol of the feminist movement in the Middle East. The null morph –although acoustically uninspiring– is almost representative of the protest itself. In this paper, I have tried to convince the reader not only that this null morph exists, but that it exists in an important way. The null morph is the realization of the feminine plural phi features, and it commands the phonotactics of MSA to adjust its environment to its presence. Oxymoronically, the null morph is like the feminist movement in the Middle East: it can't be silenced.

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