A Multiple Default Domain: A Semantics- Based Account

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Abstract: *The objective of this study is to examine the use of the Masculine Sound Plural (MSP) as a default inflection in Modern Standard Arabic (MSA). Twenty-six fourth-year university students in the department of Arabic language and literature participated in the experiment and they were required to provide the plural inflection for 30 derived noun forms in MSA. The data used in this study consists of agentive derived forms that indicate human action meaning. The descriptive statistics approach (mean and standard deviation) was used to investigate the data; the results of the current study showed that MSP inflection was produced in a higher rate of frequency than the other possible forms of the irregular plural inflectional forms-broken plural (BP)-- inflection that can also be actual part of the lexicon or schemata or background knowledge. The findings of this study support the accounts provided by the combinatorial processing mechanism with a suffixation formation that is more predictable than any other BP forms. The results of this study also provide more concrete evidence on the idea that there is initial mapping between the semantic features and the emergence of the default inflection which primarily motivates the emergence of the default form, and this semantic mapping is expected to add more to the properties that make the multidefault scenario more possible.*

Keywords: default, lexicon, masculine sound plural, modern standard Arabic (MSA), semantic features.

1. Introduction

One of the major pursuits of inflectional morphology is to investigate the paradigmatic changes observed in the cognitive language behavior. Many approaches have been introduced to account for the emergence of the default forms, such as the symbolic and the associative memory accounts. In this paper, researchers will focus on the ability of the inflectional system of MSA to revisit the so-called Minority Default Hypothesis observed in MSA. The semantic mapping of features is observed as a main factor that motivates the emergence of multidefaults in the paradigm of MSA.

Inflectional approaches treat regular and irregular inflections differently. According to the dual processing mechanism, regular and irregular forms are stored and processed in two independent ways (e.g., Marcus et al. 1992; Pinker 1991; Pinker and Prince 1988; Pinker and Ullman 2002). Regular forms are stored as decomposed morphological units (e.g., *walk + ed*) and processed by a general rule application. Because of their rule-based computation, frequency has no effect on the processing of regular forms. Moreover, nonce words or zero inflectional

morphemes are processed or inflected according to regular inflectional rules because their inflected forms are not stored in the lexicon; thus, they are processed as variables that are semantically blind to the lexicon. Irregular forms, on the other hand, are stored as whole units and processed by a single processing mechanism, i.e., by connecting the phonological forms of different lexical entries. Irregular forms that are frequent or phonologically similar to other frequent forms are expected to be retrieved more easily than those that are not. This type of processing explains over-regularization errors (e.g., **wented*) as well as the disappearance of uninflected stems once the regular forms are acquired. The single route account suggests that all inflected words are stored and processed by associative patterning which is based on phonological and semantic similarity between base and inflected forms (e.g., Elman, et al., 1996; Plunkett and Marchmen 1991; Rumelhart and McClelland 1986). According to this approach, the retrieval of both regular and irregular forms is largely determined by their frequency or the frequency of the class to which they belong.

From a semantic perspective, the inflectional system shows a high degree of regularity as well transparency (Ravid and Schiff 2009). Morphological transparency constitutes the degree to which a plural pattern is parsable into its basic units. In English, for example, the plural form *books (book + s*) is more transparent than *men*. This high degree of transparency facilitates the initial mapping of function or meaning onto inflectional units. Regular inflections serve as inflectional defaults that speakers extend to novel words. However, the degree of regularity and thus the defaultness is affected by the levels of structural transparency uncovering a complex relationship with their phonological patterns (Laaha and Dressler 2006; Schiff and Ravid 2012 and Fareh and Hamadi 2019). Such properties of transparency are supposed to facilitate the degree of retrieval processing by either children or adults and thus the mapping degree is also enhanced. The degree of transparency is possibly a challenging factor in determining the processing of the inflectional system of human languages (Laaha and Dressler 2006; Ravidand Schiff 2012).

According to the dual mechanism approach, the regular plural forms are not memorized or listed in the lexicon therefore their retrieval is not affected by their frequency, as the singular forms should be for processing (Marcus 1995). On the contrary, single mechanism processing accounts consider the token frequency factor for both the singular and the plural forms as both regular and irregular forms are listed in the mental lexicon. This idea indicates that the regularity and frequency always co-occur in the lexicon for languages like English whose high frequency forms are regular while irregular forms are infrequent. Arabic (Ravid et al. 2009) and German (Laaha and Dressler 2006; Clahsen 1999), on the other hand, are languages that do not conform to an English-like regular-frequent / irregular-infrequent plural split. As a result, these languages contain a minority default/regular lexicon, i.e., in these languages regular forms do not have to have high token frequency in order to be processed more easily.

According to McClelland and Patterson (2002), learning consists of strengthening or weakening connections between pairs of units as a result of the changing nature of linguistic input and is thus strongly affected by factors like frequency of exposure, similarity, etc. The network learns to compute the most probable inflected form for any input string by using learning algorithms that capture the statistical regularities between input and output strings and learns from both external factors like child-directed speech. Symbolic categories arise in such a learning mechanism as emergent properties of the system, which can generalize automatically to both regular and irregular new forms. This is because the same mechanism computes predictable and exceptional forms (Daugherty and Seidenberg 1994; Plunkett and Marchman 1993; Rumelhart and McClell and 1986). Based on the single-route view, the learning network improves performance on plurals over many learning trials. This results in a gradual developmental process where overgeneralization is conditioned by linguistic experience as well as the similarity of the exemplar being learned to others already stored its consistency and salience, as well as its frequency. The single-route model thus generates the prediction that both Arabic sound and irregular forms should be affected by associative memory properties like frequency and semantic features.

1.1 The Number system in Arabic

The sound plural system in Arabic involves linear suffixation. This plural system involves the attachment of a suffix to a nominal stem. This type of plural formation can be realized through the masculine plural suffix with /*-i:n/* (*masculine sound plural* [MSP]) or the feminine plural suffix /*-a:t/* (*feminine sound plural* [FSP]) (Versteegh 1997). The process including this form is called 'regular'. The forms that are MSP inflected are passives and active participial nouns (e.g., *mudarris* ‘teacher’ *mudarrisu:na/i:na* ‘teachers’), nouns of profession/occupation (e.g.*najja:r* 'carpenter' *najja:ru:n/i:n*'carpenters'). The feminine plural suffix applies to a wider range of nouns, i.e., it is more productive in that it can be applied to foreign words, neologisms, etc(Dressler 2003; Alsaleh 2020 and Alqarni 2020). This pluralization process affects several types of nouns including grammatically feminine nouns (i.e., marked by a feminine suffix such as *mɑktaba*'library' *mɑkaba:t* 'libraries') as well as grammatically masculine nouns (e.g., *hammamun*‘bathroom’ *hamma:ma:tun* ‘bathrooms’) and borrowings (e.g., *balu:n* ‘balloon’*bal u:na:t* ‘balloons’) (Holes 2004). The second type of the plural system is the broken plural system which involves the nonlinear formation of templatic consonant-vowel patterns onto triconsonantal roots. According to Holes (2004), the primary factor determining whether a given noun forms its plural by suffixation or by templatic internal change is the morphological structure of its singular form together with its meaning. The broken plural formation involves simultaneous root-and-pattern affixation, that is, interdigitating consonant-vowel patterns on the root radicals of the singular noun which also changes the form of the singular noun through various morpho-phonological processes, such as long vowel insertion, consonant gemination, and

the affixation of consonants besides those of the root (e.g. *kita:b*‘book’ *kutub*'books'). According to Wright (1896–98) there are 29 broken plural patterns in Classical Arabic and /or MSA (Holes 2004, p. 168). These patterns show a distinct amount of predictable phonetic variability in spoken Arabic (Levin 1994); for example, the MSA plural pattern *CvCv:C* is produced as *CCv:C* in spoken Arabic (e.g.*jima:l*‘ camels’ becomes *jma:l*).

According to McCarthy and Prince (1990), the plural system of German is an example of a minority-default inflectional system. In other words, a regular linear inflectional process applies to fewer forms in the language than the irregular stem modifying process in a system. On the other hand, Idrissi (1997) provides evidence for largely systematic and predictable stem alterations in broken plural formation indicating a degree of regularity in this inflectional procedure as well. Similarly, both sound and broken plurals- based on the distributional asymmetry factor - are qualitatively productive in Arabic. For example, according to Kouloughli's (1992) the number of the forms that take this inflection-sound masculine- is not the majority in the lexicon, i.e., it is less than 8%; and there are still other forms that can be classified as ‘regular’ such as the sound feminine (24%), the trochaic (45%,) and the iambic broken plurals (17%).The broken plural is the quantitatively more productive process and it involves more nominal forms (Boudelaa and Gaskell, 2002 and Fareh and Hamadi 2019).

This paper consists of the following parts: Section (2) states the research problem; section (3) deals with the research predictions and objectives. Section (4) provides an idea about the significance of the study. Section (5) discusses the mechanism of the default emergence in MSA. Section (6) states the procedures used in the experiment and section (7) declares the results and the discussion of the study; section (8) provides the concluding remarks as well as the pedagogical implications of the study and finally section (9) sheds light on limitations of the study.

2. The Research problem

According the symbolic accounts (Marcus et al. 1991) , the overgeneralization of the default patterns is motivated by the applicability of the variable based inflection which is typically the suffixation based sound feminine plural with *a:* as in *masa:r/ masa:ra:a:t* 'a track/tracks' regardless of the gender type whether it is feminine or neuter. Our investigation in this paper is provide evidence on the availability of the Sound Masculine Plural (SMP) as a default pattern. This new default is triggered by the semantics-based mechanism that guarantees the other plural forms than the Sound Feminine plural as the already existing default in the lexicon. The expected scenario is touncover the new default pattern displayed via the SMP.

3. The Research predictions and objectives

The main purpose of the present inquiry is to investigate the possibility of the MSP to have higher response rates provided by the subjects compared to the BP

form. Our assumption is that the gender variable would play no role in determining the type of the inflection that was produced for each item. Moreover, we predict that emergence of the default inflection is not sensitive to the variable notion in the lexicon; on the contrary it is assumed that semantics would have a strong influence on such default representations.

The design of this study is expected to capture the participants' responses for the MSP and BP forms with two possible responses for each form: for the MSP form, the subjects might answer with either the MSP or one of the BP forms; the same also applies to the BP form. The motivation for this procedure is to see how the different plural forms produced by the participants compete together in terms of the distribution of the MSP compared to other forms of the BP depending on the structure of the tri-consonantal forms as well as the semantic properties observed for each item.

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4. Significance of the study

Tracing back the previous scholarship on the nominal system in MSA, we found that it is indispensable to further investigate the different levels of the default system represented via the SMP as determined by the semantic basis imposed by the features in the lexicon. It is important to notice that the ubiquity of the regular forms as a major determinant for the establishment of the default patterns is not expected to be the final resort. On the contrary, the semantic feature-based account plays a major role in having a variety of defaults for the nouns in the lexicon of MSA.

5. The Default inflection in MSA

Different views have been offered on the status of the default inflection in MSA. Based on the quantitative criteria, McCarthy and Prince (1990) showed evidence that MSA is a minority default language. This assumption is supported by the fact that the emergence of this default is triggered factors other than frequency and distribution in the lexicon. Accordingly, such a default is blind to the semantic features as this process is suffixation based. On the other hand, Idrissi (1997) extended the application of this default patterning based on systematic and predictable stem alterations in broken plural formation to represent another regularity model, too. At the productivity level, Boudelaa and Gaskell (2002) employed the distributional evidence to show that broken plural is quantitatively the more productive process. Accordingly, the different views presented in this

section make a challenge to the nature of the default pattern to be observed in this study (Alshboul et al 2020a and Alshboul et al 2020b). Basically, we need to find out whether the BP forms can compete with the MSP as default forms regardless of the combinatorial and concatenative form that determines the high possibility of the MSP as a default despite its lower frequency compared to the BP. Apparently, the following discussion is required to identify the exact role of frequency for having the suffixation based default using the MSP in association with the semantic properties evident in the data.

6. Methodology and procedures

6.1 Data collection

This study involved 26 fourth-year students (14 female and 12 male) who study Arabic language and literature at the Hashemite University. All were native speakers of Arabic. They were males and females taking an Arabic morphology class in the Spring of 2019/2010. Our assumption is that the gender variable would play no role in determining the type of the inflection that was produced for each item. In addition, the participants were asked orally to see if some of them are not native speakers of Arabic and whether they have taken the courses.

6.2 Tasks

The participants were asked to provide the plural form for 30 nouns in Standard Arabic. The nouns were derived from verbs and denote human agents who perform the action denoted by the base verb. The nouns provided in the experiment had the triconsonantal patterns (e.g., *ka:tib* ' a writer'); sometimes geminated forms were provided to see if germination would result in different forms of inflection compared to ones without germination (*fa:rr* 'escaping person'). The reason for having triconsonantal stimulus is that there should be a consistent and systematic plural inflection with no variation pertaining to the number of consonants. This is due to the fact that there is a correlation between the length of the word form and the possibility for having a default inflection. Two response slots were provided for each noun, and the participants were asked to write down the Masculine Sound Plural MSP and (b) the Broken Plural BP for each noun.(e.g. *ka:tib**:** k a:tibu:n* (MSP) */ kataba* (BP)'writer: writers'). The major prediction is that the students' MSP responses would be more consistent than the BP responses. This is because the MSP suffix is less variable than the other BP forms because it relies only on a suffixation process. The BP plurals (i.e., the broken pluralization process) require multiple vowel insertion processes which are marked with internal change in order to produce one of the BP templates. Another remarkable prediction for the emergence of the MSP is that the derived forms to be inflected belong to or denote human animate subjective (agentive) nouns which means that these derived forms may fall outside the lexicon and thus have no canonical roots that strengthen their connection with similar forms. Canonical root is defined, according to the dual mechanism approach, as **"***address or distinct identity as a word in the language; a part-of-speech category, subcategory*

*features (e.g., transitive or intransitive for verbs, count or mass for nouns); a semantic representation and phonological representations***"** (Marcus 1995).

7. Results and discussion

7.1 Results

The data collected were processed as well as analyzed by using the statistical, descriptive approach in terms of frequency descriptive statistics in a frequency calculation pattern where the frequency rates are the number of responses shown by each participant. For each noun, we classified the plural responses provided by the participants for each plural form in order to assess the consistency of the responses. We measured how many subjects used the MSP and BP forms for each item. We followed this strategy in order to investigate the production of the MSP when in competition with other plural forms in the lexicon. We did not analyze variation in the case of the MSP inflection such as Nominative Case (Nom.) with the suffix */-u:n/* and Accusative Case (Acc.) suffix */-i:n/* as these case variations are outside the scope of the present study.

According to the results shown in Table (1) for the first option provided by the participants, we notice that the form *ka:fir* 'infidel' is classified as the highest form close to the default, i.e., the MSP form with the average (*M*= 1.88,*SD*=. .32) inflected as *ka:firu:n* 'infidels' while, on the other hand, the word form *ᶜa:lim* 'knowledgeable person' has the lowest rate (*M*= 1.12,*SD*=.60) *ᶜa:limu:n* 'knowledgeable people' and finally in the middle of the continuum we can see the word *fa:rr* 'runaway person' (subjective form) (*M*= 1.60,*SD*=0.71) *fa:rru:n* 'runaway people'.

Table (1): Description of the Mean and Standard Deviation

Word	Mean	Std. Deviation	Number	Gloss
ka:fir	1.88	0.32	10	'infidel'
fa:rr	1.60	0.71	8	'runaway'
ᶜa:lim	1.12	0.60	6	'knowledgeable'

Another reflection was observed in terms of the amount of variation between the MSP and the BP responses. Table (2) below shows that the two inflectional plurals (BP and MSP) show no concrete or distance. For example, for the word form *fa:siq* 'lecherous' , we find that the MSP (Freq. 12 / 46.2%) is very close to the BP forms in the same setting (Freq.13 /50%). The same observation is seen with other examples such as *qa:til* 'killer' (MSP: Freq.13/50%; BP: Freq.10/38.5%). The results show that the participants were equally successful in supplying both the MSP and BP plural forms for the derived nouns. The participants used two competing default plural forms for these nouns. Thus, it is necessary to find out more logical accounts that explain the coexistence of the two forms in one lexical domain.

In some instances, the participants did not respond with either the MSP or BP as they just left them out. For example, for the word *ma:ni*^{c} 'preventing person', three responses were observed and this reflects the participants' decision to answer with competitive inflection patterns. Whenever there are close responses, more overlap is seen as in *ma:ni*^{c} 'preventing person' (Freq.3; percent 11.5).

Table (2) Small Variation of MSP or BP for Column (1)

Word	MSP	Percent	BP	Percent	Gloss
Sa:ni^{c}	11	42.3	15	57.7	' manufacturer'
fa:jir	10	38.5	16	61.5	'immoral'
ra:ʔid	11	42.3	15	57.7	'pioneer'
qa:til	13	50.0	10	38.5	'killer'
fa:siq	12	46.2	13	50.0	'lecherous'
ja:hil	14	53.8	11	42.3	'ignorant'

Other examples show evidence of noticeable differences between the productions of the two plural forms. This difference in production is apparent in Table (3) which provides examples on these distinct variations. For example, the noun *ja:ʔic* 'hungry' has the MSP form *ja:ʔicu:n* ' the hungry' (Freq.20; Percentage .76.9) and at the same time it has an extremely low BP (Freq. 3; Percentage.11.5); similarly the word *ma:shi*'walker' also shows big variations (Freq.22; Percentage .84.6) compared to the remarkably low BP (Freq.4; Percentage .15.4) . It should be noticed that these distant variations are not consistent, i.e, while most of the forms have the highest rates with the MSP (e.g. *fa:rr*: 69.2; *ja:ʔic*: 76.9; *ma:lik*: 80.8; *na:qid*: 76.9 and *ma:shi*: 84.6) compared to the BP percentages of some forms (e.g. *fa:rr*: MSP 69.2 vs BP 15.4) other forms have opposite relation in the sense that the BP ratio is higher than the MSP (e.g. *ka:tib* 'writer' : BP Freq.20,percentage 76.9 ; MSP Freq.6,percentage 23.1). This has the implication that not all forms have the same inflectional categorization despite the fact that they have similar phonological forms, i.e., triconsonantal patters. It is also worth mentioning that such forms like *fa:rr* 'runaway' have relatively lower rates concerning the MSP inflection (Freq.18, percentage 69.2) compared BP (e.g. Freq. 4, percentage 15. 4).

Table (3) Big Variation of MSP or BP

Word	MSP (n)	MSP (%)	BP (N)	BP(%)	Gloss
ka:tib	6	23.1	20	76.9	'writer'
fa:rr	18	69.2	4	15.4	'"runaway"'
ja:ʔic	20	76.9	3	11.5	'hungry'
ma:lik	21	80.8	4	15.4	'owner'
na:qid	20	76.9	6	23.1	'critie'

ma:shi	22	84.6	4	15.4	'walker'

Table (4) presents the two broken templates that are possibly available when the form is irregularly inflected**.** In this paper, attention was drawn to the probabilities that an irregular form displayed in the BP might be inflected via two templates: Template 1: *fucca:l* and Template 2: *facalah*. These two templates were chosen, as they were both the most frequent templates provided by the participants while other templates were available but in an extremely low rate that does not have any impact on the results of this research. Table (4) shows that both templates –not single forms- have relatively equal rates compared to each other. Template 1: *fucca:l* has the average 40.35% while Template 2: *fa^{c}alah* shows a lower average of 34%; on the other hand, we found that 25.56% of the overall responses marked the *'no answer'* strategy given the participants.

Table (4): The two BP templates

Template	**Mean**
Template One:*fu^{cc}a:l*	40.35
Template Two:*fa^{c}alah*	34
Missing	25.56

Concerning the second option slot of the response sheets provided by the participants, it is obvious that MSP forms frequency tended to get lower in terms of the rates observed for the second option provided for them. In other words, as shown in Table (5) , the tendency for forms that were supposedly inflected with the sound plural actually became a little far from that type of inflection. For instance, the form *ca:mil* 'worker' was rated with highest ratio (*M*=1.46,*SD*=.811) compared to the ratio given to the highest inflection for the first choice *ka:fir* 'infidel' (*M*= 1.88,*SD*=.326) in Table (1) for option one. This supports the notion latency that affects the degree of processing in terms of the order of inflection. On the other hand, the same is available to describe the lowest form *sa:bir* 'patient' which has the ratio (Mean .58; Std. Deviation.857) which is also lower than the ratio for the same category in the first choice *^{c}a:lim* 'knowledgeable' (*M*= 1.12, *SD*= Std..60) in Table (1) , too. It is clear that there is a decreasing average marking the default inflection as a first choice to the lower one as a second choice.

Table (5): Description of Option 2

Word	**Mean**	**SD**	**Gloss**
^{c}a:mil	1.46	.811	'worker'
Sa:bir	.58	.857	'patient'
fa:rr	.69	.928	'runaway'

It is necessary to have more information regarding the possible evidence in the other options provided in Table (6). In this table a small distance variation among the different rates is given to a variety of nouns to be inflected for the plural form. The rates observed in Table (6) show much smaller variation between the highest and the lowest ratio for the same noun; for example the word *ba:rr* "righteousness" has an identical rate for both the MSP (Freq.9; Percentage 34.6) and the BP (Freq.9; Percentage 34.6) which indicates that this for is no longer sensitive to the default variation when presented as a second choice for processing. Similar forms are available like *ja:ʔiᶜ* "hungry" MSP (Freq.8; Percentage 30.8) and BP (Freq.8; Percentage 30.8). Other forms show a little bit different rates e.g. *ma:shi* "walker" MSP (Freq.9; Percentage 34.6) and BP (Freq.7; Percentage 26.9)

Table (6): Small Variation of MSP or BP

Word	MSP	Percent	BP	Percent	Gloss
ba:rr	9	34.6	9	34.6	
ᶜa:bid	11	42.3	9	34.6	"worshipper"
ba:ʔis	9	34.6	6	23.1	" miserable"
ja:ʔiᶜ	8	30.8	8	30.8	"hungry"
ma:lik	8	30.8	8	30.8	" owner"
ma:shi	9	34.6	7	26.9	" walker"

Big variation mode is observed in Table (7) which presents different average degrees for the nouns inflected in both the MSP and the BP forms. For example, the noun *za:riᶜ* "farmer" has the two different average modes for the MSP (Freq.15; Percentage 57.7) and the BP (Freq.3; Percentage 11.5) . Other nouns show the same behavior *za:ʔir* " visitor" MSP (Freq.17; Percentage 15.4) and BP (Freq.4; Percentage 15.4)

Table (7): Big Variation of MSP or BP

Word	MSP	Percent	BP	Percent	Gloss
ka:tib	14	53.8	6	23.1	" writer"
ᶜa:mil	17	65.4	4	15.4	"worker"
za:ʔir	17	15.4	4	15.4	" visitor"
Sa:niᶜ	15	57.7	5	19.2	" manufacturer"
fa:jir	13	50.0	4	15.4	"immorality"
za:riᶜ	15	57.7	3	11.5	"farmer"

As a possible choice provided by the subjects, two competing varieties representing two broken plural forms: *fuᶜᶜa:l* and *faᶜalah* as shown above

concerning Table (4). It is necessary to state that both Tables (4 and 8) display similar order of rates as template one *fu^{cc}a:l* has a higher average than template two *fa^{c}alah*(e.g. Template one : Freq. 26 ; *M*= 6.42 and Template two: Freq.8 ; *M*= 3.6. It is also shown that the highest rate was given to '*no answer*' option provided by the subjects (*M*=23,72; Freq.26). Two remarks should be evident regarding this table: the first remark is that there is a big gap and variation between the ratios given to the '*no answer*' compared to the rest of the ratios. The second remark is that the ratios given in this table, which reflect the second choice of answers, are much lower than the ratios given in Table (4):

Table (8): The two BP templates

Template	**word**	**Mean**
Template One :*fu^{cc}a:l*	**ka:tib/kutta:b**	6.42
Template Two:*fa^{c}alah*	**ka:tib/kataba**	3.60
Missing		23.72

7.2 Discussion

Moreover, it is the main goal of such an investigation to see how the combinatorial processes with a suffixation formation is more predictable than any other BP forms as the scenario for BP requires multiple vowel insertion processes which are marked with internal change. Moreover, it a major pursuit of this research is to see whether the structural properties of regularly and irregularly inflected words correspond to their semantic and formal characteristics. Based on the data provided in the tables above, there is a tendency for the word forms (e.g. *ka:fir,^{c}a:bid,etc.*) to be default inflected using the high- rate MSP plural marker –*u:n/-i:n* which is determined via several reasons.

First, such words in general have high frequency rates especially in the religious texts (Quran) with the MSP formation (*ka:fir-u:n*(Acc.) / *^{c}a:bid-u:n*(Nom.)). The majority of the previous scholarship has shown that frequency can be a determining factor for the irregularly inflected forms (Saiegh-Haddad, Hadieh, and Ravid 2012) .Thus no default inflection is predicted to appear via this mechanism. Contrary to the dual mechanism predictions, the data provided compelling evidence that the frequency element can be of a critical importance for the emergence of the default patterns in the lexicon. For example the word form *ka:fir-u:n*/*ka:fir-i:n* has the frequency in the Quran (Freq.152). This supports the scenario available in languages like English with defaultness having high frequency observed with the *–ed* inflected forms which have a frequency rate of more than 94%. This rate of frequency emerges as a major factor for the appearance of default forms allowing for a variety of default levels to exist in the language motivated by different factors. The variation in the case marking of suffixes *-u:n/-i:n* doesn't have any critical role on the default forming mechanism as this variation has to do with case patterns that the language displays.

In MSA, such a wordlike *ka:fir* ' infidel' has high frequency rates in the religious corpus so there is a high probability of inflecting these forms using the

MSP. Consequently, we should not expect that the major motivation for the emergence of the MSP as a default is the symbolic account as responsible for the ubiquity of this inflection across the board. Instead of looking at the forms as variables and thus a symbolic mechanism is responsible for the suffixation process, there is the degree of algorithm playing an apparent role using frequency rates to mark the MSP as a default pattern.

Second, the semantic factors seem to have remarkable effects on the emergence of the default inflection as seen in the present study (Laaha, Ravid, Korecky-Kröl, Laaha and Dressler 2006; Ravid and Schiff 2012).The current research investigates the dominance of the MSP inflection as some word forms would have a high degree of meaning similarity in such a way that the experiment participants take into account the ubiquity of the meanings given to such words like *ᶜa:lim* , for example, which has a variety of meanings such as 'scholar' or 'knowledgeable' or 'aware of things', etc. Based on this semantic stratification, the native speakers-subjects- are expected to have different interpretations for this form and thus they would inflect it using different inflections; this is evident in the low rate that this word has when compared to the word *ka:fir* which is systematically unified in terms of its semantic domain ' infidel'. Thus it would have only inflection reflecting the meaning it bears on the expense of other BP forms. So unlike the dual mechanism's projection on minority defaults like in German (Marcus et al 1995) the data in this work support the idea that Arabic some forms due to their high frequency rates would take the MSP– which is the default inflection.

It is also noted that some forms show very slight variation between the BP forms and the MSP forms as in the form *fa:siq* (BP: 50.0 and MSP: 46.2). This high competition between the MSP and BP inflections can be explained via the nonlinear and linear combinatorial mechanisms. The high frequency of forms like *fa:siq* is attributed to its semantic role in the religious discourse. Consequently, the ubiquity of such forms in the lexicon increases the possibility of having other inflections than the linear formation, on the one hand. On the other hand, when such forms are mentioned outside the religious context, the application of the suffixation (the default) inflection is possible due to the semantic diversity it might have and thus the semantics-induced elsewhere inflection is applied. On the contrary, there are forms having a very wide gap observed between the BP and the MSP like the word *ka:tib* (BP: 23.1 and MSP: 76.9). Such derived forms like this one have this high possibility of being default inflected, as this form cannot be semantically restricted to a certain meaning. Thus, the multi inflectional paradigm can be accounted for via the application of the default form which is *ka:tibu:n* which has a very high possibility compared to the rest of the inflections for the same form.

As shown above, the responses were elicited in two columns. To answer this question, we should compare between some data observed. For example, in column one rate towards the default inflection is high as in *ka:fir* (Mean 1.88) compared to form in column two as in *ᶜa:mil* (Mean 1.45). This supports the

notion that the suffixation processes have a high possibility of overgeneralization that inflects all forms in a higher rate that, according to the symbolic accounts, considers the competitive forms as variables and thus blind to any semantic factor similar to that shown when dealing with these forms individually.

The application of the default inflection –the MSP plural - as the elsewhere inflection is enhanced by two factors: the semantic factor and the order of processing. Regarding the semantic element, it is important to notice that the availability of the meaning stratification modifies the classification of the form according to its meaning and frequency patterns and thus the possibility of having a non-default inflection becomes higher. Second, the idea that the default pattern is the emergency case in the lexicon is strongly formulated as speakers when having two options, the lexicon approaches the linear formulation of the inflection for it requires no internal changes and thus no further processes are recalled.

8. Conclusion and implications for pedagogy and research

This study has investigated the order of emergence of a variety of inflections a as perceived by native speakers of MSA. The results revealed that the MSP displayed the highest rates of appearance among the rest of inflections whether regular (sound) or irregular (broken). The results of the study provide some evidence that the default form is not always processed as a variable that is semantically blind to lexicon. This is supported by the assumption that there is a degree of initial mapping between the semantic features and the emergence of the default inflection and this mapping is affected by the semantic transparency. Accordingly, the processing of the default patterns in MSA cannot be characterized only by the so-called semantically blind variables and this would give more chances for the role of the semantic features in determining the motivations for the default inflection. More discussion should be provided regarding the ability of other forms than the sound feminine plural to be retrieved as default forms like the MSP. Having such forms like the MSP would require that the lexicon of MSA be able to extend its domain employing the semantic levels to include other forms under the default operation. Such a notion that Arabic is a minority default language should be revisited in order to reveal the ability of factors such as frequency, transparency and semantic mapping to predict the occurrence of default forms including productive forms like the BP forms.

Examining the possibility of having multiple default patterns would help in establishing the scalar emergence of the defaults including the SMP which is a marking variation in the degree of semantic basis as a new factor for the default emergence. Accordingly, having multiple defaults would give a chance for further research on the learnability of the default system in the case of having multilayered regular inflection in MSA.

9. Limitations of the study

This paper has sought to establish the mechanism of having a default inflection that is correlated with the semantic factors; on the contrary it does not seek to see if lexical forms are bound to this inflection under the variable factor. Regarding the inflection of the MSP, we did not analyze variation in the case of this inflection such as Nominative Case (Nom.) with the suffix */-u:n/* and Accusative Case (Acc.) suffix */-i:n/* as these case variations are outside the scope of the present study.

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