

**Features Between Form and Interpretation: The Effect
of Animacy, Gender, and Number on Verbal
Agreement**

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Academic Integrity

The candidate confirms that the work submitted is her own and that appropriate credit has been given where reference has been made to the work of others.

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This PhD thesis is dedicated to my mother Fawzia Al-Nafea, and to the memory of my late father, Dr Omar Benduhaish who would have been happy to see me follow his path

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Abstract

This thesis critically analyses the intriguing behaviour of plural inanimate nouns triggering partial agreement in subject–verb–object (SVO) word order in Modern Standard Arabic (MSA). The analysis focuses on three significant morphosyntactic features of agreement: animacy, gender and number. I follow integrated theoretical assumptions of current Minimalism and Distributed Morphology (DM).

I operate on the consonantal root-and-pattern property of MSA to argue for a DM approach to feature analysis. I argue that assignment of gender values takes place during syntax before PF whereas the exponence of agreement features takes place post-syntactically at phonological form.

I argue for a decompositional analysis for the structure of determiner phrase (DP) in which agreement features are not located at the same syntactic head within the nominal. Following Ritter (1993) and Zabbal (2002), number heads its own syntactic projection, and thus number phrase (NumP) is the syntactic locus for inflectional number values of the nominal. I argue for two locations for number values: NumP, which hosts the distributive reading, and *n*, which hosts the collective reading interpretation.

I also argue for a decompositional analysis of *n*P in which there are two *ns*; the closest to the root hosts the interpretable gender that is assigned based on the semantic properties of the nominal, whereas the higher *n* hosts the uninterpretable gender assigned arbitrarily to the noun. I argue that this structure provides a satisfactory analysis for the agreement behaviour of mixed-agreement nouns.

With respect to agreement, I argue for an Agree-based approach in which the probe enters into an Agree relationship with a goal in its c-commanding domain. Following Doron (2000), I assume that the presence of an Extended Projection Principle feature on T is optional and conditioned by the goal's capability to move to [Spec, TP].

List of Abbreviations

1	First person
2	Second person
3	Third person
$\sqrt{C_1C_2C_3}$	Consonantal root
\sqrt{P}	Root phrase
ACC	Accusative case
Adj	Adjective
AdjP	Adjectival phrase
Adv	Adverb
AspP	Aspect phrase
Aux	Auxiliary
COLL	Collective
CP	Complementiser phrase
CSC	Coordinate structure constraint
+D	Dual number
D	Determiner
DM	Distributed Morphology
DP	Determiner phrase
EPP	Extended Projection Principle
F	Feminine in linguistic examples
GB	Government and Binding

GEN	Genitive case
GenP	Gender Phrase
Impf	Imperfective
LA	Lebanese Arabic
LF	Logical form
M	Masculine
MSA	Modern Standard Arabic
Neg	Negation
NP	Noun phrase
NumP	Number phrase
<i>n</i>	Nominalising head
<i>nP</i>	Nominalising head phrase
NOM	Nominative case
PF	Phonological form
PP	Prepositional phrase
S	Singular
SVO	Subject–verb–object
T	Tense
TP	Tense phrase
U	Unspecified gender
<i>uV</i>	Unvalued Phi-features of the verb
<i>v</i>	‘little’ <i>v</i>

VO	Verb–object
vop	vocalic pattern
VP	Verb phrase
VSO	Verb–subject–object

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Chapter 1: Introduction—Basic Overview of the Syntax of Modern Standard Arabic

This thesis is concerned with studying the behaviour of three main morphosyntactic features in MSA: animacy, gender, and number. This behaviour is best seen in the environment of agreement. Agreement as a linguistic phenomenon has been the focus of intensive work and research cross-linguistically under various theoretical frameworks. Agreement, in its simplest terms, is seen as the relationship established between two elements in a syntactic configuration in which they exhibit consistent morphological realisation to each other (Chomsky, 2000, 2001). The morphology that is realised on one or both of the agreeing elements corresponds to many linguistic features of both agreeing elements.

The features responsible for agreement have been the focus of research cross-linguistically. Research from a linguistic point of view has been focused on how these features and the factors of a language interact to produce complete phrases and structures with different agreement patterns. Central to the study of agreement from a linguistic perspective is the analysis of the features responsible for the resulting configurations of agreement in the syntax—features cross-linguistically have different components and operate across various domains of the language. Agreement features are thus considered the basic elements that determine what type of agreement a relationship between two elements involves. Agreement comes in different forms based on the items and features participating in the process.

1.1 Setting the scene

The following is a set of minimal pairs of constructed examples of Modern Standard Arabic (MSA) sentences in which various agreement patterns can be observed. The data are displayed in three groups of different subjects: humans, animals and inanimates. For each of these groups, subjects are presented in three different number values: singular, dual and plural. In each pair of sentences, *a* is constructed in the subject–verb–object (SVO) order while *b* is in the verb–subject–object (VSO) word order:

- (1) a. al-walad-u darasa al-farḍ-a
 the-boy.3S.M-NOM studied.Prof.3S.M the-homework.3S-ACC
 ‘the boy studied the homework’
- b. daras-a al-walad-u al-farḍ-a
 studied.Prof-3S.M the-boy.3S.M-NOM the-homework.3S-ACC
 ‘the boy studied the homework’
- (2) a. al-walad-ān daras-ā al-farḍ-a
 the-boys-3D.M.NOM studied.Prof-3D.M the-homework.3S-ACC
 ‘the two boys studied the homework’
- b. daras-a al-walad-ān al-farḍ-a
 studied.Prof-3S.M the-boys-3D.M.NOM the-homework.3S-ACC
 ‘the two boys studied the homework’
- (3) a. al-awlād-u daras-ū al-farḍ-a
 the-boy-3Pl.M.NOM studied.Prof.3Pl.M the-homework.3S-ACC
 ‘the boys studied the homework’
- b. daras-a al-awlād-u al-farḍ-a
 studied.Prof-3S.M the-boy-3Pl.M.NOM the-homework.3S-ACC
 ‘the boys studied the homework’

These three examples above involve minimal pairs in which the subject refers to humans in each sentence with differences in word order. A useful way to describe agreement patterns in MSA is by noting the interaction of the morphosyntactic features of person, gender and number, with word order. With singular human nouns, the verb fully agrees with the subject regardless of the word order of the sentence.

Examples 4, 5 and 6 below are sentences with a subject referring to animals. Like the previous three sets of examples, *a* sentences are constructed in the SVO word order

whereas *b* sentences are constructed in the VSO word order. Examples 4 and 5 are for the singular and dual respectively.

- (4) a. al-ḥayawān-u akal-a al-ṭa'ām-a
 the-animal.3S-NOM ate.Prf.3S.M the-food.3S-ACC
 'the animal ate the food'
- b. akal-a al-ḥayawān-u al-ṭa'ām-a
 ate.Prf.3S.M the-animal.3S-NOM the-food.3S-ACC
 'the animal ate the food'
- (5) a. al-ḥayawān-ān akal-ā al-ṭa'ām-a
 the-animal.-3D.M.NOM ate.Prf.3D.M the-food.3S-ACC
 'the two animals ate the food'
- b. akal-a al-ḥayawān-ān al-ṭa'ām-a
 ate.Prf.3D.M the-animal.-D.M.NOM the-food.3S-ACC
 'the two animals ate the food'
- (6) a. al-ḥayāwan-āt-u akal-at al-ṭa'ām-a
 the-animals-3Pl.F-NOM ate.Prf.3S.F the-food.3S-ACC
 'the animals ate the food'
- b. akal-at al-ḥayāwan-āt-u al-ṭa'ām-a
 ate.Prf.3S.F the-animals-3Pl.F-NOM the-food.3S-ACC
 'the animals ate the food'

In the SVO order in both Examples 4*a* and 5*a*, there is full agreement between the subject and the verb. In the VSO word order, in contrast, there is partial agreement. In other words, number is impoverished from the verb if it is located before the subject.

Example 6 presents a challenging situation to the neat orderly picture presented in Examples 1–5 in that SVO always shows full agreement whereas VSO always shows partial agreement. This challenging behaviour in Example 6 is seen in the singular feminine agreement morphology on the verb in both word orders. While partial agreement is still present with the VSO word order in Example 6*b*, 6*a* is expected to show full agreement in person, gender and number between the verb and the subjects. This agreement pattern is the core topic of interest throughout this thesis. It is this

unexpected pattern that has gained little interest in the field of morphosyntactic analysis of the agreement features responsible for this behaviour.

- (7) a. al-kitāb-u saqaṭ-a ‘ala al-’arḍ-i
 the-book.3S-NOM fell.Prf-3S.M on the-floor.3S-GEN
 ‘the book fell on the floor’
- b. saqaṭ-a al-kitāb-u ‘ala al-’arḍ-i
 fell.Prf-3S.M the-book.3S-NOM on the-floor.3S-GEN
 ‘the book fell on the floor’
- (8) a. al-kitāb-ān saqaṭ-ā ‘ala al-’arḍ-i
 the-books-3D.M.NOM fell.Prf-3D.M on the-floor.3S-GEN
 ‘the two books fell on the floor’
- b. saqaṭ-a al-kitāb-ān ‘ala al-’arḍ-i
 fell.Prf-3S.M the-books-3D.M.NOM on the-floor.3S-GEN
 ‘the two books fell on the floor’
- (9) a. al-kutub-u saqaṭ-at ‘ala al-’arḍ-i
 the-books.3PI-NOM fell.Prf-3S.F on the-floor.3S-GEN
 ‘the books fell on the floor’
- b. saqaṭ-at al-kutub-u ‘ala al-’arḍ-i
 fell.Prf-3S.F the-books.3PI-NOM on the-floor.3S-GEN
 ‘the books fell on the floor’

Examples 7, 8 and 9 are of sentences whose subjects refer to inanimate entities. These three sets of sentences behave similarly to the previous sentences in that SVO word order for both the singular and dual demonstrate full agreement between the subject and the verb. VSO word order in all singular, dual and plural demonstrates partial agreement. The challenging pattern of agreement is again seen with the plural subject in SVO word order in Example 9a. The verb shows singular feminine agreement despite the plural number of the subjects and the masculine agreement the nouns trigger on the verb when formed in the singular or the dual.

This SVO partial agreement as demonstrated in singular number and feminine gender has been a topic of discussion in various studies of agreement in Arabic (see Holes, 2004 for Kuwaiti Arabic; Ryding, 2005, 2014 for Standard Arabic; Cowell, 2005 for Syrian Arabic). These authors simply note this pattern of agreement as a fact: with non-human plural subjects, the verb always shows singular feminine agreement. However,

none of these studies, to the best of my knowledge, has tackled a complete morphosyntactic analysis of the features conditioning this pattern of agreement.

1.2 The Scope of the thesis and research questions

Through observing the set of data above, it is clear that the challenging pattern of agreement behaviour does not occur unless two conditions are satisfied: first, the subject needs to be plural, and second, the subject needs to be non-human. In other words, plurality and the degree of animacy of the subject noun are two main factors determining what type of agreement is demonstrated morphologically on the verb. Having said that, the main scope of this thesis is to examine the morphosyntactic features of nouns in sentences with SVO word order in MSA. More specifically, the focus is on the role that plurality and animacy play in conditioning the different agreement patterns. It is here where the role of semantics and interpretation should go hand in hand with syntax. Therefore, this thesis contributes to ongoing research on verbal agreement in MSA.

The scope of the thesis is narrowed down into the following research questions:

1. What are the nominal morphosyntactic features that are found empirically to affect agreement, and trigger certain agreement patterns over others to be triggered?

By examining the preliminary set of data above, it has become clear that the basic morphosyntactic features of the subject to be focused on are number, animacy and gender. To understand the nature of these morphosyntactic features, a semantic and morphosyntactic analysis of each feature will be carried out based on empirical data from MSA corpora.

2. How do morphological form and interpretation of features interact in conditioning the various agreement patterns in MSA?

To understand this interaction, the concept of feature interpretability is introduced to distinguish between interpretable and uninterpretable values of features; especially gender in this sense as it affects number.

3. How can these different values of features be located within the structure of the noun?

It is a very important step after understanding the nature of these features and how they can be interpreted semantically to locate them syntactically within the determiner phrase (DP) to facilitate the next step of understanding how agreement takes place.

4. Is there any difference in how these features condition agreement patterns if the sentence contains one noun rather than two conjoined nouns?

Chapter 8 focuses on the analysis of agreement in simple sentences with a one-noun subject. This includes different semantic types of nouns, such as count nouns and collective nouns. Chapter 9 analyses the agreement patterns with conjoined noun subjects. The importance here is to explore whether or not there are other factors in the context that influence the resulting agreement pattern.

1.3 The organisation of the thesis

In the remainder of Chapter 1, I present basic preliminaries about the structure of the Arabic language in general. Although the main focus is on the standard variety of MSA, I touch upon some of the issues of similarity and difference between MSA and other dialectal varieties where necessary.

In Chapter 2, I present previous studies on agreement in MSA in both word orders. I highlight the fact that partial agreement in SVO and the role of animacy, gender and number as morphosyntactic features have been overlooked.

In Chapter 3, I present the methodological tools used in the analysis of the data throughout the thesis.

Chapter 4 Part 1 presents the theoretical assumptions and framework on which I rely in my analysis of the data in the thesis. In general terms, since the thesis is concerned with the analysis of features conditioning agreement patterns, I adopt the assumptions of the Distributed Morphology (DM) framework (Halle, 1990; Halle and Marantz, 1993, 1994; Harley and Noyer, 1999) to account for the valuation of features; and on the mid-period Minimalist assumption of Agree (Chomsky, 2000, 2001, 2004) to account for the process of subject–verb (SV) agreement.

In Chapter 4 Part 2, I outline my argument about the structure of the DP in MSA.

Following the basic assumptions of the DM framework, I argue that features responsible for agreement in MSA are assigned during syntactic derivations. I also argue for a lexical decompositional approach to analysing noun phrases (NPs) to account for the interpretability of features. Also, I present an overview of the concept of features in syntactic theory and highlight the most important ones contributing to the process of agreement in MSA.

In Chapter 5, I present the concept of animacy in the linguistic literature, specifically highlighting the interface between semantics and syntax to understand the notion of feature interpretability. I also present corpus data showing the interaction of animacy with word order, number and gender in MSA.

In Chapter 6, I present the basic gender system in MSA. I also outline my assumptions about the interpretability of gender values, and how they can be located within the proposed structure of DP in MSA.

In Chapter 7, I present the number system in MSA. I also present the notions of countability and collectivity, and analyse the syntactic and semantic properties of each. Using the syntactic structure proposed in Chapter 4, I argue for the location of number values within the DP.

After discussing the nature of the features responsible for the process of agreement, their interpretability and morphology, and their location within the proposed structure of the DP. I examine how these features are responsible for various agreement patterns in sentences with one subject in Chapter 8. I first present the literature on agreement in Arabic, including standard and regional varieties, and then present my analysis of partial agreement within SV word order in MSA.

In Chapter 9, I extend my analysis of the structure of the DP and the location of the various features in sentences with conjoined DP in MSA. I present previous analyses of agreement with conjoined DPs in Arabic, and test whether they can account for post-syntactic DM analyses of feature morphology.

1.4 Preliminaries of Arabic language and syntax

Arabic belongs to the Semitic family of languages (Holes, 2004; Watson, 2007). Apart from the classical variety of Arabic, known in the pre-Islamic and early Islamic eras as seen in the Qura'ān, Arabic as known in current times has two main forms. The first is the standard or modern standard variety, which is the variety that is used in writing, education, formal communication and in the media. The second form is regional dialectal varieties spoken around the Arabic-speaking world.

The standard variety of Arabic, which I refer to throughout this thesis as Modern Standard Arabic (MSA), has no native speakers as it is not acquired naturally; rather, it is learned at school and in formal and academic settings. Because it is the language of formal communication and of the media, it has become the lingua franca of the Arab world.

The basic overview presented in this section includes word orders and the morphological inflection system of both nominals and verbs. I do not present here details about number or gender systems in MSA as they are discussed thoroughly in Chapters 6 and 7 respectively. Also, verbal agreement in MSA and a detailed review of accounts of this in the literature are provided separately in Chapter 2.

1.4.1 Word order in Modern Standard Arabic

In Section 1.1, I presented a brief overview of the two basic word orders in MSA. Examples 1–9 provide an idea of how word order interacts with other morphological features of the nominal resulting in different agreement patterns on the verb.

Arabic demonstrates two word orders, VSO and SVO, with the former being the basic (unmarked) (Fassi Fehri, 1993; Holes, 2004; Ryding, 2005; Watson, 2007). As seen in the examples in Section 1.1, the verb demonstrates impoverished number agreement with the subject in VSO word order and only agrees in gender and person; whereas in SVO, the verb shows full agreement in all three features with the subject. More is said about the word orders of Arabic and the differences and similarities between MSA and modern varieties, and about the debate regarding the nature of the pre-verbal noun, in the discussion of agreement in Chapter 2.

1.4.2 Nominal morphology in Arabic

Nominal morphology in Arabic basically consists of a root-and-pattern scheme. Nouns mainly consist of three-consonant roots (CCC) and a number of vowels combining the

root into various morphological patterns (Cowell, 2005; Holes, 2004; Ryding, 2005; Watson 2007). To describe the morphology of the nominal in Arabic, there should be a distinction between overt morphological inflection—as seen in gender, number, case and definiteness suffixes—and certain vowel change or phonotactics that the stem undergoes, as seen in the formation of broken (irregular plurals).

1.4.2.1 Morphological inflection

The following discussion presents examples of the morphological inflection of the first kind. I leave the second type for Chapter 7 where I thoroughly discuss the number marking on nominals in MSA.

Case in Arabic is limited to the classical and standard varieties as no case marking is retained in modern dialects (Cowell 2005; Holes, 2004; Ryding, 2005, 2014; Watson 2007). In MSA, case can be nominative, accusative or genitive depending on the noun's position in the clause. Nominative case *-u* is assigned to subjects as long as they are not preceded by a complementiser *'inna*, which assigns accusative case instead (*-a*).

Accusative case is assigned to the objects of verbs. Genitive case *-i* is assigned to nominals that occupy the position of the object of a prepositional phrase (PP), or the object of the Construct State.

Definiteness is another nominal feature that is marked morphologically on the noun. In MSA, definite nouns may be prefixed with *-al*, or 'the' in English. Needless to say, other nouns such as names are definite by nature (Belyayeva, 1997; Dickins, 2013). An indefinite noun can also be definite by adding a possessive pronoun as in *bayt-hu* 'his house', or by being the first part of a Construct State structure as in *bayt-u al-jadd-i* 'the grandfather's house'.

The marked form inflection is for indefiniteness and appears with what is called *tanwīn*, the nunation suffix¹ (Dickins, 2013). The *tanwīn* is the /n/ suffix that marks the indefiniteness of singular nouns, amongst other functions which it has, in MSA. It combines with grammatical case at the end of a noun as shown in Table 1.1.

Table 1.1: The *tanwīn* ‘nunation suffixes’ combining with different grammatical cases at the end of the noun.

Grammatical case	Nominative	Accusative	Genitive
Form of <i>tanwīn</i>	u+n	a+n	i+n
	–un	–an	–in

Number is another nominal feature that is marked morphologically and is important for the process of SV agreement. The unmarked form of the noun (default) is the singular value of number. Nominals are marked for the dual and for the plural. The detailed markers of number values are discussed in Chapter 7.

Another nominal feature that is important for the discussion of nominal morphology is **gender**. It is important to note that gender cannot be labelled as a feature that is always realised morphologically. It may, however, be reflected in morphology by the presence of the commonly known feminine gender marker *ta marbūta* or ‘affixal tā’ to mark the feminine gender, or by the absence of it to mark the masculine gender. However, I argue in Chapter 6 that the morphological form of gender cannot be taken as the only indicator of its real value. Further, gender and number and case combine into morphological units that express the three nominal features together. Zabbal (2002, p. 11) presents the interaction of the nominal features in morphology as follows (with slight changes):

¹ It should be noted that in MSA, it is not uncommon that indefinite nouns are not marked with nunation, especially in writing forms.

(Definite marker) + N + {Gender + Number + Case} + (In)definiteness

This illustration is for a singular noun. The brackets show that the features of gender, number and case combine into one morpheme. Zabbal's illustration of how the morphology of the above features combine around the noun can be seen in the noun *qiṭṭat* 'a female cats'. I take the basic noun N to be *qiṭṭ* 'cat'. The three morphological features of gender, number and case are combined together in one bundle of features. As for gender, the *-at* suffix represents the feminine marker (affixal *tā*). Case can be represented by the *-u* suffix (for nominative case), *-a* suffix (for accusative case), or *-i* suffix (for genitive case). Definiteness is either marked by the presence of the definite marker *-al* 'the' at the beginning or by the attachment of a possessive pronoun to the noun as in *baytu-hum* 'their house', or when the noun becomes a first part in the Construct State. Indefiniteness, on the other hand, is marked on dual and plural nouns by the absence of all definiteness markers. For singular nouns, however, indefiniteness is marked with the presence of *tanwīn* 'nunation *n*'. The illustration then can be written as follows for the singular feminine nominative noun *qiṭṭat*:

al + qiṭṭ + at + u + Ø for the definite form

Ø + qiṭṭ + at + u + n for the indefinite form

1.4.2.2 Morphological stem change

The second part of the discussion of nominal morphology concerns nominal derivation. I mentioned above that nouns in Arabic basically consist of three-consonant roots or stems. These stems can undergo different changes or alterations resulting in new nouns every time. Consider, for example, the stem '*k t b*'. It consists of three basic consonants, but can produce a large number of nouns and verbs. The following derived nouns are from the above stem:

maktab ‘office’

kitāb ‘book’

maktabat ‘library’

kitābat ‘writing’

kātib ‘writer’

maktūb ‘letter’

These examples are all derived from one consonantal stem through different vocalic patterns, and sometimes the use of an additional *m*- prefix³. Arabic morphology according to the prescriptive rules of grammar has a wide range of vocalic patterns of morphology that are referred to in Arabic as *wazn* ‘weight’ (Cowell, 2005; Holes, 2004; Ryding, 2005, 2014; Watson, 2007). The three consonants are traditionally referred to as *f*, ‘ and *l* (this being the root for the verb meaning ‘do’ in Arabic). Throughout the rest of the thesis, I refer to these morphological weights in Arabic as the vocalic patterns of morphology and use C_1 , C_2 and C_3 to refer to the three consonants.

Concerning nominal formation through different vocalic patterns, a noun in the singular can undergo a vocalic pattern change to the stem to result in another noun in the plural form. The most common nominal formation through vocalic change is the formation of the irregular (broken) plural. Consider the formation of the noun *kutub* ‘books’:

Singular noun: *kitāb* ‘book’

Consonantal root: *k t b*

C_1 : *k*

C_2 : *t*

C_3 : *b*

³ In most of Arabic morphological patterns, the prefix *-m* is added to the consonantal root. This *-m* is described as an additional consonant. In other words, it is not one of the three basic consonants without which the morphological pattern cannot stand: *f*, ‘, and *l*.

Irregular (broken) plural vocalic pattern: C₁uC₂uC₃

-u-u

kutub ‘books’

Other types of plural formation, specifically the regular ‘sound’ plural, are not formed through these different morphological vocalic patterns. However, they are formed by adding a suffix to the end of noun after it has already been formed into a noun: for example, *mudarris* ‘a male teacher’. Consider table 1.2 below.

Table 1.2: The formation of dual and regular plural by adding a suffix to the noun after it is formed from the root

Root	Noun in the basic form (singular)		Dual formation		Plural formation	
	Masculine	Feminine	Masculine	Feminine	Masculine	Feminine
drs	mudarris	mudarris-at	mudarris-ān	Mudarris-at-ān	mudarris-ūn	mudarris-āt

1.4.3 Verbal Morphology in Arabic

Verbs in Arabic are morphologically marked for tense, aspect, mood and voice (Aoun et al., 2010; Holes, 2004; Ryding 2005, 2014). Since all examples in this thesis are in the active voice, tense and aspect are more relevant to the discussion of this thesis. There is a strong relationship between tense and aspect in Arabic. There are two verbal aspects in Arabic: the perfective and the imperfective. Arabic perfective verbs are similar to English simple past and present simple tenses, whereas Arabic imperfective verbs are similar to the English present simple or simple future tenses (Aoun et al., 2010; Holes, 2004; Watson, 2007).

As for agreement morphology on verbs, verbs are inflected for person, gender and number, like nouns. Gender and number inflections on the verb depend on the

tense/aspect of the verb. In the perfective aspect, the verb is inflected for gender and number in the form of a suffix as in *katab-at* ‘wrote’. The suffix *-at* indicates feminine gender, 3rd person and singular number. However, if the same verb is in the imperfective it takes the form *ta-ktubu* ‘writes’ in which the prefix *ta-* indicates feminine gender, 2nd person and singular number. In the plural feminine, for example, the inflection becomes divided into two parts as in *ya-ktub-na* ‘write’ in which the prefix *ya-* indicates the imperfective aspect and the 3rd person while the suffix *-na* indicates feminine gender and plural number (see Table 1.4).

Gender and number features have two separate thesis chapters that present thorough details. Person is not one of the nominal or verbal morphosyntactic features that is covered in the scope of this thesis as it has no effect on agreement. Tables 1.3 and 1.4 summarise how verbs in MSA are inflected morphologically for aspect depending on the features of gender and number. They show the interaction between the agreement morphology and whether the verb is in the perfective or the imperfective aspect.

Table 1.3: Perfective verbal morphology in MSA in relation to gender and number for the 3rd person

Gender	Singular	Dual	Plural
Feminine	<i>katab-at</i>	<i>katab-atā</i>	<i>katan-na</i>
Masculine	<i>katab-a</i>	<i>katab-ā</i>	<i>katab-ū</i>

Table 1.4: Imperfective verbal morphology in MSA in relation to gender and number

Gender	Singular	Dual	Plural
Feminine	<i>ta-katubu</i>	<i>ta-ktub-ān</i>	<i>ya-ktub-na</i>
Masculine	<i>ya-ktubu</i>	<i>ya-ktub-ān</i>	<i>ya-ktub-ūn</i>

1.5 Conclusion

In this introductory chapter, I have introduced the two basic word orders in MSA and provided examples constructed in minimal pairs to allow examination of the different agreement patterns that are conditioned by the effect that nominal morphosyntactic features have on them. The degree of animacy is seen to have a basic role in determining the type of agreement resulting in SVO sentences with plural subjects.

The basic focus in this thesis is, therefore, on sentences in the SVO word order in which various degrees of animacy are discussed. Animacy also interacts with other features such as number and gender. Therefore, gender, number and animacy are the three basic morphosyntactic features analysed in terms of morphological form and interpretation.

In the following chapter, I present a general literature review of agreement in Arabic—both standard and dialectal versions—to demonstrate the points that have been covered in this chapter, and those that need further discussion.

Chapter 2: Previous Treatments of Agreement in Arabic

This thesis is concerned with analysing the features and factors conditioning the different agreement patterns in MSA. Before introducing the methodology used in the study and how it adds to the existing body of literature on agreement in MSA, this chapter reviews previous treatments of agreement and the basic issues prevailing in the literature. The chapter is divided as follows: Section 2.1 discusses the main controversial points in agreement analysis in Arabic. Section 2.2 reviews the most significant studies of agreement in MSA.

2.1 Factors conditioning agreement patterns in Arabic

This section focuses on three major points of controversy in previous studies of agreement in MSA and other regional dialects of Arabic. It focuses on three main points of controversy among studies of agreement in Arabic: word order, the position of the subject and the nature of the pre-verbal NP.

2.1.1 The nature of the pre-verbal noun phrase in Modern Standard Arabic

As discussed above, agreement patterns in MSA and modern dialects can be divided into two main types. The first is full or rich agreement, which is seen in SVO word order. Previous analyses of the rich agreement pattern have mainly centred on a debate over the nature of the pre-verbal NP. This debate can be reduced to two main lines of argument. The first is that the pre-verbal NP is a subject. This argument is adopted by Mohammad (1990, 2000), Demirdache (1991), Bahloul and Harbert (1993), Fassi Fehri (1993), Aoun et al. (1994), Bolotin (1995), Benmamoun (1996, 2000) and Benmamoun and Lorimor (2006). The other line of argument examines the pre-verbal NP as a topic, not a subject (e.g., Ouhalla, 1991, 1997; Plunkett, 1993). This debate is discussed in much detail in the following section.

2.1.1.1 Analysing pre-verbal noun phrases as topics

In this line of argument, if a noun occupies a pre-verbal position, it is associated with a pronominal element post-verbally. This view is supported by various modern linguists (Fassi Fehri, 1993; Ouhalla, 1991, 1997; Plunkett, 1993).

Ouhalla (1991, 1997) argues that topics are base generated in the pre-verbal position and often linked with a resumptive pronoun attached to the verb. This resumptive pronoun that is incorporated on the verb, in light of this view, is seen to be the real subject. Accordingly, this view is referred to as the incorporation account (Fassi Fehri, 1993) and as is evident, it does not acknowledge that there is a SVO word order.

Therefore, the pre-verbal noun in the following example is a topic not a subject. The subject is the resumptive pronoun ‘-na’ that is incorporated on the verb:

- (10) al- tālib-āt-u akal-na al- ta‘ām-a
 the-student-3Pl.F-NOM ate.Prf-3Pl.F the-food.3S-ACC
 ‘the students ate the food’

The topic still carries a nominative⁴ case but it is not the real subject. Sentence 10, according to the incorporation account, is in the VSO word order.

2.1.1.2 Analysing pre-verbal NPs as real subjects

Authors who adopt the analysis of pre-verbal NPs as real subjects (Aoun et al., 1994; Mohammad, 2000) argue that the subject is base generated inside the thematic shell [Spec, vP] and moves to the higher position [Spec, TP]. According to this view, the

⁴ This type of pre-verbal noun that carries a nominative case is the point of the current discussion on topics *v.* subjects. There is another type of pre-verbal nouns, which is focus. The focus occurs pre-verbally and is also linked to a resumptive pronoun. However, it always carries an accusative case as it is located in a position higher than the TP, between the TP and the CP, and is assigned its accusative case by the complementiser. The following is an example of a sentence with a focused element from Ouhalla (1997, p. 12). Focused elements are outside the scope of this thesis:

RIWāYAT-AN ‘allaf-at Zaynab-u
 Novel-ACC.indf wrote.Prf-3sg.F Zaynab-NOM
 ‘It was a NOVEL that Zaynab wrote.’

clitic element incorporated on the verb is not a real subject; rather, it is a feature marker that carries morphological information of the agreement features realised on the verb.

This line of argument is of great relevance to the scope of this thesis, which is concerned with analysing partial agreement with pre-verbal nouns with various levels of animacy. It is also of significance at this point of discussion to identify which of these two major lines of argument regarding the nature of the pre-verbal noun to adopt in this thesis. Therefore, in the remainder of this section, I argue for the pre-verbal noun in an SVO word order in Arabic to be a subject, and hence the clitic attached to the verb to be a feature marker. I present a body of empirical evidence to support this view.

Before launching into a discussion of the evidence, a key fact to recognise about agreement with different word orders in MSA is agreement between verbs and pronouns. The prevailing focus in the literature of agreement in MSA is on generalising the fact that in VSO, the verb always shows partial agreement with the subject. However, very little attention has been given to sentences whose subjects are pronouns. The constructed example below demonstrates what agreement patterns are expected to be seen on the verb in sentences with dual (11) and plural (12) pronominal subjects:

(11) a. 'akal-a al-walad-ān al-ṭa'ām-a
 ate.Prf-3S.M the-boys-3D.M.NOM the-food.3S-ACC
 'the two boys ate the food'

b. 'akal-ā humā al-ṭa'ām-a
 ate.Prf-3D.M Pron.3D.M the-food.3S-ACC
 'they ate the food'

c. 'akal-ā al-ṭa'ām-a
 ate.Prf-3D.M the-food.3S-ACC
 'they ate the food'

(12) a. akal-at al-fatay-āt-u al-ṭa'ām-a
 ate.Prf-3S.M the-girls-3Pl.F-NOM the-food.3S-ACC
 'the girls ate the food'

b. akal-na hunna al-ṭa'ām-a
 ate.Prf-3Pl.F Pron.3Pl.F the-food.3S-ACC
 'they ate the food'

c. akal-na	al-ṭa'ām-a
ate.Prf-3Pl.F	the-food-ACC
'they ate the food'	

Examples 11*a* and 12*a* show the normal VSO word order discussed earlier, in which the verb shows number impoverishment with the subject but agrees with person and gender.

Examples 11*b* and 12*b* show that the verb fully agrees with the subject when it is pronominal, even though the order is VSO. Examples 11*c* and 12*c* also show full agreement morphology on the verb when the pronominal subject is covert. Therefore, an adequate analysis of agreement in MSA not only should be able to account for the partial agreement in VSO word order and full agreement in SVO word order, but also should be able to account for the full agreement in VSO with pronominal subjects.

Considering the previous two sets of constructed examples in 11 and 12, a challenge is posed in the face of the incorporation account in which the clitics are treated as real subjects. In 11*b* and 12*b*, the lexical subject is present; thus considering the clitics to be the subjects results in having two subjects for each sentence. In 11*b* and 12*b*, the subject is a pronoun with which the verb shows full agreement. In Examples 11*c* and 12*c*, the subject is null (covert) and so assuming that the clitic is a subject would similarly result in the same problem as if the pronominal subject was overt.

Theoretically speaking, the incorporation account is easily challenged when analysing the syntactic location of the verb and the subject. This is discussed more thoroughly in Chapter 8 within the syntactic derivation of both word orders in Arabic. We shall see that, regardless of the word order, the verb is base generated inside the thematic shell of the verb phrase (VP), with the subject base generated in its specifier position. To discuss this very briefly here, in VSO the subject remains in situ inside the thematic shell while only the verb rises to a higher position, the T, to have its tense features valued. In SVO word order, however, two movements take place. First, the verb moves higher to T to have its tense and features valued; the subject then follows with a

movement to a position higher than that of the verb, [Spec, TP]. If this pre-verbal noun is not considered a subject, then for it to be a topic it should move higher than the TP. The clitic then has to be located in the subject position inside the thematic shell. Halim (2011) argues that the clitic that is attached to the verb cannot be positioned inside the thematic shell of the verb, as this position is already occupied by the lexical noun or a pronoun. Halim (2011) refers to the crucial difference between what is referred to in the literature as ‘object clitics’ and the so-called ‘subject clitics’. She notes that the difference between those two types of clitics is mainly in terms of distribution. Object clitics are pronominal and they can occur either attached to verbs to act as objects as in constructed Example 13*a*, to prepositions to act as objects of prepositions as in constructed Example 13*b*, or to nouns and adjectives to act as objects in the construct state as in constructed Examples 13*c* and 13*d* respectively (the clitic in each sentence is in bold type):

- (13) a. A: man 'akal-a al-tuffaḥ-at-a ?
 Who ate.Prf-3S.M the-apple-3S.F-ACC ?
 ‘who ate the apple?’
 B: 'akal-at-**ha** Hind-un
 ate.Prf-3S.F-**it.3S.F** Hind-NOM.indf
 ‘Hind ate **it**’
- b. A: māḍa ḥadaṭ-a li-al- ṭāwil-at-i ?
 what happened.Prf-3S.M to-the-table-3S.F-GEN
 ‘What happened to the table’
 B: waḍa‘-tu Ø 'lay-**ha** al-'ṭqāl-a
 Put.Prf-1S Null Sbj(I) on-**it.3S.F** the-weights.3Pl-ACC
 f-'inkasar-at Ø
 and-broke-3S.F Null Sbj(it.3S.F)
 ‘I put the weights on it and it broke’
- c. 'akal-at Hind-un tuffaḥat-a-**ha**
 ate.Prf-3S.F Hind-NOM apple-ACC-**her.3S.F**
 ‘Hind ate her apple’
- d. 'ajmal-u-**hunna** ḥaḍar-at
 the.most.beautiful-NOM-**them.3Pl.F** came.Prf-3S.F
 ‘The most beautiful of them came’

These clitics never co-occur with lexical objects in the same sentence. That is why they are labelled as pronominal clitics, as they stand as the only objects in the sentence in which they are found, and they are totally independent in their function. The so-called subject clitics in the incorporation account, in contrast, only occur attached to verbs and always co-occur with subjects whether spelled out or null. Since these clitics are only attached to verbs and are different in properties from the pronominal clitics, it is evident that they should be treated as agreement markers or, as Halim (2011, p. 57) labelled them, ‘agreement affixes’, and nothing other than this. These clitics carry all the morphology needed to show what features of the verb are matching their nominal counterparts. Accordingly, Halim argues that they cannot be positioned within the thematic shell nor can they be treated as subjects. They become attached to the verb only after the agreement has taken place, and thus they cannot be treated as subjects.

The last challenge I present for the incorporation account is the nature of these clitics in the perfective and the imperfective aspects (see Aoun et al., 2010; and Halim 2011, among others). These clitics in the perfective aspect take the form of a suffix attached to the end of the verb. In the imperfective aspect, however, they are divided into two parts: one attached to the beginning of the verb and the other attached to the end of the verb.

Consider the following:

- (14) a. Sāra ta-drusu
 Sara.NOM Impr.F.3S-study
 ‘Sara studies’
- b. Sara daras-at
 Sara.NOM studied.Prf-3S.F
 ‘Sara studied’
- c. ta-drus-īn bi-ġtihād-in
 2S.Impr-study-F with-diligence-GEN
 ‘You studied with diligence’
- d. daras-ti bi-ġtihād-in
 studied.Prf-2S.F with-diligence-GEN
 ‘You studied with diligence’

In Example 14*a* and 14*b*, the subject is singular. There is a difference in the realisation of the clitics. In Example 14*a*, all Phi-features of person, number and gender are realised as a prefix attached to the beginning of the verb. In Example 14*b*, however, all the Phi-features are realised as a suffix attached to the end of the verb.

In Examples 14*c*, the subject is 2nd person singular. The features are distributed discontinuously where the person feature is realised as a prefix while the number and the gender are realised as a suffix. Both the prefix and the suffix are attached to one verb. Example 14*d* shows that verb is in the second person, and is similar to the subject in Example 14*b* above in that all three Phi-features are realised as a suffix attached at the end of the verb. These examples show that the nature of these clitics is not consistent which casts doubt on the the validity of considering them real subject pronominal elements.

At the end of this section, it can be seen that the clitics attached to the verb cannot adequately be claimed to be real subjects. For the rest of the thesis, the reference to SVO word order means that the pre-verbal noun is the actual subject, and whatever clitics are shown to be attached to the verb are the morphological markers of the agreement features whose analysis is the core of this thesis.

2.1.2 Word order

The second main factor affecting agreement pattern in MSA is word order. In MSA and modern spoken Arabic dialects, the main verb in a clause demonstrates different agreement patterns based on its position in relation to the subject. There is a difference in the markedness of word order between MSA and modern Arabic dialects. In MSA, the basic and unmarked word order is VSO (Fassi Fehri, 1993; Holes, 2004; Watson, 2007). The basic and unmarked word order in many local varieties of Arabic is SVO (Alenazy, 2009; Aoun et al., 1994; Mahfoudi, 2002). However, both MSA and other

dialects of Arabic allow alternative word orders. Consider the following example from MSA:

- (15) a. 'a kal-a al-walad-u at-tuffah-at-a (VSO order)
 ate.Prf-3S.M the-boy.3S.M-NOM the-apple.3S-F-ACC
 'the boy ate the apple'
- b. al -walad-u 'akal-a al-tuffah-at-a (SVO order)
 the-boy.3S.M-NOM ate.Prf-3S.M the-apple.3S-F-ACC
 'the boy ate the apple'

Although both word orders are equally common and easily found in every context in which MSA is used, the sentences in Example 15 show a very slight difference in meaning. MSA allows alternation in word order with a difference in meaning associated with thematic structure. In other words, differences in meaning occur if more focus is being given to the agent - as in SVO, or when more focus is given to the action - as in VSO. It is still a topic of interest to be explored on a wider range to precisely identify what conditions SVO word order.

In addition to the variation in word order we see in MSA, MSA also demonstrates number impoverishment in VSO as seen in detail in Examples 1–9 in the previous chapter. This asymmetry between number agreement and the word order has been the topic of the majority of studies of agreement in syntax of MSA.

MSA is not the only language with word order asymmetries for agreement. Other languages also demonstrate similar word order asymmetries in number agreement: for example, Russian (Corbett, 2006); Slovenian (Harrison, Branigan and Pickering, 2005); French and Italian (Franck et al., 2006; Lorimor, 2007); Dutch (Ackema and Neeleman, 2003); Polish (Citko, 2004) and Florentine (Brandi and Cordin, 1989).

Having settled in the previous section on the nature of the pre-verbal noun in SVO word order, in this section I present a review of the most significant studies of agreement in

MSA. Although the focus is on agreement in SVO word order, I touch on previous studies of VSO word order whenever relevant.

2.2 Previous analyses of agreement in MSA

As mentioned earlier, several analyses have been proposed to capture the rich (or full) agreement seen in SVO word order. I highlight the basic and prominent analyses according to their chronological order: pre-Minimalist analyses, Minimalist analyses and post-syntactic analyses.

2.2.1 Pre-Minimalist analysis of agreement in MSA

These analyses operate under the assumptions of pre-Minimalism. They are incorporation analysis (Fassi Fehri, 1993), discussed thoroughly in Section 2.1.1, and spec-head *v.* agreement under the Government and Binding (GB) framework as found in the works of Benmamoun (1992), Bahloul and Harbert (1993) and Aoun et al. (1994), among others.

Bahloul and Harbert (1993) and Aoun et al. (1994) argue that in MSA, partial agreement in VSO word order occurs under government configurations when the verb in T governs the subject, while full agreement in SVO word order occurs in a spec-head configuration when the subject is located in the spec of TP. Bahloul and Harbert adopt similar assumptions to the ones I argue for in Chapter 8 regarding the structure of the clause in MSA and the structure of the Phi-features on the subject. The clause structure for which Bahloul and Harbert argue is that in which the subject in SVO occupies the [Spec, TP] while the verb occupies T. In VSO word order, in contrast, the verb still occupies T while the subject remains in situ, in [Spec, *v*P]. Based on this clause structure, Bahloul and Harbert (1993) and Aoun et al. (1994) argue that in SVO, both

the subject and the verb are in spec-head configuration, while in VSO word order, the verb occupies a position whereby it governs the subject.

As for the Phi-features of the noun, Bahloul and Harbert (1993) also adopt the same assumption as do I for nominal features in this thesis. Following Ritter (1991), the Phi-features of the noun are located differently within the DP. That is to say, the features of gender and person are located on the NP while number is always located on a higher syntactic head (NumP). Ritter (1991) differentiates between DPs and pronouns in Hebrew regarding Phi-features. Ritter's analysis can easily be extended to account for MSA. While DPs in MSA have their person and gender features located within the NP, and their number features located under a NumP, pronouns in MSA have all three Phi-features located together—that is, not divided. To elaborate more on Ritter's argument, consider Figures 2.1 and 2.2 as general illustrations of the location of Phi-features in MSA DPs and pronouns.

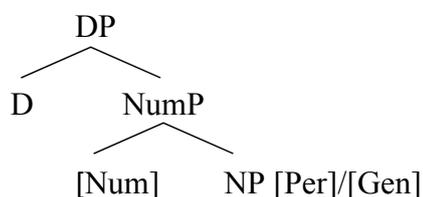


Figure 2.1: The location of Phi-features in MSA DPs

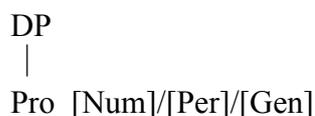


Figure 2.2: The location of Phi-features in MSA pronouns

With these theoretical assumptions in mind, Bahloul and Harbert argue that agreement under a government relationship is only sensitive to Phi-features that are located within the basic NP; thus in VSO word order—since the verb governs the subject—it can only be sensitive to those features located on the NP. Number impoverishment is, therefore, obtained in VSO between the verb and the subject as in the constructed example below:

- (16) 'akal-a al-'awlād-u al- ṭa'ām-a
 ate.Prf-3S.M the-boys.3Pl.M-NOM the-food.3S-ACC
 'the boys ate the food'

In the case of pronominal subjects in VSO, the verb is still in a government configuration in relation to the subject (pronoun) and, since according to Ritter (1991) the pronoun is a complete DP in itself in which all Phi-features are present at the same level, all Phi-features would thus be accessible for the verb to agree with. Thus, full agreement in all Phi-features is obtained. Consider the following constructed example where the verb agrees with the subject in all three Phi-features: gender, person and number:

- (17) 'akal-ū hum al- ṭa'ām-a
 ate.Prf-3Pl.M they.3Pl.M.NOM the-food.3S-ACC
 'they ate the food'

As with SVO under the spec-head configuration, there are no such restrictions as to what Phi-features are located on the NP. Agreement is obtained with the full package of Phi-features located on the DP. Consider the following constructed example:

- (18) al-'awlād-u 'akal-ū al- ṭa'ām-a
 the-boys.3Pl.M-NOM ate.Prf-3Pl.M the-food.3S-ACC
 'the boys ate the food'

This analysis seems to handle data from MSA very well. It also adopts the same clause structure and Phi-feature structure as the features of the DP of Ritter (1991) that I adopt in this thesis. However, the assumptions of spec-head and GB do not fit with later Minimalist theoretical assumptions I adopt in this thesis. In the Minimalist assumptions I adopt, there is only one syntactic operation responsible for agreement in both orders. It is still very appealing to adopt Bahloul and Harbert's analysis of Phi-feature sensitivity in different word order. However, this is still very difficult to fit within an Agree relationship whereby there is no difference in syntax between features present on the NP or DP.

Similar to Bahloul and Harbert (1993), Aoun et al. (1994) adopt the analysis of spec-head v. government relationship to account for agreement patterns in MSA. They agree completely with Bahloul and Harbert (1993) in SVO agreement. However, they differ slightly from Bahloul and Harbert in VSO agreement. Aoun et al. (1994) argue that there is an additional movement in the structure of derivation of VSO word order. Whereas in SVO order the subject is located in the [Spec, TP] and the verb is under T, the verb has to make one additional higher movement to a location between T and C to achieve VSO word order.

Regarding the Phi-features of the subject, Aoun et al. (1994) mainly agree with Bahloul and Harbert (1993) and follow Ritter's argument (1991) regarding Phi-feature distribution. Additionally, they call the features hosted within the NP *intrinsic* while those hosted on a higher syntactic head are labelled *grammatical*. It is this additional movement of the verb that, according to Aoun et al. (1994), is responsible for the inaccessibility of the grammatical features of the lexical subject to the verb for agreement.

While Aoun et al.'s (1994) analysis also shares some theoretical assumptions regarding the structure of Phi-features and their distribution within the DP in MSA, they still fall outside the Minimalist assumptions adopted in this thesis. Moreover, Aoun et al. (1994) do not offer sufficient explanation on the nature of the movement whereby the grammatical features of the subject become blocked.

2.2.2 Minimalist analyses of agreement in Arabic

Contemporary research has moved towards the separation of Move from Agree, as advanced in Chomsky's probe-goal approach (Chomsky, 2001). Movement to the clause-initial position should not be for agreement purposes, but for Extended Projection Principle (EPP) feature checking. As such, one should look immediately to

the tense functional head (T), as it is the only head that exists locally that may be used to capture Arabic data.

A Minimalist analysis of the agreement asymmetry observed in Arabic VSO word order *v.* SVO is proposed by Soltan (2006). This analysis builds mainly on the assumption that full agreement is always associated with a null pronominal in the thematic subject position. This is recognised as the ‘*null pro analysis*’ first proposed by Olarrea (1996). Olarrea’s analysis is that there is a null pronominal subject located in the position of [Spec, VP] in SVO word orders that undergoes logical form (LF) movement to [Spec, AgrSP]. Full agreement is obtained through agreement between the verb in [Spec, AgrS] and the null pronoun in [Spec, VP]. The pre-verbal noun in Olarrea’s sense is a left-dislocated NP. I do not explain Olarrea’s analysis at this juncture as its assumptions mainly do not fit within the Minimalist framework (Chomsky, 1993, 1995, 2000, 2005). The existence of an Agr head has also been rejected in Minimalist assumptions (Chomsky, 1995, p. 377).

Soltan (2006) builds on Olarrea’s analysis of the presence of a null *pro* in the [Spec, vP] within the framework of Minimalism. To account for the full agreement in SVO word order, Soltan argues that there is a null *pro* in the thematic position [Spec, vP] to which he ascribes the full agreement of the verb based on Rizzi’s (1982, 1986) *pro* identification requirement that the null *pro* has to be identified through rich agreement with the verb.

With respect to the pre-verbal NP in SVO word order, Soltan argues that this is a clitic left-dislocated (CLLD) NP that is base generated in the [Spec, TP]. Soltan also argues that the existence of these two nominal elements—the pre-verbal NP and the post-verbal null *pro*—in the same sentence should not pose a problem as the two subjects are totally different in nature from each other.

Semantically speaking, the DP in the [Spec, TP] position is interpreted as a topic of the whole sentence, while the null *pro* in [Spec, vP] demonstrates the thematic interpretation of the event. Further, Soltan (2006) argues that the VS and SV orders differ regarding *wh*-movement and extraction cross-positions. Extraction across a post-verbal DP would not yield any ungrammaticality. However, extraction across a pre-verbal DP results in an ungrammatical sentence, as shown in Example 19 from Soltan (2006, p. 249), which provides important evidence that extraction is always out of VSO word order:

- (19) a. man ḍarab-a Zayd-un
 who hit.Prf-3S.M Zayd-NOM
 ‘Who did Zayd hit?’
- b. *man Zayd-un ḍaraba
 who Zayd-Nom hit.Prf.3S.M
 ‘who Zayd hit?’

In his analysis, Soltan argues for the following properties of T:

1. T has two Phi-features, which are person and number. They are obligatory present on T only in SVO words when there is a null *pro*. They are not present in VSO when there is no null *pro*.
2. T has a gender feature that he terms class feature.
3. T has an EPP feature in SVO that is satisfied by the base generation of the CLLDed NP in [Spec, TP], while in VSO T has no EPP feature.

Accordingly, Soltan argues that in SVO word order, class and Phi-features probe down separately to search for a goal within the T’s c-commanding domain. They locate null *pro* and enter into an Agree relationship, and thus the verb shows full agreement in gender and in Phi-features (person and number). The EPP feature is already satisfied by the base generation of the CLLDed NP in [Spec, TP]. Soltan argues that in the absence

of any external case assigner in Arabic, like a complementiser '*inna*', the CLLDed NP would have a default nominative case.

In VSO word order, there is no null *pro* in the thematic position; rather, it is only occupied with a lexical subject. Soltan argues that T in VSO word order has no Phi-feature and no EPP, and thus only class probes down from T to the lexical subject to initiate an Agree relationship, resulting in impoverished agreement on the verb.

In colloquial Arabic, in which there is full agreement in both word orders, T has an obligatory set of Phi-features, and class but no EPP in VSO. That is why, according to Soltan, the verb shows full agreement in both word orders in colloquial varieties.

Soltan's (2006) analysis seems to have reshaped Olarrea's (1996) null *pro* analysis to fit within current Minimalist assumptions (Chomsky, 1995, 2000, 2001, 2005). However, Soltan's analysis is not free of limitations. First, it does not seem to account well for the full agreement in VSO when the subject is pronominal. Second, the assumption of the presence of a null *pro* is problematic for two reasons.

First, according to Rizzi's (1982, 1986) *pro* identification requirement, upon which Soltan's analysis is based, identification and specification of the null *pro* requires full agreement on the verb. One major assumption in Minimalism is that any element in the derivation must have an effect either at the LF interface, the phonological form (PF) interface or at both interfaces at the same time (Chomsky, 1995, 2000). Since the null *pro* has an effect at the LF interface then it is conceptually not problematic. However, knowing that the null *pro* needs to be identified through the Phi-features on the T causes a derivational issue as the Phi-features on T are uninterpretable as per Chomsky (1995, 2000). In this sense, the uninterpretable Phi-features on T would be unable to identify and specify the null *pro* in [Spec, vP] to fulfil Rizzi's null *pro* identification requirement. In Minimalist terms the Probe T, which carries uninterpretable features, requires a goal with valued Phi-features so that Agree succeeds. Therefore, the

unidentified null *pro* proposed by Soltan does not seem to fit well into a feature valuation approach, such as Agree in current Minimalist assumptions.

Holmberg (2005) suggests a solution to the *pro* identification requirement within the minimalist approach, which is assuming that T has an interpreted and valued set of Phi-features so that it is able to identify the null *pro* in the course of agreement. However, according to Minimalist assumptions, a probe would not be active to search for a goal and enter into an Agree relationship unless it has a set of uninterpreted features.

Assuming that T has an interpreted set of Phi-features would make it an inactive element in the derivation.

The second reason why the presence of a null *pro* is problematic is how Soltan relates the presence of the null *pro* and the presence of the features on T. Soltan argues that for SVO when the null *pro* is present, T has only the class feature but not number or person. However, according to Minimalist assumptions, particularly Chomsky's (2005) feature-inheritance model, all the Phi-features present on T are inherited from C regardless of the word order and regardless of the presence or absence of a null *pro* in [Spec, vP].

The third drawback to Soltan's analysis is the nature of the CLLDed NP. According to some of the cross-linguistic literature on the properties of CLLDed elements (Cinque, 1977 for Italian; Escobar, 1997 for Spanish; Aoun and Benmamoun, 1998 for Lebanese Arabic [LA]), the NP has to be related to a resumptive pronoun. This pronominal clitic has to be either a direct object, an object of a preposition or a complement of a noun or an adjective. This is similar to the point presented by Halim (2011) in her argument against the incorporation account as outlined in Section 2.1.1.2. However, the CLLD NP in Soltan's analysis is not linked to a resumptive pronoun. Therefore, this clause-initial NP in Soltan's analysis cannot be treated as a CLLD.

2.2.3 Post-syntactic treatment of partial agreement in Arabic

Aoun et al.'s (1994) analysis presented above, although adopting the pre-Minimalist assumption of spec-head configuration, argues that the number feature of the verb is lost or deleted somewhere in the derivation via moving to a higher position to create VSO word order. This feature's loss of number happens at PF and before Spell Out.

Another, more recent, PF analysis of number impoverishment is that of Benmamoun (2000). Benmamoun provides a post-syntactic Minimalist analysis of agreement in which he argues that both the subject and the verb are spelled out into the derivation at the PF interface. Benmamoun's analysis is slightly different in that it does not state that number is deleted from the verb but argues that the number feature of the verb is not lost or deleted. However, it is merged together with the number feature of the noun, which is intrinsic to the noun according to Chomsky (1995). Therefore, the verb having a number affix would result in redundancy in the number feature. Benmamoun's analysis lacks further information about the process of full agreement in VSO with pronominal subjects. It has also been rejected by Alenazy (2009) for not accounting for full agreement in VSO in local varieties.

The same concept of feature doubling or redundancy from a post-syntactic perspective is explained in a rather more organised manner in Ackema and Neeleman (2003, 2012). They provide a post-syntactic model to account for partial agreement in MSA among many other phenomena. Ackema and Neeleman's analysis is unique in its nature as it considers both agreement features and prosody structures with a focus on the PF interface rather than core syntax. Their account is based on the mapping from syntactic structure to prosody structures, in which two main rules apply (Ackema and Neeleman 2003: 684):

1. align the right edge of the syntactic phrase with the right edge of a prosodic phrase
2. delete any feature that appears on two elements in one prosodic phrase from the initial element.

Ackema and Neeleman's analysis is based on morphological assumptions very similar to the ones adopted here from Distributed Morphology approach in that before Spell-Out, some redundant features can undergo certain morphological operations. Such operations can be deletion (Impoverishment), or weakening. This mapping between syntactic and prosodic structures regarding both word orders in Arabic is presented as follows:

1. SVO word order:

Syntactic structure: [CP [TP [DP Subject] Verb [DP Object]]].

Corresponding prosodic structure: [Subject] [Verb + Object].

The prosodic structure of the SVO word order shows that the subject appears in a prosodic phrase while the verb and the object appear to be in another prosodic phrase.

This is because the right edge of the subject intervenes between the subject and the verb. Since both the verb and the subject end up in two different prosodic phrases, each can have its own bundle of Phi-features without the need for them to undergo any post-syntactic weakening or deletion of features.

2. VSO word order:

Syntactic structure: [CP [TP Verb [DP Subject] [DP Object]]].

Corresponding prosodic structure: [Verb Subject] [Object].

In VSO word order, both the subject and the verb appear in the same prosodic phrase as the right edge of the subject here does not intervene between the subject and the verb.

According to Ackema and Neeleman's analysis, a structure in which two elements within the same prosodic phrase happen to have similar features, this feature is deleted

from the first element which is the verb in VSO word order. This post-syntactic rule does not apply for SVO word orders as the subject and the verb do not end in one prosodic phrase.

Although the current thesis is not focusing on partial agreement in VSO word order in Arabic, Ackema and Neeleman's analysis works well hand in hand within the framework in this thesis if it is to be expanded to account for data with partial agreement in VSO word order. There is still an issue with inanimate plural nouns in SVO word order which always demonstrate feminine singular agreement regardless of the original features of the noun.

Within the discussion of post-syntactic morphological analyses of Arabic, a very recent analysis by Fassi Fehri (2017) combines Minimalist Distributed morphological assumptions. Although Fassi Fehri's analysis was not concerned with agreement per se, it focuses on the nominal features of the DP in Arabic. Fassi Fehri's analysis is very similar to my analysis of features I present in this thesis in that gender has more to offer to understanding which give is a polysemic semantic nature. Despite the similarities in the basic theoretical assumptions between Fassi Fehri's analysis of gender and mine, there are other various differences which I intentionally leave for discussion in chapter 6 for the sake of avoiding redundancy.

2.3 Other typological treatments of agreement in Arabic

Other accounts of agreement in Arabic, both MSA and local varieties, have touched upon the problem of partial agreement in SVO word orders in relation to animacy (Holes, 2004 for Kuwaiti Arabic; Ryding, 2005, 2014 for standard Arabic; Cowell, 2005 for Syrian Arabic). These studies all relate to the interaction of animacy, gender and plurality in that, in many varieties of Arabic, plural non-human nouns trigger

singular feminine agreement on verbs and adjectives. No attempts, however, been made to handle this interaction in a syntactic or morphosyntactic manner of analysis.

2.4 Conclusion and notes for gaps in the literature covered in this thesis

This chapter provides a detailed overview of agreement analyses in MSA—pre-Minimalist, current Minimalist and typological—and presents the limitations and drawbacks of each. It focuses mainly on the treatments where features of agreement or Phi-features are at the core. The focus is mainly on SVO word order analyses but also inevitably touches on VSO word order where relevant.

I touched upon two important points of controversy in treating agreement in Arabic: the nature of the pre-verbal noun; and word order. I argued against treating the pre-verbal DP as a topic. I adopted a view in which the pre-verbal DP in SVO and the post-verbal DP in VSO are the real subjects. I present more on the derivation of each word order and the locations of the subject and the verb in Chapter 4.

The literature review in this chapter clearly shows that previous studies of agreement in Arabic have all focused on full agreement in SVO word order, partial agreement in VSO word order and what the syntactic processes taking place in the derivation are. Partial agreement is only referred to in the context of VSO word orders, and thus attention was given here to the syntactic operations behind the formation of this word order. The overview shows that no attention has been given to cases of partial agreement in SVO word order, a case that is primarily a result of the interaction among several features—both syntactic and semantic. Consider Examples 6*a* and 9*a* above repeated here as 20*a* and 20*b* for convenience:

- (20) a. al-ḥayāwan-āt-u akal-at al-ṭa‘ām-a
 the-animals-3Pl.F-NOM ate.Prf-3S.F the-food.3S-ACC
 ‘the animals ate the food’

b. al-kutub-u saqaṭ-at ‘ala al-’ard-i
 the-books.3PI-NOM fell.Prf-3S.F on the-floor.3S-GEN
 ‘the books fell on the floor’

Features such as animacy and natural (biological) sex have all been overlooked in analyses following a morphosyntactic manner. Moreover, features in previous treatments of agreement have been referred to only in the sense of matching or mismatching for agreement. No attention has been directed towards how morphosyntactic features receive their values and are located within the DP itself. Although many analyses have followed Ritter’s (1991) model in separating number from gender within the internal structure of the DP (Aoun et al., 1994; Bahloul and Harbert, 1993), not enough focus has been given to animacy as a semantic feature that affects gender and interacts with number (plurality).

Moreover, to the best of my knowledge, there have been no previous treatments of instances of mixed agreement in Arabic, where a noun can have full or partial agreement. This can only be analysed through touching upon the semantic nature of the morphosyntactic features of the subject.

Having gained an idea of common trends in treatments within the literature on agreement in Arabic, I have chosen for my analysis to begin from the basic features of the noun that cause it to trigger one type of agreement over the other. Once these features have been explored carefully in terms of form and interpretation, several other mysteries regarding agreement patterns in MSA can be solved.

For my treatment of features, which is the core goal of this thesis, I assume a post-syntactic framework with respect to feature morphology. I basically give importance to the partial agreement in SVO word order that has received little attention in the theoretical syntax/morphology tradition.

I present the basic tools of the theoretical framework that I adapt in Chapter 4. In Chapter 8, I present the structure of MSA sentences that I adapt for my analysis of agreement. I do not focus on VSO word order in this thesis, as this word order always demonstrates partial agreement with the subject regardless of the features the noun has. However, reference to VSO is inevitably made throughout the thesis wherever relevant.

Chapter 3: Data and Methodology Used in the Thesis

This chapter offers more information about the nature of the analysis carried out in this thesis, and details the linguistic data on which this analysis is based and how they are dealt with in the analysis. Chapter 4 offers more on the theoretical tools used in the data analysis.

As mentioned in the introduction in Chapter 1, this thesis is concerned with analysing the nominal features that condition the various agreement patterns observed in sentences with SVO word order. As this broadens the scope of the thesis, the basic focus is on collecting sentences with verbal agreement in SVO word order in which nominal features can be analysed in terms of form (morphology) and interpretation (semantics). The basic features to be analysed on the nominal entering into an agreement relationship with the verb are the following:

1. animacy
2. gender
3. number

For each of these features, the morphological realisation on nouns and on verbs, and the interaction of these three features, are addressed.

3.1 Data for the thesis

As outlined in Chapter 2, MSA is the formal register of Arabic used in academic settings, education, media and formal communication. In other words, there are no native speakers of MSA. This fact itself makes analysing any syntactic phenomenon in MSA different from analysing the same phenomenon in any regional dialect of Arabic. The difference is related to how representative the data may be.

For this reason, the data in this thesis come from two main sources: corpus extraction and grammatical intuition.

3.1.1 Corpus extraction

Two MSA corpora were used to extract full sentences with verbal agreement:

1. ArabiCorpus

This untagged corpus is highly regarded by both Arabic learners and linguists. It consists of 173,600,000 words. It is free to use and can be searched by entering single words or phrases. It covers various genres including newspapers from different parts of the Arab world; literature; electronic articles from different disciplines; the Qura'an and other religious texts. It can be accessed at: <http://arabiccorpus.byu.edu>.

2. International Corpus of Arabic (ICA)

This untagged corpus aims to provide natural empirical data for linguists working on the Arabic language. It is still expanding. Once it is complete, it is expected to include 100 million words. It is designed to include material from the press, books, academic and Internet articles and can be accessed at <http://www.bibalex.org/ica/en/About.aspx>.

Texts available in these two corpora are published in various countries around the Arab world. Words were searched by the forms of verbs and nouns. Sentences that resulted from the search vary between SVO and VSO word orders, and other word orders where an auxiliary verb occurs before or after the subject.

The two source corpora are not annotated for syntactic use. In other words, there is no way to select for the desired word order or the nominal or verbal features needed for the analysis. Sentences, therefore, could be recovered based solely on the key word entered, not on any other syntactic method. Therefore, I focused the search on certain nouns at

different levels of animacy, such as humans (e.g., *mu 'alimūn* 'male teachers', *mu 'alimāt* 'female teachers', *mumarriḍāt* 'nurses', *riḡāl* 'men', *nisā* 'women', *muhandisūn* 'male engineers', *muhandisāt* 'female teachers') of both genders; animals of different sizes (e.g., *ḡimāl* camels, *baqar* 'cows', *'arānib* 'rabbits', *qiṭṭaṭ* 'cats', *kilāb* 'dogs', *ṭuyūr* 'birds', *ḥaṣarāt* 'insects') including microscopic creatures (e.g., *maykrūbāt* 'microbes', *baktīryā* 'bacteria', *ḡarāṭīm* 'germs'); and inanimate nouns (e.g., *ṭāwīlāt* 'tables', *kutub* 'books' and *muḡarradāt* 'abstracts'). The search also included certain types of nouns such as collectives (e.g., *qaṭī* 'herd', *sirb* 'flock', *qawm* 'folk') and coordinated noun phrases (e.g., *al-raḡul wa al-'imra 'at* 'the man and the woman', *al-walad wa al-fatāt* 'the boy and the girl', *al-qiṭṭaṭ wa al-kalb* 'the cat and the dog'). Verbs were not given focus in the search as the main purpose was to extract sentences with certain features of the subject. However, some verbs were used to facilitate the extraction of some nouns, such as verbs' dual and plural number agreement as this helped in retaining results in the form of SVO word order with dual and plural nouns from the corpus.

3.1.1.1 Feature categorisation

The total number of the corpora sentences extracted is 783. These sentences are stored in an Excel file with five sub-sheets. The first sheet includes all the examples with verbal agreement. The other five sheets include the following: group-denoting nouns, conjoined nouns, mixed-agreement nouns, collective and singulative nouns, and finally non-verbal agreement which is not included in the main sheet. As verbal agreement in SVO word order is the basic focus of the thesis, examples of verbal agreement in VSO word order and examples of non-verbal agreement were also collected as there is a need to test how gender agrees with specific nouns with intriguing behaviour. Non-verbal agreement includes adjectival agreement, demonstrative agreement, referential pronominal agreement and relative pronominal agreement. Features of the noun and the verb were coded as follows.

A/ Nominal features

These include animacy, definiteness, gender, number and person. Animacy is coded along a hierarchy starting from humans moving to non-moving objects. Gender and number are straightforward in the singular and dual values. However, in the plural forms of the nominal, especially the lower animate ones, the values of gender and number are indicated depending on the agreement pattern the nominal triggers on the verb. There is a lot to be said about the method of diagnosing the gender and the number of nominals that are seen to trigger unexpected agreement patterns. More details on such nominals and the interaction of the form and interpretation of the features is presented in chapters 6 and 7.

B/ Verbal features

Verbal features that take an active part in the agreement pattern are seen to be the most common three Phi-features: gender, number and person. These are easily identified in each agreeing verb solely from its morphology. Verbs in MSA inflect for gender, number and person differently depending on the tense and aspect of the sentence (refer to section 1.4.3 for more on the morphological form of the MSA verb).

Other important information in each sentence is also coded:

1. The word order of the sentence

There are two word orders in MSA: SVO and VSO. When an auxiliary verb occurs within one of these two word orders, they become S aux VO, or aux S VO. The latter two were also included in the Excel file.

2. The type of agreement

Agreement in the sentences collected was coded as either **full agreement**—that is, the verb agrees with all features of the nouns including gender,

number and person—or **partial agreement** where the verb is seen to agree with the noun in some but not all features.

3. Name of the corpus, genre and region of the source

Each sentence has an indication of the name of the corpus from which it was taken, what genre the sentence represents and the source region for the sentence. As all extracted sentences were MSA sentences, and since MSA is a variety of languages that has no native speakers, there can be some first language interference in the way MSA sentences are produced. Thus, a writer's own colloquial³ dialect sometimes affects the way they produce MSA grammar. This concern falls outside the scope of this thesis but would certainly be an interesting topic for future research.

3.1.2 Arabic speakers' intuition

The second main source for the data in this thesis was sentences constructed by the author and checked for grammaticality by other speakers of Arabic. Since MSA has no native speakers, judgements about grammaticality are not equivalent to a native speaker's intuition. Therefore, the other Arabic speakers who were asked to evaluate the grammaticality of any constructed sentences were holders of a higher degree in the Arabic language. Their judgement was based on the prescriptive rules of Standard Arabic as taught and learned in schools.

The main reason for including constructed sentences as the main source of data was that at certain points where a contrast needed to be detected between two identical sentences, it was impossible to obtain a minimal pair of sentences from the corpora, especially with the method of searching by key word. Therefore, constructed sentences were the best choice for such cases. Also, chapter 9 is concerned with agreement patterns for conjoined NPs. The data extracted for conjoined NPs from the corpora were

very limited. In such a case, using constructed examples as the source of data was inevitable.

3.2 Phonetic Transliteration of the Data

Throughout this thesis, I follow DIN 31635 to present Arabic sounds as Roman characters. DIN 31635 is a Deutsches Institut für Normung translation system adapted from Deutsche Morgenländische Gesellschaft (DMG) in 1982. Arabic sounds and their equivalent Roman characters are summarised in Table 3.1, which is arranged according to the order of the Arabic alphabet.

All Arabic data (whether MSA or other varieties) quoted from other authors was re-glossed using this transliteration system for the purpose of consistency. However, data from other languages were retained as in their original source.

Table 3.1: Phonetic transliteration characters used for the data in this thesis

Sound in Arabic	Roman character
أ	'ā
ب	b
ت	t
ث	ṭ
ج	ǧ
ح	ḥ
خ	ḫ
د	d
ذ	ḏ
ر	r
ز	z
س	s
ش	š
ص	ṣ
ض	ḍ
ط	ṭ
ظ	ẓ
ع	'
غ	ǧ
ف	f
ق	q
ك	k
ل	l
م	m
ن	n
ه	h
و	w/ū
ي	y/ī

3.3 Data Glossing

3.3.1 Nominal Glossing

Each nominal is glossed for the following features: gender, number and person. **Gender** is glossed on nominals as either feminine (F) or masculine (M). It is important to note that gender is glossed on nominals only in two cases, corresponding to natural sex or overt morphology inflection.⁵ **Number** is glossed on nominals as singular (S), dual (D), plural (Pl) or collective (Coll). Person is glossed on nominals as first (1st), second (2nd) or third (3rd).

3.3.2 Verbal Glossing

As mentioned in Chapter 2, verbal stems are divided morphologically to show tense, person, gender and agreement information. Agreement morphology appears either stem-initially, stem-finally, or both stem-initially and stem-finally as discussed in Section 2.1.1.2 above. In addition to the aspect inflection, verbs are also glossed for gender, number and person in the same way that nominals are.

⁵ Further explanation and details of this are provided in chapter 6 about the values of gender.

Chapter 4: Morphosyntactic Features and the Theoretical Framework for Analysis

4.1 Part 1: A preliminary overview of features in linguistic theory

To understand languages and how various linguistic phenomena are formulated in a given language, a basic understanding is required of how the major components of grammar in that language interact. Syntax, semantics and phonology are at the core of any linguistic study. Each of these components is directly responsible for a number of linguistic phenomena and has a number of important properties that demonstrate how the component works. These properties are sometimes exclusive to one component of the grammar, and sometimes work at the interface between two or more components. The properties that are responsible for providing more information and details are referred to as features. In this regard, features can operate at two levels: internally or at the interface (Corbett, 2012, p. 42).

4.1.1 Categorisation of features according to the way they fit into language components

4.1.1.1 Internal features and interface features

Internal features are those that define properties within only a single component of the language. These can be phonological, morphological, syntactic or semantic features.

Each set of these internal features operates only on one component of the language: phonology, morphology, syntax or semantics, respectively (Corbett, 2012, pp. 44–45).

For a better understanding of features based on the component on which they operate, the following defining rules from Svenonius (2007) provide a useful summary.

1. A feature F is an X feature iff F can constitute a distinction between two different X representations (Svenonius, 2007, p. 1).

In this definition, X is a component and an X feature is a feature that operates only on the component X. To summarise the difference between internal features and interface features, consider the following definition (Svenonius 2007, p. 2).

2. a. F is an X-internal feature iff F is an X feature and not a feature of any other module.
- b. F is an X–Y interface feature iff F is an X feature and a Y feature.

Interface features operate across the borders of two components; shared properties from different components of grammar are referred to as *interface features*. The focus in this thesis is on analysing nominal features responsible for conditioning agreement, so I deal only with features that operate within the domain of morphology and syntax. At first, I might refer to them as morphosyntactic features, but it is worth noting that some of these features are also charged by semantics. Before reviewing different types of interface features in a separate section, the following example is provided of a common and widely used interface feature, which is *number*. Number in English, for example, has morphological inflections on both the nominal and the verb. The morphological inflection that number has on nouns is meaningful. The presence of the singular number morphology ‘Ø’ or ‘zero’ has a meaning that corresponds to one real-world entity. The plural number morphology, ‘s’, in contrast, corresponds to multiple entities in the real world. Since the number value is realised morphologically on the nominal, this makes it an interface feature that operates between semantics and morphology, which is referred to as a morphosemantic feature. Number realisation on verbs is different from its realisation on nominals. While number realisation on nominals corresponds to the real number of entities in the real world, number realisation

on verbs is purely syntactic.⁶ Verbal morphological inflections of number in English are either singular ‘s’, or plural ‘Ø’ or ‘zero’. The number inflection on the verb does not correspond to the number of events taking place. Consider the following example from English:

(21) a. The boys walk to school every morning.

b. The boy walks to school every morning.

In Example 21a, *the boys* corresponds to multiple boys in the real world but *walk* does not correspond to multiple actions of walking. Number is therefore an interface feature that operates around three components: semantics, syntax and morphology. It is a morphosemantic feature on nominals but a morphosyntactic feature on verbs. However, since nominals enter into agreement relationships with verbs in number features, it is standard practice to refer to number as a morphosyntactic⁷ feature in that its effect is always seen in relation to agreement. ***Morphosyntactic features*** are those that operate at the interface between syntax and morphology. They are present in the inflectional morphology of the language and are at the same time conditioned by rules from syntax. Morphosyntactic features are sometimes referred to as ‘grammatical features’ (Corbett, 2012, p. 49). It is this type of feature that is more related to agreement studies and they are often referred to as Phi-features in syntactic theory.

4.1.1.2 Features according to their instances of occurrence

Above, I discussed the effect that semantics has on determining the nature of some features. In Example 21, the number value on the noun is considered morphosemantic while number on a verb is considered morphosyntactic; this leads us to believe that

⁶ I am not arguing that semantics has no role in agreement. The point here is only with regard to the meaning that this morphological ending adds to the verb.

⁷ Corbett (2012, p. 49) argues that the very common morphosyntactic features that are relevant in agreement relationships, such as gender, person and number, are very often called morphosyntactic features. This does not suggest that they are not relevant at the semantic level. He suggests a better term to refer to such features, which is morpho-syntactico-semantic features. However, for the sake of simplicity and consistency, I refer to all those interface features that are present in the agreement relationship as morphosyntactic features.

some features add a ‘meaning’ to the item on which they occur while others have no real meaning in themselves to add to the item, but they change according to the context or according to other features and factors affecting the context. Ackema and Neeleman (2013) argue that Phi-features are related to the interpretation of controllers but not on the semantic interpretation of verbs. The distinction I refer to in this section is that between *inherent features* and *contextual features* (Corbett, 2012, p. 66).

The term *inherent*, as opposed to *contextual*, is very much related to the degree of semantics and the meaning a feature has for the item on which it is realised. In Example 21, we saw that the ‘s’ plural inflection on the nominal is semantically charged; that is, it is justified by meaning. However, the number inflection on the verb is not charged by semantics at all. It is only the agreement obligation as a syntactic rule that dictates that number on the target should match the number value on the controller that caused the verb to be morphologically inflected for number. It is the syntactic rule, then, that ‘imposes’ the number inflection on the verb. Zwicky (1986) refers to such instances of semantically void features as ‘*imposed features*’. Zwicky’s term has been replaced by ‘*contextual features*’ by Booij (1996). Neither feature division as in Section 4.1.1 above, nor this division, is used in isolation; they are related to a large degree. Using the term ‘*inherent*’ and ‘*contextual*’ can help substantially in understanding the behaviour of interface morphosyntactic features and licensing conditions in agreement.

4.1.1.3 Features and terminology used across different theoretical backgrounds

As far as agreement patterns are concerned, a significant distinction between two important types or sets of agreement-related features that work on both syntax and morphology interfaces is needed at this point. The above overview shows that features can be inherent or contextual. This distinction between features is significant, as is the distinction between interpretable and uninterpretable features in Minimalism (e.g., Adger, 2010; Chomsky, 1995; Schütze, 2009). This section provides a detailed

comparison of the terminologies used for features in various theoretical approaches. The distinction addressed is related to the feature treatments in two main syntactic approaches: Minimalism and Typology.

In linguistics studies, whenever the term ‘features’ is used, the first thing that probably comes to mind is the term ‘Phi-features’. Phi-features is a term used to refer to certain specific features that are directly responsible for the process of agreement. The term dates back to the GB theory of Chomsky (1981) and is still used even since the Minimalist programme emerged (Chomsky, 1995).

Phi-features are taken to be features that are mainly involved in predicate–argument agreement—mainly person, number and gender. In addition to syntax, there are a number of important areas in which Phi-features play a central role: verb movement and the theory of case and feature checking, to name only a few. It seems that ‘Phi-features’ refer to the formal way of handling a body of features in which values are perceived as having +/- values such that they compose a feature bundle, Agr. This first emerged in Chomsky (1981) and has influenced much work ever since. Another main characteristic when examining features as a set of Phi-features is the morphological inflections that these features mark on the controlling nominal and the agreeing targets through the Agr feature bundle. However, not all features that affect the phenomenon of agreement are inflectional. Some features are found to be completely notional (semantic) or relative in other languages, and work on the interface between the two main components of grammar.

The main difference between interpretable and uninterpretable features within Minimalism is how much semantic content a feature has. Interpretable features have a considerable semantic content whereas uninterpretable features have no semantic content and are purely grammatical. The latter features are essential within the Minimalist approach. Uninterpretable features make a linguistic entity active and ready

to enter into syntactic operations (Chomsky, 2000, p. 123). If these uninterpretable features are not available to a linguistic entity, the entity stops being active and capable of being targeted by any syntactic operations, and should, therefore, be spelled out (Svenonius, 2001a, p. 116; b, p. 275).

Interpretable features are those that are present in the syntactic derivation and related to semantics at the same time. The notion of interpretability, however, is used widely outside the range of Minimalism. In relation to features, Jackendoff (1997) defines interpretable features as those that have a mapping linkage to meaning or to semantics, whereas uninterpretable features are those with no mapping to semantics. In the Jackendoff sense of features, the best example is interface features that are semantically charged, for example number. However, in Jackendoff's terms, it is interpretable only on nouns as it has a corresponding mapping to nominal semantics, but is uninterpretable on verbs as it has no corresponding mapping to semantics on verbs.

Above, I viewed the difference between features according to the components on which they operate. Under Minimalism, and relating back to the two definitions above by Svenonius (2007), a feature such as number on nominals is semantically charged. Accordingly, it is interpretable. Similarly, what is called uninterpretable features are those that are semantically void and only operate at one component of the grammar. Svenonius (2007, p. 3) proposes the following rule. For any X-Y interface feature F:

1. F is interpretable iff it corresponds systematically to some part of a well-formed X representation and some part of the corresponding Y representation.
2. F is uninterpretable otherwise.

Put another way, X–Y interface features are those that are in principle visible both to X and Y. Interpretable ones are those for which there is a mapping defining a correspondence (in something like the sense of Jackendoff, 1997). This allows us to say

that agreement features are syntactico-semantic, but are uninterpretable if there are no rules mapping their values to a semantic representation.

The classification and description of agreement features such as number can be seen to bear great similarity between Minimalism and Typology: it could be argued that it is the difference between binarism and gradience, discussed in the following section.

4.1.1.3.1 *Binarism v. gradience*

Before introducing the term ‘gradience’, we must distinguish between features that are considered binary and those that are not. Consider the following English examples:

- (22) a. He ate the fish.
 b. The monster ate him.
 c. I saw the pen with him.

In each of these examples, the underlined pronoun has a different case depending on the position it occupies in the sentence. In 22a, *he* is the subject of the sentence and thus it has a nominative case. In 22b, *him* is the direct object of the sentence and it has an accusative case. In 22c, *he* is the object of the preposition and thus it has an accusative case. This example is provided to show that case is a binary feature.

Animacy, in contrast, is an example of a feature that has always been presented as a number of values organised orderly on a scale or a spectrum (Comrie, 1989; Yamamoto, 1999) on which a certain criterion is obtained for the organisation of different categories⁸ or values of animacy around a certain line. If, for example, the criterion obtained is humanness, then a basic scale of animacy would look like the following:

Animate (human) > Inanimate (non-human)

⁸ Such categories are used when arranging real-world entities along with various hierarchies proposed in the literature; they are discussed in more detail in Section 3.2.

If the criterion is taken to be mental complexity or sentience, then a basic scale of animacy would look like the following:

Human > Animate > Inanimate

The basis for arranging different values around scales or hierarchies is direction (Corbett, 2012). Direction means that values are arranged around a hierarchy in an orderly way, and that there are split points on the hierarchy at which the language behaves in a certain way. Cross-linguistically there are various split points that are strongly affected by other linguistic, cognitive and ontological factors and conditions. This direction operates on two sides, either to the right or to the left, showing either an increase or a decrease in values.

This explanation of hierarchical values is referred to using a basic linguistic typological term, *monotonic increase*, which is introduced and discussed by Corbett (2012, p. 95) as one of the major properties of hierarchies. Hierarchies are considered by Corbett (2012, pp. 93–94) as ‘one of the most powerful theoretical tools’ for any typological study.⁹

Having explained hierarchies as one of the basic theoretical tools in Typology, we must discuss some problems that often arise within the hierarchical treatment of features.

Consider the following examples:

- (23) a. A cat knows its habitat.
 b. My cat has just eaten her fish.

In Example 23a, a *cat* is a type of mammal. English grammar refers to animals with the pronoun ‘it’ to differentiate them from humans of different genders (feminine and

⁹ For more on animacy as a feature refer to Chapter 5.

masculine).¹⁰ The word *cat* is, therefore, assigned a certain position on the basic animacy scale, which is *animal*:

Human > Animal > Inanimate

However, in Example 23*b*, the speaker is referring to a domestic pet using the gendered pronoun to emphasise the animal's biological sex, thus boosting it higher up a hierarchy known as the animacy hierarchy. Although it can be referred to using a human pronoun, clearly the animal is still a creature different from human beings. Thus, in Example 23*b*, *my cat* is not just an animal, but is not a human either. It might refer to something in between these two conceptualisations. This simple example supports the idea that some features are scalar. The problem of having a lexical item whose conceptualisation occupies a position between two main values of a feature introduces another primary linguistic problem, which is *gradience*¹¹ (Aarts, 2007).

It might seem tempting to introduce an extra value midway between two main values for such lexical items, particularly for what is referred to as *mixed-agreement nouns*, which trigger different agreement patterns so that their feature specifications are based on their agreement specifications (Corbett, 1991, 2012).

The noun *al-nās* 'people', in constructed Example 24, can trigger different agreement patterns on the agreeing verb, which causes confusion as to what nominal features this noun really has:

(24) a. al-nās-u ya-taḥarrak-ūn fī al-Šawāri '-i
 the-people.3PI-NOM Impr.3-move-Pl.M in the-streets.3PI.F-GEN
 'people move in the stree'

¹⁰ What often happens in English grammar is that animals, while being biologically differentiable creatures, are considered as having insufficient importance for their biological sex to be emphasised and are thus not assigned any grammatical gender. Therefore, it has become conventional in the grammar to treat animals as belonging to the same category as inanimate objects and abstracts and assign them one pronoun 'it'; only humans are assigned the sex-differentiable pronouns 'she' and 'he'.

¹¹ The term *gradience* in linguistics studies is not a recent one. It dates back to the 1970s when it emerged to describe the gradient transition in data from experimental linguistics to corpus linguistics. Aarts (2007), however, uses the term to address the specific problem of feature value determination, and whether to consider values as dichotomous in nature or with interwoven boundaries in between values.

b. kullu al-nās-i t-aʿrif-u fa-kaifa lā ta-aʿrif-u anta
 all the-people.3Pl-GEN Impr.F-know-3S so-how Neg Impr.F-know-2S you
 ‘all the people know, so how do you don’t know?’

The noun *al-nās* demonstrates two agreement types: feminine singular and masculine plural. The difference between the two sentences is a difference in reading. While 24a gives a collective reading in which the emphasis is given to *al-nās* ‘the people’ as one inseparable entity, the reading in 24b emphasises the individuality of many people performing a certain action. This clearly presents a challenge regarding what value of number the word *al-nās* should be specified with if it is not clearly either singular or plural. Corbett (2012, p. 99) refers to the word *committee* in English as presenting a similar problem, and assumes that its number value is something in between singular and plural.¹²

The pattern shown in Example 24 suggests that there is an extra number value between singular and plural, which is most likely *collective*. Corbett (2006, 2012, pp. 99–101) discusses thoroughly the problem of gradience in English and presents three reasons why introducing a new midway value to the feature value inventory would not be a proper solution to the problem of gradience. First, the behaviour of the newly introduced midway value would not be consistent with that of the other values for the same feature. For example, if we introduced the midway value *collective* between singular and plural on the number value continuum, we would find that singular nouns would normally demonstrate singular agreement and plural nouns would demonstrate a plural agreement pattern. However, nouns that are given a collective number value

¹² A full analysis of collective nouns and number values is presented in Chapter 7. Nouns that demonstrate singular and plural agreement patterns (or optionality) are referred to as mixed-agreement nouns and are discussed in Chapter 8.

would demonstrate two possible agreement patterns—singular and/or plural¹³—which makes them different in nature from the other two values for number. Another reason to avoid this approach is that introducing another value would largely rely on the other values surrounding the newly added value. In our example, collective would depend largely on the values of singular and plural as boundaries. The third reason proposed by Corbett relates to differences in the nature of the mixed-agreement noun’s lexical entry to which the new value is added. Some mixed-agreement nouns demonstrate singular or plural agreement with two different meanings as in the following example from Persian (Hashabeiky, 2007, p. 78):

- (25) a. dokkān-hā baste bud
 shop-Pl close be.past.3Sg
 ‘The shops were closed’
- b. dokkān-hā baste bud-and
 shop-Pl close be.past-3Pl
 ‘The shops were closed’

In Example 25, the difference in meaning is attributed to how it is conceived within the contexts. In 25a, the shops are understood to be closed. The shops themselves are not the ones initiating the action of closing. Conversely, in 25b, the emphasis is on the shopkeepers initiating the action of closing their shops.

Corbett (2012) argues that each mixed-agreement noun is unique and might have its own feature value inventory, which results in greater complication in the overall typological system of the language. Therefore, introducing new values to the feature typology system is not an adequate solution to the problem of gradience, especially given that each mixed-agreement noun behaves differently. The only solution from

¹³ Such nouns can demonstrate the two different agreement patterns, each with a different meaning, or they can show optionality, meaning that the lexical item can be either singular or plural; both provide a similar meaning. These items are called mixed-agreement items, which are not restricted to number values but can also show multiplicity in gender values, as in MSA. Section 6.3.3 discusses in detail examples of mixed-agreement nouns in MSA that demonstrate different gender values.

Corbett's (2012) perspective is to deal with gradience in values as a cognitive case in the mind that is subject to various other contextual conditions.

By allowing the intervention of other contextual factors and/or conditions, the grammar would have to process each mixed-agreement noun differently, taking into account all the surrounding linguistic/extra-linguistic conditions available in the context. To further elaborate, consider Example 24 concerning the word *al-nās* 'people'. The only model to draw on to differentiate between the two number values for the noun is to assume two different readings: the first (24a) is distributive, which stresses the importance of each individual in the group. Having this understanding in mind, the grammar assigns a plural number value to the noun *al-nās* when it is spelled out. The second reading (24b) is collective and stresses the importance of the whole group of people. No emphasis is given to the individual person in the collective reading. In this case, the noun is spelled out as having a singular value for number, which is reflected overtly in the verbal agreement. Gradience is still there, as is the interaction of other factors, linguistic or otherwise. This interaction is reflected in the interpretability of features as will be seen in Chapters 5 and 6.

Another structure with a conditioning factor is in Example 23 from English, repeated here as Example 26 for convenience:

(26) a. A cat knows its habitat.

b. My cat has just eaten her fish.

The degree of animacy attributed to the cat in each structure in this example is determined by the speaker's own empathy towards the creature in each context.¹⁴ In both contexts, the creature is the same; however in 26a, the referent is an inanimate pronoun, whereas in 26b the referent is a human reference pronoun. The different

¹⁴ More details on how the mind of the language user perceives entities in the real world and what criteria it uses to assign different levels of animacy are provided in Chapter 5.

degree of animacy here is obviously a conditioning factor, not a feature in itself. In Example 26, animacy is clearly not a morphosyntactic feature; it is not realised overtly through morphology, nor does it have an active role in syntax. It is true that it eventually affects agreement patterns, but its role mainly concerns the packaging of other morphosyntactic features on the nominal, rather than being spelled out as a morpheme in itself. Animacy is discussed separately in Chapter 5.

4.1.2 Part 1 Conclusion

In this part of the chapter, I viewed the basic differences between various types of features and how each type operates in a language. Also, I reviewed the distinctions found in the literature of features on how they are used across different theoretical syntactic frameworks. These preliminaries led to establishment of a theoretical background for how the main features responsible for agreement in MSA work and interact in affecting agreement patterns in the language. This part has established the terminology used in the remainder of the chapter. In the second part of this chapter, I presented the theoretical framework used throughout the thesis in relation to the analysis of the morphosyntactic features of nominals.

4.2 Part 2: A Theoretical Framework for Feature Analysis

To understand the role of these features in conditioning the various agreement patterns found in MSA, they need to be analysed from a morphosyntactic perspective. This morphosyntactic analysis of features will help in locating their position syntactically within the DP, and also to determine the extent of their contribution to the process of agreement.

To analyse nominals that are present at syntax and morphology, I adopt a theoretical framework that combines both elements from Distributed Morphology DM (Halle,

1990; Halle and Marantz, 1993, 1994; Harley and Noyer, 1999) and Minimalist assumptions (Chomsky, 2000–2004). The selection of these two theoretical approaches is explained in the following section.

4.2.1 Integrating Distributive Morphology with Minimalism

As previewed in previous treatments of agreement in MSA, major attempts to capture predictions about agreement have been mainly within the Minimalist programme.

However, the typical Minimalist approach, if used by itself, does not offer a method of analysing features such as gender and number, or conditions such as animacy, from a morphosyntactic point of view. There is enough about feature interpretability in the Minimalist tradition to account for syntactic features and semantic ones. However, the programme alone does not specify how each morphosyntactic feature might have both versions of interpretable and uninterpretable values; or how these features interact with each other, affecting the resulting bundle of features that is eventually responsible for triggering a certain agreement pattern.

Before I begin discussing the theoretical assumptions I adopt from each framework, I start with the assumption of lexical approaches to features, and move from there to introduce the DM and Minimalist assumptions I use for my analysis. The purpose of this presentation is to distinguish between previous lexicalist approaches and the DM approach to features. I take gender as an example feature to highlight the difference, as this feature demonstrates interpretability differences particularly clearly.

Lexicalism is the traditional generative assumption in which all the information of the noun is listed in the lexicon, so that the noun enters the derivation specified and inflected for gender. According to the lexicalist approach to features, gender is inherently listed within the lexicon of the noun. Assuming that the features of each noun are listed within the lexical entry is not very practical for MSA when it comes to the interpretability of gender. In other words, to differentiate between MSA nouns that are

assigned gender according to semantic rules—such as animacy and biological sex—and nouns that are assigned their gender values arbitrarily, there should be a differentiation between interpretable and uninterpretable values of gender. This differentiation is not available within the traditional lexicalist approach to feature analysis, which treats all features as being listed in the lexicon, and that the noun comes out of the lexicon fully specified for and inflected with features. Some relevant feature analyses in this lexicalist strand are Harris (1991) for Spanish; Alexiadou (2004) for Spanish, Italian, Hebrew and Greek; and Carstens (2010, 2011) for Romance and Bantu languages. Although these lexicalist analyses of gender have attempted some modifications to the differences between natural gender and grammatical gender, they still suffer from some drawbacks. I do not go into detail about these analyses as this is outside the scope of the thesis. However, I touch on the mechanisms by which interpretability of gender features is accomplished. Harris (1991), for example, suggests that for Spanish, inanimate nouns are specified for their grammatical gender in the lexicon, and so are animate nouns whose gender is not dependent on biological sex, such as small animals. Humans, in contrast, have to be assigned a human gender rule to specify the referent's biological sex with the relevant gender. One of the drawbacks to such a modification rule is that it is not economical as it adds extra complexity to the lexical entry of human-denoting nouns. Further, mixed-agreement nouns would pose a challenge to accounts adopting the traditional lexicalist approach in that each mixed-agreement noun would be assigned two lexical entries for features that show mixed agreement, whether gender or number. In DM, in contrast, there is no lexicon in the sense used in previous generative lexicalist approaches. There is instead an 'encyclopaedia' that stores all the semantic information needed for interpretation or meaning. Word formation, thus, is achieved according to DM in a different manner from the traditional lexicalist approach. Marantz (2001, 2007) and Arad (2003, 2005) argue that the syntactic formation of a word is accomplished

through *lexically decomposing* the word to a *root* (\surd), and a *category-defining head* (*n*, *v*, *adj*, *adv*). Lexical decomposition in DM has since become a significant method of DP syntactic analysis in morphosyntactic research.

In the theoretical approach I adopt in this thesis, DM and Minimalism work hand in hand in accounting for the distribution of morphosyntactic features and how they account for agreement patterns in MSA. In the following section I present a detailed overview of the theoretical tools used from both DM and Minimalism.

4.2.2 On the syntactic side: Minimalist assumptions (Chomsky, 2000–2004)

On the syntactic side of this integrated framework, I adopt the Minimalist assumptions of Chomsky (2000, 2001, 2004). I particularly use *phase* as a cyclic unit, and also the syntactic operation Agree to account for the relationship between a probe and a goal in its c-commanding local domain. This accounts for the feature valuation between the probe and the goal (Chomsky, 2001; Pesetsky and Torrego, 2007).

In an Agree-based framework, Agree is a method of linking together two items in the syntactic derivation, one being unvalued for a certain feature (the probe) and the other valued for the same feature (the goal). Agree as a syntactic operation has certain conditions that should be met. These conditions are proposed in Chomsky (2000) as the c-command condition, the intervention condition, the phase condition and the activity condition. If we assume a functional (F) head that is valued for case but not for Phi-features, and a maximal projection (XP) that is valued for Phi-features but not for case, then F agrees with XP iff the following conditions hold (Chomsky, 2000):

1. the c-command condition (p.122)—F c-commands XP.
2. the intervention condition (p. 122)—there is no intervening YP in that F c-commands YP, YP c-commands XP and YP has Phi-features.

3. the phase condition (p. 108)—F and XP are both contained within the same phase.
4. the activity condition (p. 123)—XP is active to enter into an Agree relationship by having an unvalued case feature.

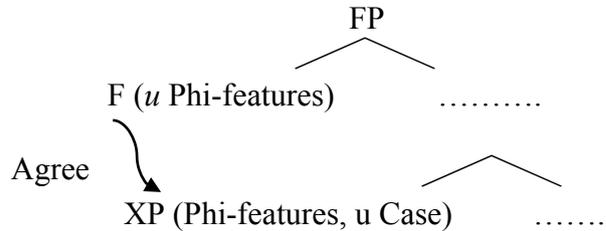


Figure 4.1: Agree relationship in which the probe agrees with the goal

Figure 4.1 shows that F probes down to XP to establish an Agree relationship with it. XP seems to be the direct goal for the probe F since it has all the Phi-features (\emptyset) for which F needs valuing. Since there is no intervening phrase with Phi-features between F and XP, the latter serves as a goal and thus the agreement relationship between the two elements is established. In Figure 4.2 below, however, YP is a phrase that occurs midway in the structure, intervening between F and XP and causing the agreement relationship to fail.

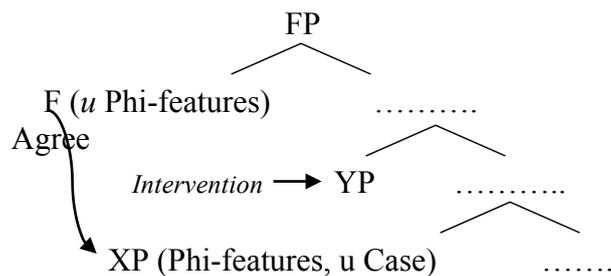


Figure 4.2: Agree relationship in which the intervention condition is violated

Some of the above four conditions of Agree proposed by Chomsky (2000) have been rejected by other researchers. Condition 4 (the activity condition), for example, assumes that the goal has an unvalued case feature and therefore it should raise to the [Spec, TP] to have its case valued by TP. This assumes that the case of the DP is the motivation for

its movement to a higher location. Bobaljik (2008) and Preminger (2011) argue that case values are determined before agreement is established, and that agreement itself depends on the values of case previously determined. Moreover, if a TP that lacks valued Phi-features enters into an Agree relationship with a DP in its local domain and establishes agreement, Chomsky (2000) assumes that if the T has EPP, then the DP has to move up to the position of the specifier of TP [Spec, TP]. This connection made between agreement and movement is adopted in a wide range of theoretical frameworks, not only Agree-based ones.

This assumption fits well with previous accounts of agreement in MSA in which the movement of a DP towards the subject position [Spec, TP] is needed for agreement to be established, which was seen in the spec-head treatments of agreement in Arabic language in Chapter 2. The difference between spec-head assumptions and Agree-based assumptions is the order between agreement and movement. While spec-head approaches movement to [Spec, TP] is required prior to agreement, Agree-based approaches consider that agreement is required before movement is established (Crone, 2014).

As I adopt an Agree-based framework to agreement, a detailed discussion of movement within the syntactic derivation is outside the scope of this thesis. Whether the DP raises to a higher position or remains in situ, and has its case valued via long-distance agreement, does not significantly affect the basic analysis of the nominal features and their interpretability and how they are formed prior to Vocabulary Insertion.

Minimalist treatment of agreement features assume that grammatical uninterpretable features are unchecked and thus cause the syntactic derivation to crash. This Minimalist assumption has been rejected widely in the literature (Legate, 2002; Pesetsky and Torrego, 2007; Carstens, 2011; Kramer 2009, 2014, 2015, 2016b). In these opposing proposals, the view towards syntactic derivation is that it is caused to crash by *unvalued*

features not *uninterpretable* ones. Uninterpretable features are still presented as having a value.

4.2.3 On the morphological side: Distributed Morphology

DM began to emerge as a theoretical analytical approach to morphosyntax in the early 1990s in work by Halle (1990), Halle and Marantz (1993, 1994), Harley and Noyer (1999), Embick and Noyer (2001, 2007), Harley (2014), and many others. The core assumption of DM is that it treats morphological components of the language as being at a different level in the grammar representation, at an intermediate level between syntax and phonology. In contrast to other morphological approaches, the morphological operations in DM take place at various points of the derivation.

Another basic assumption in DM is that there is no lexicon. Instead, the formation of words is accomplished either through syntactic movements of heads or post-syntactically at PF through specific morphological operations, such as Fission, Fusion or Lowering. After all morphological operations have taken place, whether syntactically or post-syntactically, morphological structure inserts the vocabulary items. Basically, DM means that the functions assigned to the lexicon in earlier theoretical frameworks are now distributed among different points in the derivation.

DM operates generally using the basic Y-structure of derivation familiar from the GB framework (Chomsky, 1981) and the Minimalist programme, with some slight changes and no presence of the lexicon. Figure 4.3 represents the structure of the grammar in accordance with the assumptions of DM.

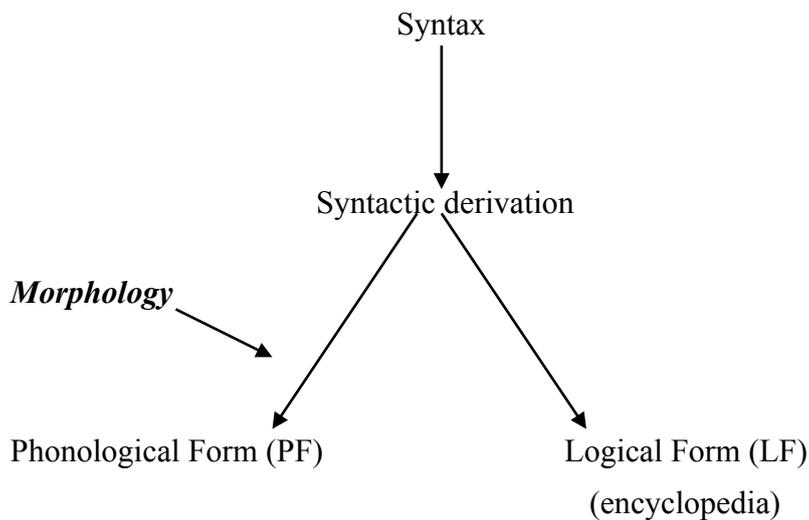


Figure 4.3: The structure of grammar in the DM model (adopted from Harley and Noyer, 1999, p. 3, Embick and Noyer, 2007, p. 22, Kelly, 2013, p. 12)

4.2.4 The structure of the grammar according to Distributed Morphology

According to DM, as shown in Figure 4.3, three major components of structure distinguish DM from other morphological theories:

1. At the very top of the model, there is a set of syntactic terminal nodes that are best described as bundles of morphosyntactic features. These features lack the morphophonological component in the syntax (cf. Zwicky and Pullum, 1986). These bundles of morphosyntactic features are often referred to as ‘morphemes’ within the framework of DM. A major point of difference between DM and GB and its lexicalist precedents is that the syntax in DM does not work with lexical items; rather, it works with these sets of morphological features (morphemes) through the syntactic operations: Merge, Move or Copy.
2. Once the syntactic derivation is accomplished, the derivation is then transferred to two branches of the grammar: the LF and the PF. LF represents the semantic conceptual interfaces and is fed through the

Encyclopaedia, which is another important component that contains all the relevant semantic information in what is known as the lexicon in previous frameworks. In her description of the encyclopaedia, Harley (2014) notes that it provides ‘instructions for interpreting terminal nodes in context’ (Harley, 2014, p. 228).

The other branch of the structure of the grammar to which the syntactic categories are sent is PF. It is here that morphological operations take place. Two stages of morphological operations take place non-simultaneously. The first stage includes morphological operations such as Fission, Fusion and Lowering. The second stage is Late Insertion, which involves the insertion of the vocabulary items after they have undergone all the post-syntactic morphological operations at PF (Embick and Noyer, 2001; Harley and Noyer, 1999). Vocabulary Insertion is the morphological operation by which all the morphosyntactic bundles are given phonological content. The process of charging these feature bundles with phonological content is called **Spell Out** (Harley and Noyer, 1999, p. 3).

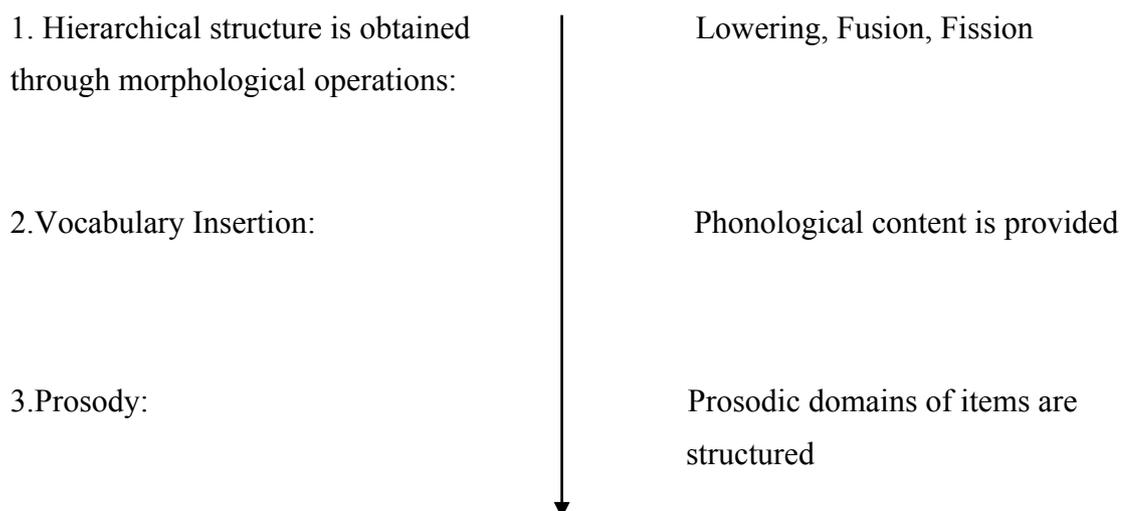


Figure 4.4: The structure of the PF branch of the grammar according to DM (adapted from Embick and Noyer 2001: 566)

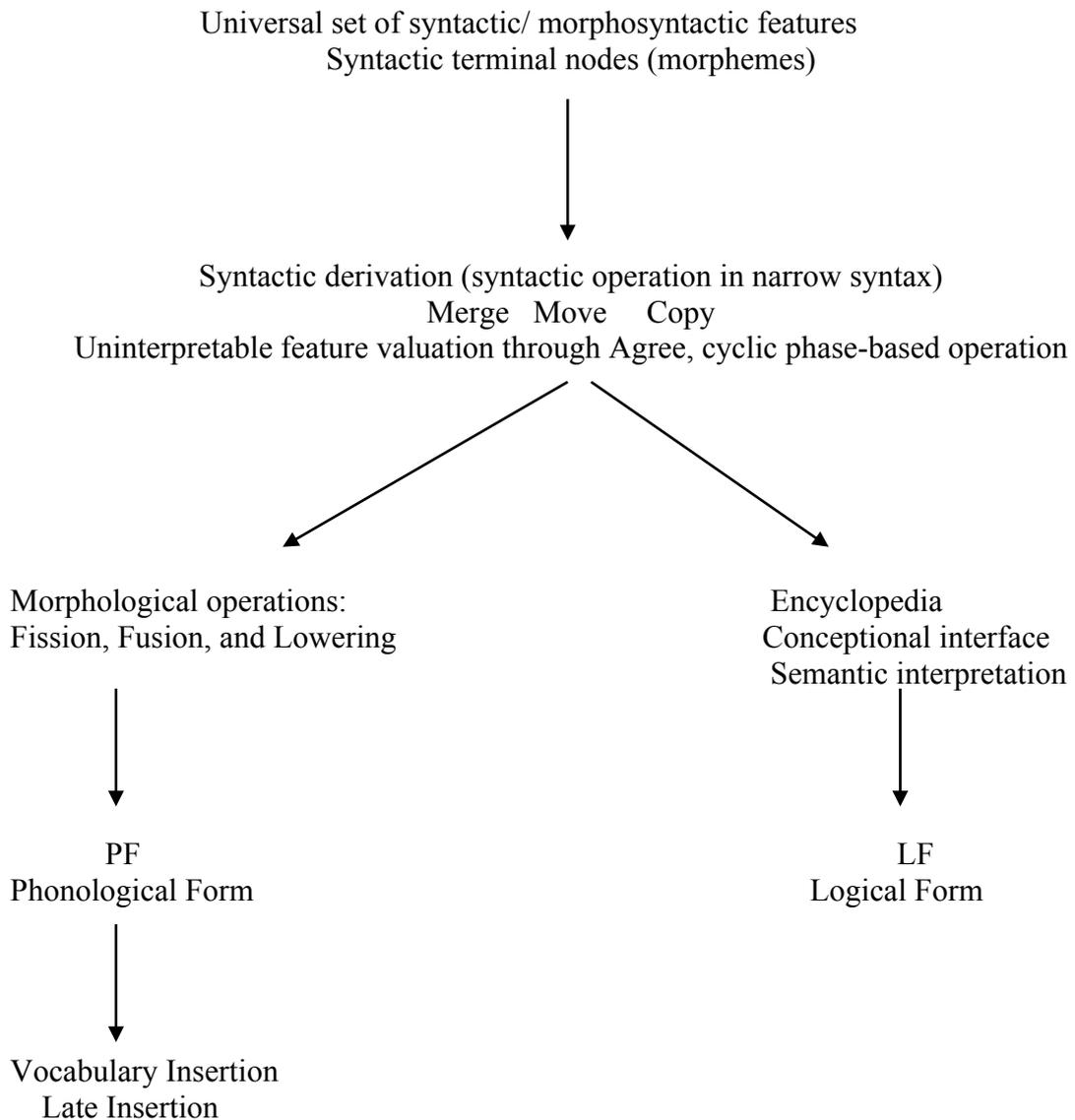


Figure 4.5: Diagram showing how morphology works at the PF branch of the grammar according to the model of DM (Harley and Noyer, 1999; Embick and Noyer, 2007; Kelly, 2013)

The hierarchical structure still exists as morphological operations can take place between branching and before Vocabulary Insertion. The basic morphological operations mentioned in Figures 4.4 and 4.5 are **Lowering**, by which a feature is lowered to link to another feature below it to form a morphosyntactic feature bundle (Embick and Noyer, 2001); **Fission**, the morphological operation by which a feature becomes cut off from a feature bundle to be located on its own node (Noyer, 1997);

and **Fusion**, another morphological operation that combines two features or feature bundles into one node (Embick and Noyer, 2001; Halle, 1997; Harley and Noyer, 1999).

Once these morphological operations have taken place, **Vocabulary Insertion** occurs.

Vocabulary Insertion is a crucial step in the DM model. Not only is it a process by which the terminal nodes become charged with phonological content, but it is also at this stage that the decision is made regarding which vocabulary item to be inserted at a particular feature bundle. A vocabulary item is, thus, a relationship between a phonological strand and information of where this phonological content is to be inserted. In other words, the location of the vocabulary item is composed of feature bundles in addition to contextual conditions. The following are English vocabulary items in the past tense (Embick and Marantz, 2008, p. 5):

a. T, [past] \longleftrightarrow -t { $\sqrt{\text{leave}}$, $\sqrt{\text{bend}}$ }

b. T, [past] \longleftrightarrow -ed

c. T, [past] \longleftrightarrow - \emptyset

Examples *a* and *b* are competing for the phonological realisation of the morpheme T, [past]. Which vocabulary will win this competition is determined by one of two main principles: the Pāṇinian Principle and the Subset Principle.

4.2.4.1 The Pāṇinian Principle

The basic idea of this principle is that when there are two rules competing to be applied in a linguistic context, the more specific rule (the one with contextual restrictions) applies before the less specific rule (the one with no contextual restrictions). In other words, these vocabulary items compete according to specificity (e.g., Embick and Marantz, 2008).

4.2.4.2 *The Subset Principle*

The basic idea of the Subset Principle is that a vocabulary item is inserted at a location where all or most of the vocabulary item's features are specified for a particular node. When more than one vocabulary item meets the conditions of insertion of a particular node, the item with the largest subset of features wins the competition (Halle, 1997, p. 428).

4.2.5 **The structure of the DP according to the Distributed Morphology framework**

DM is a syntactic, phase-based approach to morphology in which the nodes are the origins of the syntactic derivation and morphological operations are part of the PF branch of the grammar (Embick and Marantz, 2008, p. 4). Much of the DM model stresses the idea that the word form is decomposed into two main types of terminal nodes: *roots* (category-neutral) and *category-determining heads*, which are also labelled functional morphemes (Arad 2003, 2005; Embick and Marantz, 2008; Embick and Noyer, 2007; Harley 2014; Marantz, 1997, 2007).

a. *Roots*: These are the very basic form of the word; in this model they are made up of the open class of vocabulary and are symbolised with the root symbol $\sqrt{\quad}$: for example, $\sqrt{\text{dog}}$; $\sqrt{\text{book}}$. A root lacks all the necessary information to add identity to it. Therefore, it should be combined to another head to modify it.

b. *Category-determining head*: The category-determining head is the informative head, composed of all the features and labels needed to categorise this root. Figure 4.6 shows the example of the decompositional structure of the word *book*.

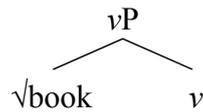


Figure 4.6: DM lexical decomposition structure of *book* as a verb in English

Since the word *book* can be a verb or a noun, another functional head carrying all the information needed to categorise the root is definitely needed. This is the category-determining head. This head can nominalise (*n*) the root or verbalise it (*v*). It can also turn it into an adjective (*adj*) as in Figures 4.7 and 4.8.

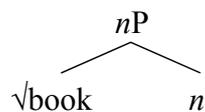


Figure 4.7: DM lexical decomposition structure of *book* as a noun in English

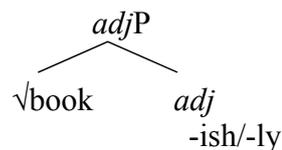


Figure 4.8: DM lexical decomposition structure of *bookish/bookly* as an adjective in English

Marantz (1995) argues that roots do not enter competitions at Vocabulary Insertion as they are category-neutral. What really matters at Vocabulary Insertion are the licensing conditions that instruct which vocabulary item to be inserted at the end. These licensing conditions are those features on the category-defining head that determine that *book* can be in one context a noun and in another a verb.

4.2.6 Methodology for feature analysis in the thesis

As explained earlier in Chapter 1, Arabic is a root-and-pattern language, which makes it a good fit to the theoretical framework of DM. Throughout this thesis, the Arabic root is represented as the three basic consonants composing the stem $C_1C_2C_3$. Since the DM analysis pursued in the thesis is of the pre-verbal subject in SVO word order, it will be obvious to the reader that the category-determining head for analysing nominal features

would be n . When the analysis concerns verbal features, the root would also be represented with the simple form of the verb in the past tense as default, with v as a category-determining head. The index of the root is spelled out post-syntactically at PF. This is the major point of difference between DM and the traditional generative framework, which assumes that the combination of the indices with the root takes place pre-syntactically at the lexicon. I present some examples of word formation in MSA out of roots using the root \sqrt{ktb} . This root consists of three consonants $C_1 = k$; $C_2 = t$; $C_3 = b$. The pattern differs every time a word is formed according to the intended result. When this root combines with a nominalising head nP , the result is a noun. However, it is the pattern that decides which noun is intended (Holes, 2004; Ryding, 2005). Consider Figure 4.9, which shows that the root is formed to one noun *kitāb* ‘book’ as it the nominalising head carrying the vocalic pattern ‘i ā’ that combines with the consonantal root to result in $C_1iC_2āC_3$. Other examples of nouns in Arabic formed within this vocalic root are *hijāb* ‘veil’, out of the root \sqrt{hjb} , and *sijāl* ‘oral competition’ out of the root \sqrt{sjl} . Table 4.1 shows other nouns that can be formed out of the root \sqrt{ktb} .

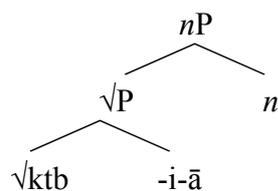


Figure 4.9: Word formation of the noun *kitāb* ‘book’ in MSA

Table 4.1: The formation of some nouns in MSA out of the consonantal root \sqrt{ktb}

Consonantal root	Vocalic pattern	Noun	Translation
\sqrt{ktb}	$C_1uC_2C_2āC_3$	kuttāb	writers
\sqrt{ktb}	$C_1uC_2uC_3$	kutub	books
\sqrt{ktb}	$C_1āC_2iC_3$	kātib	writer

The word formation for a verb out of the consonantal root \sqrt{kt} , happens similarly to that for the noun. It combines with a perfective vocalic pattern for singular masculine

(default) *fa'al* or *'_a_a_'* unless otherwise specified for other features. Figure 4.10 presents the structure of a perfective verb formation in MSA.

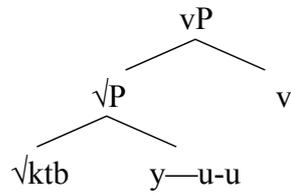


Figure 4.10: Word formation of the perfective verb *katab* ‘wrote’ in MSA

4.2.7 Part 2 Conclusion

For the sake of analysing the features responsible for the various agreement patterns resulting in the SVO word order in MSA, the focus here is on exploring and analysing the morphosyntactic features of the pre-verbal subject. The following three chapters are concerned with three major features: animacy, gender and number. Each chapter discusses one feature from a descriptive and morphosyntactic analytical perspective.

In this chapter, I reviewed features in general in terms of definitions, types and terminology across different theoretical frameworks. To pursue a detailed analysis of the morphosyntactic features of the nominal, I follow assumptions in the frameworks of both Minimalism and DM. I primarily assume that syntax works as per late Minimalist assumptions (Chomsky, 2000, 2001, 2004). However, for grammar, I adopt the DM approach by which the role of the *‘lexicon’* in earlier generative traditions is distributed throughout the grammar. Morphosyntactic features are, thus, spelled out post-syntactically at PF. For the sake of defining the exact location of these morphosyntactic features within the DP, I adopt a lexical decompositional analysis in which lexical categories (words) are decomposed into two terminals: a root and a category-determining head. Universal and language-specific licensing restrictions determine how these features combine. From this point, and throughout the rest of the thesis, I use the

term **morphemes** to refer to syntactic terminals; and the term **exponent** to refer to the phonological expressions of a morpheme after Vocabulary Insertion.

Chapter 5: Animacy

5.1 Introducing the effect of animacy on agreement in Modern

Standard Arabic

Central to the study of feature agreement in MSA is exploring the nature of animacy and how it relates to the agreement patterns observed in MSA. Data in this thesis have shown that in SVO word order, there exists a challenging pattern of disagreement that has not been given enough attention from a systematic syntactic perspective. Recall Examples 1, 2 and 3 from above, repeated here as 27, 28, 29 for convenience:

(27) a. al-walad-u daras-a al-farḍ-a
 the-boy.3S.M-NOM studied.Prof-3S.M the-homework.3S-ACC
 ‘the boy studied the homework’

b. daras-a al-walad-u al-farḍ-a
 studied.Prof-3S.M the-boy.3S.M-NOM the-homework.3S-ACC
 ‘the boy studied the homework’

(28) a. al-walad-ān daras-ā al-farḍ-a
 the-boys-3D.M.NOM studied.Prof-3D.M the-homework.3S-ACC
 ‘the two boys studied the homework’

b. daras-a al-walad-ān al-farḍ-a
 studied.Prof-3S.M the-boys-3D.M.NOM the-homework.3S-ACC
 ‘the two boys studied the homework’

(29) a. al-awlād-u daras-ū al-farḍ-a
 the-boy-3Pl.M.NOM studied.Prof-3Pl.M the-homework.3S-ACC
 ‘the boys studied the homework’

b. daras-a al-awlād-u al-farḍ-a
 studied.Prof-3S.M the-boy.3Pl.M-NOM the-homework.3S-ACC
 ‘the boys studied the homework’

These examples show pairs of SVO word order in *a* sentences, and VSO word orders in *b* sentences. The subjects in all these sentences are humans. As discussed earlier, in VSO word order the verb shows a default singular with the subject regardless of the

number value on the subject—dual in 28*b* and plural in 29*b*. As is evident, the verb only agrees in person and gender but not number.

The following examples are 4, 5 and 6 from earlier, repeated here as 30, 31 and 32 for convenience. Similarly, they are pairs of SVO word order in *a* sentences and VSO word order in *b* sentences. The subjects in all the following sentences are animals:

(30) a. al-ḥayawān-u akal-a al-ṭa'ām-a
 the-animal.3S-NOM ate.Prf.3S.M the-food.3S-ACC
 'the animal ate the food'

 b. akal-a al-ḥayawān-u al-ṭa'ām-a
 ate.Prf.3S.M the-animal.3S-NOM the-food.3S-ACC
 'the animal ate the food'

(31) a. al-ḥayawān-ān akal-ā al-ṭa'ām-a
 the-animal-3D.M.NOM ate.Prf-3D.M the-food.3S-ACC
 'the two animals ate the food'

 b. akal-a al-ḥayawān-ān al-ṭa'ām-a
 ate.Prf-3S.M the-animal-3D.M.NOM the-food.3S-ACC
 'the two animals ate the food'

(32) a. al-ḥayawān-āt-u akal-at al-ṭa'ām-a
 the-animals-3Pl.F-NOM ate.Prf-3S.F the-food.3S-ACC
 'the animals ate the food'

 b. akal-at al-ḥayawān-āt-u al-ṭa'ām-a
 ate.Prf-3S.F the-animals-3Pl.F-NOM the-food.3S-ACC
 'the animals ate the food'

In Examples 30 and 31, the same observation of feature pattern holds regarding word order: SVO word order in *a* sentences and the verb shows full agreement in person, gender and number; and VSO word order in *b* sentences, with the verb showing partial agreement for number—it only agrees with the subject in person and number. Example 32, however, shows an intriguing behaviour. The sentence in *a* is in SVO word order, yet the verb that follows the subject shows number impoverishment—it only agrees in person and gender. The question at this point is: What is it that makes Example 29*a* different from Example 32*a*— both repeated here as 33*a* and 33*b* for convenience:

(33) a. al-awlād-u daras-ū al-farḍ-a
 the-boys.3Pl.M-NOM studied.Prf-3Pl.M the-homework.3S-ACC
 ‘the boys studied the homework’

b. al-ḥayawān-āt-u akal-at al-ṭa‘ām-a
 the-animals-3Pl.F-NOM ate.Prf-3S.F the-food.3S-ACC
 ‘the animals ate the food’

Syntactically, these two structures are identical. They both contain a subject, a verb and an object in the word order SVO. They are both in the perfective tense. As the sentences are syntactically identical, the difference must be in the semantics. Since the nouns *al-awlād* ‘the boys’ and *al-ḥayawānāt* ‘the animals’ refer to humans and animals respectively, then it is this property that causes this distinction in the semantic of nouns and, accordingly, differences in agreement patterns. This semantic property has to do with humanness. Above, the distinction was made between humans and animals. Examples 7, 8 and 9 are repeated here as 34, 35 and 36 for convenience. The subjects this time are inanimate (non-moving) objects:

(34) a. al-kitāb-u saqaṭ-a ‘ala al-’arḍ-i
 the-book.3S-NOM fell.Prf-3S.M on the-floor.3S-GEN
 ‘the book fell on the floor’

b. saqaṭ-a al-kitāb-u ‘ala al-’arḍ-i
 fell.Prf-3S.M the-book.3S-NOM on the-floor.3S-GEN
 ‘the book fell on the floor’

(35) a. al-kitāb-ān saqaṭ-ā ‘ala al-’arḍ-i
 the-books-3D.M-NOM fell-Prf-3D.M on the-floor.3S-GEN
 ‘the two books fell on the floor’

b. saqaṭ-a al-kitāb-ān ‘ala al-’arḍ-i
 fell.Prf-3S.M the-books-3D.M-NOM on the-floor.3S-GEN
 ‘the two books fell on the floor’

(36) a. al-kutub-u saqaṭ-at ‘ala al-’arḍ-i
 the-books.3Pl-NOM fell.Prf-3S.F on the-floor.3S-GEN
 ‘the books fell on the floor’

b. saqaṭ-at al-kutub-u ‘ala al-’arḍ-i
 fell.Prf-3S.F the-books.3Pl-NOM on the-floor.3S-GEN
 ‘the books fell on the floor’

Examples 34, 35 and 36 are identical in their agreement pattern with 30, 31 and 32. The nouns in the 30–32 set are animate (animals) while the nouns in the 34–36 set are inanimate (books). At this particular point of the discussion, I refer to this semantic property of the noun that causes this distinction in syntactic behaviour as *animacy*. This is not the final definition as I return back to defining animacy with a more systematic morphosyntactic terminology at the end of the chapter. The examples presented in this chapter so far lead to two conclusions.

First, nouns in the singular and dual forms in SVO are always seen to trigger full agreement in gender, number and person regardless of how animate the noun is.

Therefore, at this point, we can hypothesise that the animacy of the noun does not interact with singularity or duality. As is evident from the discussion above, animacy only interacts with the plurality of the noun.

Second, although humans and animals might broadly be referred to as animate on the base that they are lively, moving and breathing creatures, only human-denoting nouns are seen to trigger full agreement on the verb when plural. In contrast, animals and books might be classified differently in relation to movement and breathing, in that the former is alive while the latter is only an object. Despite this fact, the data show that animals and books behave in the same manner syntactically. It is at this point where our conceptions of entities in life differs from how natural language presents them.

This chapter, therefore, aims to investigate the nature of animacy as a feature and the role it plays in the syntax of MSA. It also aims to relate animacy to both gender and number in the structure of the MSA DP.

5.2 The notion of animacy

Several approaches can be taken to arrive at a general comprehensive definition of the notion of animacy. Biologically, and in very broad terms, animacy refers to living beings as opposed to non-living/non-moving beings (Yamamoto, 1999). However, animacy in its linguistic sense is strongly connected to other philosophical, psychological and ontological notions that complicate its definition (Dahl, 2008; Dahl and Kari, 1996). Although the biological point of view of animacy might seem different from animacy in strict linguistic terms, biological implications cannot be ignored when analysing animacy from a linguistic point of view.

Animacy, as a linguistic feature, is an essential component of the structure of languages across the world. Although there may be a general consensus on the distinction made between living/moving beings and non-living objects, it is worth noting that animacy is a grammatical and semantic notion that is conceptualised and expressed differently cross-linguistically. In other words, animacy is an inherent semantic feature of entities, but the way the grammar encodes it as a grammatical notion differs from one language to another. What holds true for animacy as a feature in a certain language is not necessarily true for the same notion in another language. Moreover, within a certain language, entities to which nominals refer show varying degrees of animacy. All these issues have afforded this semantic property of language substantial attention in linguistic research at both the descriptive and psycholinguistic processing levels. It is important at this stage of investigating the nature of animacy to refer to the theoretical literature on this issue. Two major theoretical directions with respect to the nature of animacy are developed in the linguistic literature.¹⁵

¹⁵ Refer to de Swart et al. (2008) and Bornkessel-Schlesewsky et al. (2015) for more discussion on the debate.

a. The traditional functional view: this view represents animacy as a concept that is spread around a hierarchy. This view is adopted by Silverstein (1976), Dixon (1979), Foley and Van Valin (1984), Deane (1987), Comrie (1989), Croft (1990), Yamamoto (1999) and Aissen (2003).

b. The formal view: this view represents animacy as a binary or ‘discrete’ concept that is linguistically demonstrated as [\pm animate]. This view is adopted by Sedighi (2010) and de Swart and de Hoop (2018).

Although these two views seem at two different extremes, both are in fact needed for a better understanding of the effect of animacy on linguistic phenomena. The following detailed discussion shows a clear understanding of how these two views work hand in hand for explaining how animacy as scalar notion is transmitted in the language as a binary feature.

5.2.1 Animacy as a hierarchical (scalar) concept

Many studies have focused on the animacy hierarchy. Such attention to animacy as a hierarchical property facilitates analysis of its interactions with other linguistic factors or properties, such as number and individuation, definiteness and gender. Yamamoto (1999) refers to these properties as parameters. This hierarchical understanding moves animacy away from being a merely binary feature to a more complicated status of gradience, allowing much room for interpretation and personal conceptualisations. Comrie (1989) argues that animacy is a complicated cognitive classification that reflects natural interactions among various parameters. The complication to which Comrie refers stems from our cognition, as users of the language, of a certain entity and where we place it on the scale of animacy. Accordingly, the language we produce is affected by the cognitive classification we have in our minds about animacy.

Cross-linguistic data show that animacy is widely operative across languages, and that the language user's cognitive perception of the concepts of life and humanness is what contributes to the overall meaning of animacy as a linguistic notion. This is in line with Comrie's (1989) argument that animacy cannot be regarded as a linear scale around which real-world entities are located at fixed positions. The same linguistic environment might witness a completely different effect of animacy if the language user's perception of the entity referred to differs. In other words, the distinction between what is animate and what is inanimate might be the same in a language, but it is the individual's own perception of the abstract concept of animacy that differs in different linguistic environments. Therefore, the split point on the animacy scale might move higher or lower according to how an individual perceives that particular entity in that particular context.

The hierarchy of animacy is a proposed scale to present the cognitive notion of animacy (Aissen, 2003; Comrie, 1989; Croft, 1990; Deane, 1987; Dixon, 1979; Foley and Van Valin, 1984; Silverstein, 1976; Yamamoto, 1999). This scale depends on the meaning of animacy according to the values it includes, and it extends from human through animal to inanimate. The following is the basic form of the animacy hierarchy (Aissen, 2003; Comrie, 1989; Croft, 1990):

Human > Animal > Inanimate

The hierarchy interacts with other linguistic hierarchies and parameters for a better understanding of the concept of animacy. Some of these hierarchies and parameters are the Person Hierarchy, the Individuation Scale, participant roles and politeness (Yamamoto, 1999, p. 2).

5.2.1.1 *The general animacy scale*

This scale is based on the contrast between animate and inanimate entities (Yamamoto, 1999). It is widely agreed in the literature that the general animacy hierarchy is not just a matter of classification or dichotomy; rather, it refers to a highly complex natural mental process (Comrie, 1989; Croft, 1990; Deane, 1987; Dixon, 1979; Foley and Van Valin, 1984; Silverstein, 1976). A hierarchy of animacy, being a conceptual property of a nominal, is expected to have at least three main values: human, animate and inanimate (Comrie, 1989, pp. 185–186). Hierarchies based on this three-value division have been proposed in several studies about animacy to capture general cross-linguistic generalisations. However, this is dependent on the individual's own perception of a certain entity. If we take this hierarchy as differentiating three main classes—humans, animates (animals) and inanimates—then we must logically consider cats and dogs as belonging to the second class, which is below humans on the hierarchy and thus does not have all possible linguistic features that nouns referring to humans might have. However, analysing a simple spontaneous utterance one might hear in everyday life casts doubt on the validity of taking this type of classification for granted: picture a woman who has a cat about whom she speaks, 'she is my daughter' or 'she ate my fish'. Related to the discussion of the general animacy scale is the concepts of anthropomorphism and animinism. *Anthropomorphism* is the attribution of human characteristics or behaviour to a god, animal or object; the attribution of human traits, emotions or intentions to non-human entities. It is considered in human psychology an innate tendency (Myhill, 1992). This means that any animal or plant can be anthropomorphised in fiction, myth or metaphoric language. *Animinism* is a vital cognitive factor affecting our personal perception. The concept of animism was introduced by the psychologist Jean Piaget who referred to it as 'animistic thinking' in his description of a child watching a ball rolling down a hill towards an adult and saying

‘it knows you are there’ (1929/1969, p. 170). The child in this incident attributes a feature of animate beings to an inanimate object (a ball). Piaget defines animistic thinking as ‘the tendency to regard an object as living and endowed with will’ (1929/1969, p. 170). Animism, or the effect of animistic thinking on natural language, is seen commonly in fictional and literary language, especially when addressed to children where trees speak and objects move and have a life.

Such differences in perception of entities in the real world might place a single entity at different points on the animacy hierarchy, or even in a grey area between two clear-cut classifications. In other words, we can use linguistic expressions as a way to mediate our own perception of animacy as a property.

5.2.1.2 The hierarchy of person

In relation to the notion of animacy, the hierarchy of person works within the domain of nouns referring to humans, which is one category of the general animacy hierarchy discussed above. In this category, differentiation is made between the 1st, 2nd and 3rd person. Foley and Van Valin (1984) argue that the 1st and 2nd person are higher in the person–animacy hierarchy, and attribute this to the degree of ‘empathy’, which is very much related to the notion of animacy (p. 288):

Speaker/addressee > 3rd person pronouns > Human proper nouns > Human common nouns > Other animate nouns > Inanimate nouns

Langacker (1991) refers to the animacy hierarchy as the ‘*empathy hierarchy*’ addressing egocentric human nature (p. 307):

Speaker > Hearer > Human > Animal > Physical object > Abstract entity

Empathy refers to the speaker’s own identification with a certain entity, which might place an entity on a continuum with varying degrees (Kuno and Kaburaki, 1977, p. 628). I extend the empathy referred to in this definition to cover not only human beings

but also all animals and inanimate objects in the discourse. Thus, it solely depends on one's own empathy with other elements in the real world. A person's empathy towards a cat or a dog makes them attribute human-like properties such as consciousness to the animal. It is the degree of empathy that we have towards an element that makes us promote it or demote it relative to whatever feature humans have.

Similarly, a person might have greater empathy with a bird than with a microscopic creature seen in a biology book. Having empathy towards a certain real-world entity over another is simply because empathy reflects the extent to which the language user is showing affection or attachment towards that entity in particular.

Also, under the wide meaning that empathy carries, is the act of taking one side or position in a matter, or being biased towards one opinion or party: for example, prejudice towards one's own country, race or politics. Society might affect the language one produces in that one shows more empathy towards the group or opinion to which they belong. This might also result in treating any other party as inferior. This bias is referred to as *egocentricity*. Egocentricity refers to having or regarding the self or the individual as the centre of everything. This analytical device is very close in meaning to empathy. However, the difference between empathy and egocentricity is seen in that empathy reflects one's affectionate attachment to a real-world entity in a positive way, whereas egocentricity is seen in the way a language user sees themselves as being the centre and everything else as distant or not very important (Dahl, 2008).

The concept of egocentricity in this sense is highly relevant to Langacker's hierarchy of person (1991, p. 307) with one's self being the starting point of any linguistic utterance, followed by the person hearing and then any 3rd person human:

Speaker > Hearer > Human > Animal > Physical object > Abstract entity

One of the outcomes of empathising with an entity, or being biased against one party or group of people is treating them as lower than humans on the animacy hierarchy. This act is referred to as *dehumanisation*, which means depriving a human being of general human properties or attributes (Chen, 2012).

5.2.1.3 *The individuation scale*

The Individuation Scale, also termed the hierarchy of individuation (Yamamoto 1999), concerns our perception of the nature of various entities as being composed of differentiable inner elements or being single inseparable units. The concept of individuation is highly relevant to the current research as it simultaneously relates to the notions of both animacy¹⁶ and number. It is referred to in the discussion included in Chapter 7 as it is strongly tied to the distinction between mass and count; in other words, between singularity and plurality (Timberlake, 1975, 1977; Hopper and Thompson, 1980).

Individuation in its broad sense refers to the degree to which entities seem distinct or inseparable (Dahl and Fraurud, 1993). This concept is different from animacy but the two are strongly interrelated. Individuation is not only relevant to animacy, but also effective in the study of agreement patterns cross-linguistically. The Persian example (25) above, and the Turkish example (38) below show that two agreement patterns are available for the same DP. The reason for this is the different readings resulting from individuation. In other words, when the plural DP is perceived as being collective and inseparable, a singular agreement morphology will show on the verb. Likewise, when the plural DP is perceived as multiple entities, a plural agreement will show on the verb.

¹⁶ Although the hierarchy of animacy and the hierarchy of individuation are two different hierarchies, they are completely interrelated. The hierarchy of individuation is seen as one of the essential parameters that influences our perception of animacy.

5.2.2 Animacy as a binary concept

Unlike the concept of treating animacy as a hierarchy in a gradient manner, this line of argument in the literature considers animacy as a binary feature with discrete, distinct values: [\pm animate] or [\pm human]. The ground on which this argument stands is that certain phenomena in linguistics do not fit well within the concept of hierarchies and that it becomes necessary for the description of such phenomena to treat animacy as a binary feature with a presence or absence.

Animacy is an inherent semantic property in the NP and can be interpreted in different ways, and interact with various extra-linguistic concepts as seen in the description of hierarchies above. However, when it comes to syntax, the animacy value that an NP has might trigger one of several cues that can overtly show this effect in the form of phenomena. It is at this point that the need for an alternative manner to approach animacy stems.

Building on this, animacy is seen to be clearly present and influential in how languages are formed via a number of syntactic and pragmatic phenomena, such as case marking, topicality, argument realisation and agency (Aissen, 2003; BerHysnan et al., 2007; Branigan, Pickering, and Tanaka, 2008; De Swart et al., 2008). The following are a few examples of how languages employ animacy in their structure. For more on the cross-linguistic effect of animacy on linguistic phenomena, refer to Malchukov (2008).

Animacy and pronominal use

Animacy is reflected in the use of pronouns cross-linguistically. The English pronominal system distinguishes between gendered singular humans on one side as in 'he/she', and animals and non-living entities (anything that is non-human) on the other side as in 'it'. In MSA, there is also a distinction based on animacy in question words as

seen in the difference between *mā* ‘which’ and *man* ‘who’. Consider the following constructed examples:

(37) a. *man* al- tāriq-u (for humans)
 who the-knocker.3S.M-NOM
 ‘*who* is the knocker?’

b. *mā* alladi ’az’ajak-a (for non-humans)
 what that annoyed.Prf.3S.M-you.ACC
 ‘*what* annoyed you?’

Animacy and word order

The relationship between animacy and word order is associated with an important relationship between semantic properties and syntactic structure. Cross-linguistic typological studies such as those of Silverstein (1976), Comrie (1989), Siewierska (1993), Dahl and Kari (1996), Aissen (2003) and Bresnan et al. (2007) have pointed to the effects that animacy has on the selection of syntactic function or word order. They have shown that NPs that refer to highly animate entities tend to occur in higher syntactic functions or in an early syntactic position in the clause.

Animacy and agreement

Animacy is found to have a clear effect on agreement patterns cross-linguistically. Verbs show different number markings depending on the level of animacy the subject has (Comrie, 1989, p. 191). A common paradigm found cross-linguistically is that the verb agrees with nominal features when the noun is placed high on the animacy hierarchy. Persian¹⁷ (Hashabeiky, 2007, as cited in Sedighi, 2003, 2010) and Turkish (Bamyaci, Häussler and Kabak, 2014; Lewis, 1967; Sezer, 1978) are two examples of languages that demonstrate this agreement paradigm.

¹⁷ Persian examples regarding optionality are discussed in Chapter 4, Example 25.

In Turkish, animacy has been widely studied for its effect on number agreement. Like Persian, Turkish demonstrates a verbal marking that is sensitive to the degree of animacy of the plural subject. The following examples elaborate on this further (Sezer, 1978, p. 26):¹⁸

- (38) a. Çilingir-ler kapı-lar-ı aç-tı-(lar).
 locksmith-3PL door-3PL-ACC open-Prf-(3PL)
 'Locksmiths opened the doors'.
- b. Anahtar-lar kapı-lar-ı aç-tı(*-lar).
 key-3PL door-3PL-ACC open-Prf-3PL
 'Keys opened the doors'.

It is clear that both Persian and Turkish exhibit optionality in number marking with plural subjects. However, they differ in the effect that animacy has on this optionality. While in Persian, optionality on verbal number marking between singular and plural occurs when the plural subject refers to an inanimate entity, Turkish verbs show optionality in number marking between singular and plural when the plural subject refers to an animate entity.

The above are some examples of how animacy is shown in natural languages. Some phenomena allow more room for hierarchical, gradient conceptualisation of animacy. Some others might require a binary classification for animacy, as there is only correspondence of the kind [\pm animate] or [\pm human] (de Swart and de Hoop, 2018). In phenomena where morphology is the way in which animacy is overtly realised, as in the examples of English pronouns above, there should be a binary treatment of the concept. In other words, at the moment of uttering a sentence, the speaker has to specify whether a cat is an inanimate and so uses the pronoun 'it', or shows more empathy and affection towards the cat and thus uses 'she' or 'he'. Similarly, in other languages, at the moment of producing a structure, the mind needs a specification as to whether the entity being referred to is animate or inanimate as there is only a morphological affix/pronoun

¹⁸ Transliterations and transcriptions are changed for consistency.

corresponding to each choice. A language that employs a certain morphological marking for humans—as does the MSA question words *man* ‘who’, and *mā* ‘what’—would certainly argue against the idea of treating animacy as a hierarchy, stressing the need for a binary nature. Regardless of the various points animacy has on it hierarchy, in real-world language a binary decision has to be made prior to producing the language. The final morphological marking of animacy is a reflection of how the mind conceptualises the concept (de Swart, 2014; de Swart and de Hoop, 2018).

In short, both the gradience and binarism approaches to animacy seem to be significant and relevant to linguistic studies. The former allows room for different interpretation and interaction among discourse factors, and the latter explains the behaviour of the morphology of the language. While animacy is an inherent semantic property as argued by de Swart (2007), de Swart and de Hoop (2007), Malchukov (2008) and van Bergen (2011), it is also subject to contextual change of discourse factors as argued by de Swart and de Hoop (2018). I follow de Swart and de Hoop (2018) in finding merit in both approaches to animacy and argue for the binary nature in accounting for linguistic phenomena.

5.3 The nature of animacy in Modern Standard Arabic

At the beginning of this chapter, I reviewed the effect of animacy on establishing different agreement patterns in MSA. Studies often refer to this effect as indicating that certain agreement patterns result from certain animacy values of the nominal: that is, [\pm animate]. This gives the impression that animacy is treated as a binary two-valued feature with clear boundaries between the two values. Sedighi (2010) argues that animacy should in fact be added to the bundle of Phi-features responsible for agreement within Minimalism. In developing this argument, she states that animacy in Persian is a

feature with only two values: animate and inanimate. It might seem that in real syntactic applications, a dichotomous valuing of animacy is needed.

Treating animacy as a feature within Minimalism means that it should be labelled as an interpretable feature that is semantically charged. If animacy is treated as a feature in a purely syntactic model, it can have only two values: [\pm animate] or [\pm human].

In Chapter 4, I discussed in much detail the differences among features in terms of what systems they are relevant to. To explore this in relation to animacy in MSA, we saw in the set of data at the introduction of this chapter, that animacy in MSA is not realised morphologically on nominals. The only overt realisation of morphology in the syntax of MSA is in the question words as seen in Example 37. Animacy, therefore, has an effect on the morphology of MSA as it has an effect on the agreement patterns in MSA; but does this effect make it a syntactic feature in MSA? Evidence that a linguistic phenomenon should be considered a syntactic feature is that syntax should be sensitive to it. For this syntactic diagnosis, Svenonius (2007, p. 24) argues that the presence of morphology is necessary for a linguistic concept to be categorised as a syntactic feature. The effect that animacy has on agreement has no direct relationship with syntax per se; rather, different agreement patterns result in the syntax as a result of different interactions between formal features such as number and gender and other semantic properties of the noun. This semantic representation is mainly embodied in animacy. Animacy, thus, is an internal feature. It operates at the level of semantics, which indirectly affects syntax and morphology. According to Svenonius (2007, p. 24), evidence that a linguistic concept is a semantic feature is its ability to differentiate among meanings. Animacy is, therefore, classified as semantic because it encodes semantic information within the NP.

Thus, in terms of feature classification, animacy turns out to be an internal semantic property (de Swart and de Helen, 2007; Malchukov, 2008; van Bergen, 2011). We need

to define animacy in relation to Minimalism for it to fit within the framework of this thesis. Within the Minimalist framework (Chomsky, 1995), features can be either interpretable, if they are related to meaning, or uninterpretable, if they only work at the syntactic level. Animacy in MSA conveys a great deal of semantic information, and also conditions the way in which nominals are assigned their grammatical gender and the method of number marking. In the next chapter, it will be seen that animacy is a vital component of the gender system not only in MSA but in most of the languages of the world (Corbett, 1991). Languages such as the Bantu languages have multiple classes for gender, which is divided according to animacy, and the genders are referred to as classes¹⁹ (Corbett, 1991). Other languages have the classifications animate and inanimate as two different values of grammatical gender (Corbett, 1991). Based on this cross-linguistic typological evidence that animacy is a semantic property that is found within the noun itself, I argue that animacy is a semantic nominal feature that lives in the noun itself. With respect to interpretability, I argue that animacy itself does not have interpretable *v.* uninterpretable values in the way that gender does (see Chapter 6); rather, I argue that the values of grammatical animacy condition the interpretability of gender.

In MSA, if a noun is animate, the gender values of the noun are interpretable $i[\pm\text{Fem}]$. If, in contrast, the noun is inanimate, the gender values of the noun are uninterpretable $u[\pm\text{Fem}]$.

¹⁹ Refer to Corbett's (1991) cross-linguistic survey of genders for languages that use class to refer to classifications based on gender and animacy.

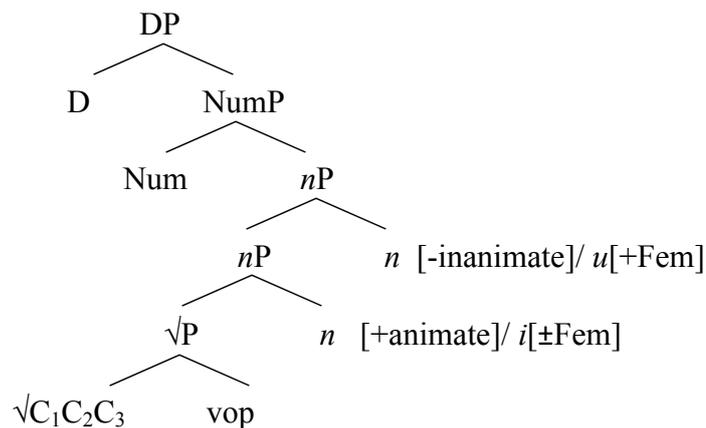


Figure 5.1: The DM structure of the DP in MSA where animacy conditions the interpretability of gender

I do not terminate the discussion of animacy at this point as the next chapter provides a comprehensive discussion of gender and how animacy conditions it, and how each interacts with number. To avoid redundancy in the discussion, more information about the DM analysis of how gender interpretability is conditioned by animacy and located in the structure is provided in the following chapter.

5.4 Conclusion

The main aim of this chapter was to distinguish between conceptual animacy, which is hierarchical and gradient in nature, and grammatical binary animacy, which is a distinctive feature of the language. It is evident from the discussion that although this distinction exists, the concepts are closely related to one another. The wider conceptualisation of animacy is the reflection of how the mapping between cognition and semantics is transmitted in the form of grammatical binary features in the structure.

In the discussion of animacy as a hierarchy, it was shown that its basic form includes three basic categories: human, animate and inanimate (Aissen, 2003; Comrie, 1989; Croft, 1990). This hierarchy works hand in hand with other psychological concepts and this is reflected in the way natural language is articulated. It is evident that animacy is

inherent in the noun itself, as argued by Malchukov (2008); it is also evident that this meaning is subject to change according to cognitive discourse factors (de Swart, 2007; de Swart and de Hoop, 2018; van Bergen, 2011). With regard to MSA, the animacy hierarchy is present and is of great significance. It is discussed in much detail in the next chapter on how the gender system in MSA has three subsystems of gender according to number, and how these three subsystems interact differently with the basic animacy hierarchy. In other words, gender cuts through the animacy hierarchy at different points, and animacy conditions the value of gender. Also, it will be seen that within singular NPs in MSA, animacy cuts through the *animal* class between higher animals and lower animals, with the former being treated grammatically like humans and the latter being treated more like inanimates. It is in this environment that the existence of animacy hierarchy in MSA is important.

With this being said, however, the data set of partial agreement in MSA shows that treating animacy as having a hierarchical nature is not practical to account for a syntactic phenomenon like agreement. In other words, conceptual animacy cannot provide a sufficient explanation for how agreement demonstrates only two patterns: partial and full. This means that the grammar of MSA needs a discrete binary classification of the concept for the structures to appear the way they do. I follow de Swart and de Hoop (2018) in assuming the existence of a discrete binary version of animacy based on the general understanding of animacy as a hierarchy. As seen in the set of the data at the beginning of the chapter, animacy interacts with plurality to produce the partial agreement in SVO word order. For this to happen, and apparently to be easily analysed, there should be a [\pm animate] feature so that when plurality interacts with [+animate], the resulting pattern of agreement is full, whereas when plurality interacts with [-animate], the resulting pattern of agreement is partial.

I also argue, based on Svenonius's definition of semantic features, that animacy is an inherent property of the noun, and thus I call it a semantic feature that is indirectly affecting the morphosyntax of agreement. Therefore, I argue that animacy can be syntactically located on the nominal itself, along with gender. The discussion of animacy is not finished at this point as it is revealed within the discussion of gender in more detail in the following chapter.

Chapter 6: Gender

6.1 Part 1: Gender diagnostics and gender behaviour

Gender is defined as a classifying feature of nouns and is reflected overtly in the behaviour of related words (Bloomfield, 1933; Corbett, 1991). As a nominal feature, gender is associated cross-linguistically with various syntactic and pragmatic phenomena, and has attracted a considerable amount of research interest. Corbett (1991, p. 1) describes gender as ‘the most puzzling of the grammatical categories’. Gender is not a feature that is inherent arbitrarily in nouns, nor is it a feature that speakers of a language assign to nouns consciously; rather, it is a feature that reflects the interaction of several other features of the noun. Therefore, throughout this chapter, in using the term ‘gender assignment’, I refer to the ways in which nouns are assigned their grammatical gender through the interaction of various semantic features of the noun prior to the morphological realisation of its gender. The classification systems discussed here all refer to the ways in which grammatical gender is overtly or covertly realised on the noun and its surrounding agreeing elements. A distinction between grammatical gender and natural gender is made in section 6.1.2.2.

The basic linguistic phenomenon to be considered in the present discussion of gender is agreement. This section mainly concerns the interaction of features to assign different genders. In addition to the basic purpose of establishing a general systematic way to analyse how grammatical genders are allotted to nouns in MSA, two arguments are at the core of this discussion:

1. The first part of the chapter aims to present a clear understanding of gender as a feature in MSA, and how other features interact and affect gender. This includes discussion of how animacy conditions gender and how gender

interacts with number in agreement. I also argue that grammatical gender that is realised morphologically on the target (be it verb, adjective or pronoun) is a morphosyntactic feature in that the target is always inflected for gender (masculine or feminine) as it is conditioned by syntactic rules of agreement. Agreement is actually considered by Corbett (1991), following Hockett (1958) and Aksenov (1984), as a diagnostic test for the grammatical gender of the nominal.

2. The second part of this chapter aims to present gender as a morphosyntactic feature within a DM approach, and to discuss how it plays a role in agreement.

6.1.1 Gender morphology in Modern Standard Arabic

Before launching into a discussion of gender as a feature in MSA, data are shown to provide an overview of how gender behaves in the language. Gender in MSA may be realised in overt morphology through inflectional affixes: *affixal tā* ‘-at’, *long alif* with glottal stop ‘-ā’ or *stretched alif* ‘-ā’. Nominals may also have no overt morphological realisation for gender. The following example from MSA, in contrast, shows that for other nouns the grammatical gender of the noun is not always reflected in morphology:

- (39) a. al- ḥāmil-u waḍa‘-at mawlūd-a-ha
 the-pregnant.3S.F-NOM gave birth.Prof-3S.F baby.3S.M-ACC-her.GEN
 ‘the pregnant (lady) gave birth to her baby’
- b. ḥāmil-u al-amti‘at-i ’ata li-l-ziyār-at-i
 holder.3S.M the-luggage-GEN came.Prof.3S.M for-the-visit-3S.F-GEN
 ‘the luggage holder came for a visit’

The noun in Example 39a has no overt morphological marker for gender, yet it triggers feminine agreement marker on the verb. The noun refers to a pregnant human and this could only be a female. Example 39b shows that the same noun *ḥāmilu* ‘holder’ is used in a different context and with a different meaning. Here, the noun refers to a person

who holds things (luggage in this sentence), and as this noun does not have a feminine morphological marking as in *ḥamil-at* to differentiate it from *ḥamilu*, it is assigned its masculine grammatical gender by default. This example shows that MSA may or may not inflect overtly for gender.

The following examples show that nouns referring to entities with no biological sex are also shown to trigger gender agreement on the agreeing verbs, which means that such nouns are also seen to have gender whether overtly realised or not:

- (40) a. *al-nağm-at-u* *saṭaʿ-at* *fi* *al-sam-āʿ-i*
 the-star-3S.F-NOM shone-Prf.3S.F in the-sky-3S-F-GEN
 ‘the star shone in the sky’
- b. *al-qamar-u* *saṭaʿ-a* *fi* *al-sam-āʿ-i*
 the-moon.3S-NOM shone.Prf-3S.M in the-sky-3S-F-GEN
 ‘the moon shone in the sky’

In Example 40a, the noun *al-nağm-at* ‘the star’ is morphologically inflected for a feminine gender by the feminine morphological marker *-at*, whereas in 40b, the noun *al-qamar* ‘the moon’ is morphologically not inflected with the feminine marker, nor is it specified with a biological sex. It is thus assigned by default a masculine grammatical gender.²⁰

6.1.2 Gender as a Feature

6.1.2.1 Syntactic or Morphological?

In the generative mainstream, gender as a feature has been treated variously according to the theoretical assumptions being followed. In the typological literature (Corbett, 2006, 2012), for example, gender is seen as a feature that operates at three levels: syntax (as it participates in agreement), morphology (as it is realised in overt morphology of

²⁰ The aim in this section is to show the importance of morphology to a feature like gender in MSA. This is to facilitate the understanding of the nature of this feature in this section. Detailed discussions about the morphology of gender as a feature is in Section 6.3.2.3.1.

the controller and/or the target) and semantics (as it is semantically charged for meaning). In Minimalism, however, there is no level of morphology. There is a level of syntax (as seen in the features present at the derivation, with gender being one of them), and there is also room for semantics in that there are interpretable features (the ones that have a semantic content, like animacy) and uninterpretable features (that have no semantic content). In post-syntactic approaches to agreement (e.g., Bobaljik 2008), however, there is a level of morphology at which a feature such as agreement would be inserted.

Before opening the discussion on the type of feature that gender is in MSA, we need to specify the linguistic components on which it operates. Based on the feature properties presented in Section 4.1.1 by Svenonius (2007, p. 2), the distinction between an internal and an interface feature is as follows:

1. F is an X-internal feature iff F is an X feature and not a feature of any other module.
2. F is an X–Y interface feature iff F is an X feature and a Y feature.

Based on definition 2, it would be appealing to refer to gender as an interface feature as it is clearly present in syntax and in morphology. However, I avoid using the term interface feature, and choose morphosyntactic feature instead. Gender as seen in the MSA data provided so far is active in the syntax in that the gender of the target is triggered by the gender of the nominal. It is also present for morphological operation as per the DM assumptions adopted in this thesis.

6.1.2.2 Grammatical or natural?

The terms ‘natural gender’ and ‘grammatical gender’ are so pervasive in the literature on gender that they have become entangled (Corbett, 1991; Kramer, 2015). The term *natural gender* refers to the biological sex of the referent. Accordingly, a female living

being is assigned a feminine grammatical gender, whereas a male living being is assigned a masculine grammatical gender. *Grammatical gender* is, by contrast, the grammatical value of gender as a feature as expressed in the language whether or not it is conditioned by biological sex. It is shown overtly through noun morphology or verbal, adjectival, pronominal or determiner agreement. Common grammatical gender classifications are masculine–feminine, masculine–feminine–neuter and animate–inanimate. Grammatical gender manifests itself in relation to other grammatical features such as number or case, as observed in agreement.

Having said that, the difference between these two concepts is not as straightforward as it seems. It might seem straightforward in languages that operate a three-value gender system—feminine, masculine and neutral—such as English. However, recall that in MSA, all the nouns are gendered, including those referring to non-living or non-sex-differentiable entities. Non-sex-differentiable nouns are still shown to have grammatical gender assigned to them. It is, therefore, the case that the gender system in Arabic includes interaction of other features. The discussion of how these nouns are assigned gender is related to the notion of interpretability in section 6.4.3.1. At this point, I shall stop at a rather problematic terminology, which is *gender assignment*.

Gender assignment, although widely spread throughout the literature of gender, is problematic in the sense that gender being a semantic feature cannot be externally assigned. Corbett (1991) is the first to use this terminology in his comprehensive cross-linguistic study of gender. According to Corbett (1991, 2012), assuming that gender is assigned does not contradict the fact that gender is a semantic feature and is in most cases inherent in the lexical entity of the noun.²¹ Thornton (2009, pp. 14–15) explains that the use of the term ‘assignment’ with features may be explained in one of two

²¹ Refer back to Section 4.2.1 in which features in the traditional lexicalist approach are differentiated from features in post-syntactic morphological approaches. Gender in the lexicalist approach is discussed in 6.2.2.3.1

ways. The first is by imagining that feature values are containers and nouns are distributed among these containers. Second, feature values are assigned to nouns as part of the lexical specifications of the noun for the noun to have its functions easily in syntax. Corbett (2012, p. 118) notes that both of Thornton's explanations are correct, with the former being more relevant to 'cognitive classification' and the latter more relevant to 'the function of the feature in the grammar'. I follow Corbett (1991, 2012) in using 'assignment' as a terminology to explain the rules by which a noun is specified inherently for a certain gender value. Having said that, it is important to refer to the difference between Corbett's conceptualisation of features and that in DM. Corbett sees that gender assignment happens in the lexicon whereas in DM the semantic information for a certain noun (interpretability) is stored in the encyclopaedia, eligible at LF and inflected on the noun at PF. It is based on this that Corbett (1991) builds his assignment-rule reference of cross-linguistic gender: semantic, or formal—which is discussed thoroughly in section 6.1.3.

6.1.2.3 *Inherent or contextual?*

Corbett (2012, p. 67) proposes a distinction between inherent features and contextual features. *Inherent features* are those that are significant for semantics and interpretation. In other words, they are semantically entailed within the meaning of the noun. *Contextual features*, in contrast, are only important for agreement or government. They may change values according to the context. To relate this distinction to gender as a feature in MSA, recall that in Examples 39 and 40, nouns were seen to be assigned genders according to the referent's biological sex as in 39*a*, or arbitrarily as in 40*a* and *b*. In section 6.1.2.2, a distinction was drawn between natural and grammatical gender assigned to nouns. Grammatical gender that is assigned based on semantic rules (biological sex and animacy) is interpretable and thus can be labelled as *inherent gender* as it is a significant part of the package of the semantic information of the nominal. In

contrast, grammatical gender that is assigned based on formal rules is uninterpretable and thus is labelled *contextual gender* in Corbett's (2012) terms, or *arbitrary gender* in Ryding's (2005) terms for MSA and Kramer's (2015) terms for Amharic.

6.1.3 Gender assignment

Gender systems in languages across the world range from being absent from some languages to being strongly central in others (Corbett, 1991). A famous statement by Bloomfield (1933) describing gender in French, German and Latin claims that there is no clear assignment system for those genders: 'There seems to be no practical criterion by which the gender of a noun in German, French or Latin could be determined' (Bloomfield, 1933, p. 280). Bloomfield's claim has been heavily challenged in the literature on gender, primarily by Corbett (1991, p. 1) who presents evidence against Bloomfield's view.

First, Corbett (1991) refers to native speakers' capability to produce nouns that are gendered with a high degree of consistency. If nouns' genders were to be remembered, native speakers would be required to memorise the gender of every single noun in the language. This is expected to yield to a high degree of errors or inconsistencies in the genders of nouns as they are produced by native speakers. Such arbitrariness would also be a serious obstacle for all learners of a new language. On this basis, Corbett argues that gender is assigned to nouns according to a more organised system of classification, and that this system of classification depends on the language; that is, systems differ cross-linguistically. Some languages use purely semantic methods of classifying nouns and assigning genders to them; others use formal methods; and others use a combination of semantic and formal methods (Corbett, 1991, p. 8).

The second piece of evidence Corbett (1991) presents against Bloomfield's claim comes from borrowed words. Words that were originally borrowed from another language come into the new language and become fully gendered in the grammar. The

grammatical gender that these words receive in the new language might differ from the grammatical gender they were assigned in the original language. This means that when borrowed words become vocabulary items in the target language, they are subjected to the same gender assignment rules as the native vocabulary items of the target language. In MSA, for instance, nouns such as *kombyūtar* ‘computer’ and *tiknūlūġia* ‘technology’ are seen to trigger specific gender through agreement even though they come from English, where they do not have inherent genders. Consider the following example:

- (41) a. kombyūtar-un ġadid-un
 computer.3S-NOM new.S.M-NOM
 ‘a new computer’
- b. al- tiknūlūġ-iā t-tatawar-u kullu yawm-in
 the-technology-3S.F Impr.F.3-develop-S every day.3S-Gen.indf
 ‘technology develops every day’

Example 41a shows that the noun *kombyūtar* ‘computer’ in MSA has an underspecified gender value. That is why it is seen to trigger masculine—the default gender—agreement on the verb. Example 42b shows that the noun *tiknūlūġia* ‘technology’ has the stretched *alif* ‘-ā’ in its form and thus it is assigned an uninterpretable arbitrary grammatical gender that is feminine as seen in the feminine gender triggered on the verb.

In 6.2 below, a cross-linguistic overview of the three main gender assignment systems is presented.

6.2 Semantic systems of gender assignment

In semantic systems of gender assignment, it is the meaning of the word and its basic semantic inherent properties that determine how gender is assigned to nouns. Several languages follow a purely (strict) semantic assignment system that is solely dependent on semantic features of the noun to assign gender. Tamil and other Dravidian languages

are examples of languages that have a semantic gender assignment system, as illustrated in Table 6.1 (Corbett, 1991, p. 8).

Table 6.1: The gender assignment system in Tamil is a strictly semantic one (Corbett, 1991, p. 8)

Criterion	Gender
God or male human	Masculine
Goddess or female human	Feminine
Other	Neuter

In the Tamil system, the meaning of the noun is the main criterion for gender assignment. In other words, the gender of the noun can be easily inferred through understanding the meaning of the noun.

The criteria illustrated above by some Dravidian languages in which the gender allotted to a noun is highly determined by its semantic properties²² (e.g., natural gender or biological sex, animacy, humanness) has widespread usage. In a gender assignment system utilising such a semantic criterion, dividing lines are drawn that distinguish males from females, animates from inanimates and humans from non-humans. However, these semantic properties of the noun (e.g., natural gender, animacy, humanness) do not interact in a fixed manner; nor are the dividing lines between them fixed in all gender assignment systems across languages. Diyari, an Australian language, provides an interesting example. In this language, there are two gender classes: one is for all animates whose reference is female; the other is for all male animates, non-female animates, non-sexed animals and all inanimates (Austin, 1981, p. 60). In Diyari, the dividing lines between semantic features lie lower down than the humanness criterion in distinguishing animates according to their natural sex. These

²² I am careful not to use the term ‘features’ unless it is one of the main morphosyntactic features affecting agreement. Any other inherent characteristics of the noun are referred to as ‘properties’.

cross-linguistic examples of the strong relationship between gender and animacy help support the assumption that these inherent nominal properties, animacy and humanness are all enclosed within the ‘interpretable’ side of gender.²³

6.3 Formal systems of gender assignment

Formal systems of gender assignment are rules that, rather than relying on the meaning of the nouns, focus on the form of the noun itself (Corbett, 1991, p. 33). Formal features can be either morphological or phonological. Corbett (1991) states that the distinction between these two classes of formal features can often be misleading; in other words, the boundaries between them are blurred. In general terms, however, we may say that phonological rules of assignment refer to just one single form of the noun.

Morphological rules, in contrast, need information about several forms of the same noun; for example, nouns of declension II are feminine in Russian (Corbett, 1991).

Declension refers to the inflection of nouns, verbs, adjectives or articles to demonstrate certain nominal features, like number, case or gender (Corbett, 1991).

Syntax plays a crucial role as a diagnostic criterion for realising the gender of a noun. If the gender of a noun is seen to trigger feminine agreement, this would imply that the noun is marked with a feminine gender. Corbett (2006) refers to agreement as the analytical tool by which we can determine how gender is reflected in the behaviour of the surrounding environment. Hasan (1975, p. 568) notes that the gender of Arabic nouns that are not morphologically marked can be difficult to determine. Therefore, their gender can only be recognised when they enter into an agreement relationship with a target (adjective, verb or demonstrative). Ackema and Neeleman (2013) have also

²³ The notion of interpretability of gender is explained in detail in section 6.4.3.1

argued that the gender of a noun, if not present morphologically on the noun, is determined by the morphology of its agreeing target.

6.3.1 Inquorate gender

Natural gender can interact with not only semantic features, but also with other formal features in the process of assigning gender to nouns. Therefore, grammatical gender may be marked differently from one form to another form of the same noun where other features, like number, are marked differently.

This piece of evidence holds cross-linguistically. Corbett (1991, pp. 170–174) presents a detailed cross-linguistic analysis of nouns that change marking for gender between the singular and plural. This widespread linguistic phenomenon is known as *inquorate gender*, which refers to a class of nouns with a small number of members that behave differently from other nouns in the language. Nouns that show different gender behaviours at different number values are marked as exceptions to the broader gender assignment system in many languages. An example of this is found in Lak, a Caucasian language: the noun *qat* (house) shows gender III agreement in the singular and IV in the plural. In Gunzib, another Caucasian language, the noun for ‘child’ also demonstrates gender III agreement in the singular but takes gender I/II in the plural form (Bokarev, 1967, p. 476, cited in Corbett, 1991, p. 170). Although these nouns are considered exceptions to general gender assignment rules in their languages, similarly behaving nouns are more frequent in Romanian (see Corbett, 1991, pp. 150–152 and Sadler, 2006 for further discussion). In French, the words *amour* (love), *délice* (delight) and *orgue* (organ) have masculine gender when singular, but feminine gender when plural (Corbett, 1991, p. 172). Serbo–Croat has several instances of nouns changing their gender markings in different number forms. Table 6.2 presents examples from Serbo–Croat showing how gender differs when the nouns have a different number value (Ivic’, 1963, p. 56, cited in Corbett, 1991).

Table 6.2: Examples of inqorate genders in Serbo–Croat

Singular		Plural		Gloss
akt	masculine	akta	neuter	document
oko	neuter	oc̣'i	feminine	eye
mac̣'e	neuter	mac̣'ic̣'i	masculine	kitten

Corbett (1991) argues that these nouns are morphologically irregular and that the irregularity in gender stems from this morphological irregularity. This kind of irregularity does not hold true cross-linguistically. In MSA, for example, some nouns that belong to the inqorate gender class are morphologically regular. However, they show different gender values when number values change. In MSA, we will see that all inanimate plural nouns trigger feminine agreement on the agreeing element even if they are seen to have masculine gender in their singular and dual forms. Despite the similarity they have with Corbett's definition of inqorate gender, I shall not label these nouns in MSA to be inqorate gendered. The reason for this is that they form the majority of inanimate plural nouns, in contrast to Corbett's description of the members of inqorate genders as being very few in a language. Section 6.3.2.3.3 examines inanimate plural nouns in MSA.

6.3.2 Gender system in Modern Standard Arabic

6.3.2.1 *The feminine gender markers in the Arabic language*

Section 6.1.1 was a general introduction about morphological markings of gender in MSA. In order to facilitate an understanding of the formal assignment system of gender in MSA, this section provides a detailed review of the gender morphological suffixes in MSA. There are three main suffixes typically marking feminine gender in MSA: *affixal ta* '–at', *long alif* '–ā' and *stretched alif* '–ā'. The most common feminine marker of

the three markers is *ta marbūta* ‘the affixal *tā*’,²⁴ which can be seen at the end of most nouns denoting objects or proper names. It is also frequent because it is often attached to a masculine-form noun to change its gender marking to feminine, for example:

mudarris ‘male teacher’ *mudarris-at* ‘female teacher’

It is important to mention in any discussion of feminine markers in Arabic that the function of these feminine markers is not restricted to marking feminine gender. They are noted to have other functions as well. First, the *affixal tā* occurs as an inflectional affix to nouns referring to male humans with a special property that is insisted on.

Examples include:

raḥḥālat ‘a person who travels around the world’, from the verb *rahal* ‘travels’.

‘allāmat ‘a very well-educated scholar’, from the verb *allam* ‘teach’.

Also another context in which the *affixal ta* often occurs is with proper names referring to males: for example, *Mu‘āwiyat*, *Hamzat* and *‘usāmat*. These proper nouns have *semantic masculine gender* regardless of their morphological form. Similarly, there are nouns in Arabic that refer to females but are not inflected with any of the feminine inflection markers mentioned above: for example, *‘ybtisām* and *Ġadīr*, which are female proper names. Also, *ḥāmīl* (pregnant) is not inflected with a feminine inflection marker and is not in this case considered masculine in gender. Ryding (2005) refers to masculine nouns that are inflected with a feminine inflection marker as *crypto-masculine*, and to feminine nouns that are not inflected with a feminine inflection

²⁴ The ‘*affixal ta*’ or *ta marbuta* is written as (‘-at’) in continuous pronunciation with what follows, or when marked for indefiniteness with *tanwīn*. It also can be written as (‘-a’) to indicate pauses. This latter -a is differentiated from the other two forms of feminine markers— *long alif a*’ and *stretched alif ā*.

marker as *crypto-feminine*²⁵. Consider the following set of corpus examples for more elaboration on this matter. More corpus examples are found in the appendix.

Corpus examples of crypto-masculine nouns:

(42) a. inna Mu'āwiyat-a ya-qta'-u al-'umūr-a duna-ka
 that.C Mua'wi.3S.M-ACC impr.3.M-confirms-S the-issues3Pl.F-ACC without-you
 'That Muawia confirms on issues without you'

b. 'usamat-u daki-un wa mujtahid-un
 'usamat.3S.M-NOM clever.3S.M-Indf.NOM and hard-working.3S.M-Indf.NOM
 'Usamat is clever and hard working'

Corpus examples of crypto-feminine nouns:

(43) a. liḍa t-aḥtā-u al-ḥāmil-u wa
 therefore Impr.F.3-needs-S the-pregnant.3S.F-NOM and
 al-murḍi'-at-u 'ila al-mazīd-i min al-'atim-at-i
 the-breast.feeding-3S.F-NOM for the-more-GEN from the-foods.3Pl.F-GEN
 'therefore pregnant and breastfeeding women need more foods'

b. y-ugaf-u al-tanfīd-a 'ala al-wālid-at-i
 Impr.Pass.M.3-stopped-S the-execution-ACC for the-mother-3S.F-GEN
 al-murḍi'-i
 the-breastfeeding.3S.F-GEN
 'Execution is lifted from the breastfeeding mother'

The affixal *ta* is also used to mark one vocalic pattern of broken plural (irregular plural) in Arabic, as seen in the following nouns: *'iḥwat* (brothers), *'asātiḍat* (teachers), *dakātrat* (doctors) and *farā'inat* (pharaohs). These plural nouns are found in examples to be marked with masculine gender. Consider the following:

(44) a. raḥal-a al-'asātiḍat-u bākiran
 left.Prf-3S.M the-teachers.3Pl.M-NOM early
 'the teachers left early'

b. qaddam-a al-'iḥwat-u šarḥ-an
 offered.Prf-3S.M the-brothers.3Pl.M-NOM explanation.3S.M-Indf.ACC
 mufaṣṣal-an
 detailed.3S.M-Indf.ACC
 'the brothers offered a detailed explanation'

²⁵ More examples of crypto-feminine nouns and crypto-masculine inanimate nouns are mentioned in Section 6.3.3.

In addition to the above examples about the use of the affixal ta ‘-at’ in contexts other than marking feminine gender, *alif mamdūda* with a glottal stop ‘-tā’ (the long *alif -ā*) is another feminine marker that is found to also have functions other than marking femininity. Nouns formed in the broken plural form, such as *al-’umarā*’ (the princes) and *al-nuzahā*’ (the dignified) end with the *long alif* and a glottal stop and tend to show masculine agreement if occurring with an adjective or a verb in a sentence. Consider the following example:

- (45) *al-’umarā*’-ū *qadim-ū* *ila* *al-malik-i*
 the-princes.3Pl.M-NOM came.Prf-3Pl.M to the-king.3S.M-GEN
 ‘The princes came to the king’

Because a large number of nominals with these morphological markers are found to trigger feminine agreement in MSA, it has become common and widespread in the language that these specific markers are feminine gender markers. These examples, however, show that the *affixal tā* is not necessarily an indicator for one gender over the other in MSA. However, the examples above show that there are other nouns with these markers that refer to male humans and trigger masculine agreement.

6.3.2.2 *Gender change from Classical Arabic to Modern Dialectical Arabic*

In Classical Arabic, nouns referring to pairs of the two natural/biological genders are often expressed using two different vocabulary items: one for the feminine referent and another for the masculine referent. The pairs in Table 6.3 are examples of this.

Table 6.3: Pairs of two biological genders expressed in two lexical items in Classical Arabic

Feminine noun	Gloss	Masculine noun	Gloss
'umm	mother	'ab	father
'atān	female donkey	ḥimār	male donkey
faras	female horse	ḥisān	male horse
'arnab	female rabbit	ḥuzāz	male rabbit
'aqrab	female scorpion	'uqrubān	male scorpion

As can be seen in Table 6.3, the female-denoting nouns are not marked with any feminine marker from among those mentioned above²⁶. This situation of nouns unmarked for female natural gender has changed diachronically through time. It has been observed in some modern Arabic dialects that the tendency has shifted to referring to the biologically male referent with the feminine noun, which is not marked morphologically, and referring to the female referent by using the same item and then adding the feminine marker to the end of the female-denoting noun. This phenomenon of marking a noun that is already feminine but is not originally marked morphologically by a gender marker is referred to as *lexical hyper-characterisation* (Ibrahim, 1973; Procházka, 2004). Thus, for the purpose of simplification, 'arnab, the vocabulary item for the female rabbit in Table 6.3, has become the noun used to refer to the male rabbit, and is also used as a default noun to refer to a rabbit in general if no biological sex is being identified in the context. If reference to the female version is necessary, then the tied *ta -at* is added to 'arnab (which is originally the noun for the female animal) to mark it for feminine gender to become 'arnab-*at*.

In other cases, the masculine noun is used as the default and the lexical feminine noun has been replaced with the male noun plus a feminine marker, as in *ḥimār* (donkey).

²⁶ Refer to table A1 in the appendix for more examples

Ḥimār is the noun for a male donkey and *ḥimār-at* is the noun for female donkey in MSA, instead of *'atān* as in Classical Arabic. In MSA and modern Arabic dialects, the tendency has become to use *ḥimār* as the default noun to refer to either a male donkey or a sex-undetermined donkey in general. If reference is made to a female donkey, then the *affixal ta* is attached to *ḥimār* to become *ḥimār-at*.

Further to the examples mentioned above about the markedness of nouns of different biological gender, in Classical Arabic, there are nouns that are used to refer to both biological genders at the same time, such as *'ajūz* (elderly) and *zawj* (spouse). However, this has changed in MSA and in modern Arabic dialects. These nouns are used unmarked to refer to masculine referents. Female referents are referred to by marking the same noun with the *ta*: *'ajūz* (elderly man), *'ajūz-at* (elderly woman); and *zawj* (male spouse), *zawj-at* (female spouse).

The above diachronic changes through which the feminine marker '*affixal ta*' has gone are the reason for the overgeneralisation involved in treating any noun that is morphologically marked with '*affixal ta*' as having a feminine gender.

The following section includes a detailed overview of the gender system in MSA in singular, dual and plural nouns. The type of agreement that is triggered on the verb is taken as the diagnostic test for the gender value the noun has.

6.3.2.3 Gender assignment in Modern Standard Arabic

Numerous attempts to describe the gender assignment system in Arabic can be found in the literature (Al-Yaziji, 1985; Drozdík, 1973; Hämeen-Anttila, 2000; Hasan, 1975; Haywood and Nahmad, 1965; Moshref, 2010; Ryding, 2005). They all agree on general guidelines for the gender system in Arabic: that there are two main genders, masculine and feminine; that masculine gender is not marked morphologically; and that it is only feminine gender that is marked by one of three morphological endings, *affixal ta š-at*,

long alif 'a' and *stretched alif* ā. For Wright (1955, p. 23), however, gender is divided into three main classes: masculine, feminine and mixed-gender classes to which all nouns showing agreement marking of both genders belong.

For Ryding (2005), gender in Arabic is an inherent feature of the noun, as is humanness.

Ryding (2005, p. 119) states this claim as follows:

Arabic nouns are classified as either feminine or masculine. The gender category into which a noun falls is semantically arbitrary, except where a noun refers to a human being or other creature, when it normally conforms to natural gender.

Nouns in MSA are assigned gender differently based on the number value they have. As mentioned in Section 6.1.4, some plural nouns in MSA are shown to trigger feminine agreement when plural but masculine when singular or dual. The following section includes a review of a number of corpus examples for singular, dual and plural nouns in MSA to observe the gender they trigger on agreeing targets. Since the aim is to observe how gender behaves in agreement, the sentences are not restricted to SVO word orders as the subject also agrees with the verb in VSO word order sentences. There are also some corpus sentences for other types of targets, such as adjectives and demonstratives.

6.3.2.3.1 Gender assignment system of singular nouns in Modern Standard Arabic

As is evident from the discussion of gender markers in Section 6.1.5.1, for nouns denoting humans the presence or absence of feminine markers does not change the fact that these nouns are assigned their grammatical gender (the one seen in the agreement pattern triggered on the verb) out of their semantic inherent gender (the biological sex of the referent).

At this point of the discussion, it is significant to refer back to Corbett's (1991) division of the rules of gender assignment: semantic and formal. To investigate how these two

types of rules work in MSA data, the following section includes a number of singular nouns with different levels of animacy.

A. Singular nouns referring to humans

The following examples relate to nouns denoting humans of feminine gender in pairs of true and crypto-feminine gender:

- (46) a. hal t-azawwaj-at **Su‘ād** Ḥusni min ‘abduḥalīm
 Did Prf-married-3S.F **Suad**.3S.F Husni.3S.M from Abdulhalim.3S.M
 Hafith?
 Hafith.Sg.M?
 ‘Did **Suad** Husni get married to Abdulhalim Hafith?’

- b. **Ḥadij-at** tu-dīr-u maḥal-an tiġārīy-an
Khadija-3S.F Impr.F.3-manages-S shop.3S.M-ACC commercial.3S.M-Indf.ACC
 fi Nawākšūṭ
 in Nawākshut
 ‘Khadija manages a commercial shop in Nuwakshut’

The following examples are of nouns denoting humans of masculine gender in pairs of true and crypto-masculine gender:

- (47) a. **Ḥamzat** Alġamal ya-bda’-u muhim-at-u-hu m’a
 Hamza.3S.M Aljamal Impr.M.3-starts-S mission-3S.F-NOM-his.3S.M with
 al-muqawil-in
 the-contractors-3Pl.M.GEN
 ‘Hamza Aljamal starts his mission with the contractors’

- b. **Mamdūḥ** ‘abbas ya-qūd-u iġtimā’-a Al-Zamālik-i
Mamdouh Abbas Impr.M.3-leads-S meeting.3S.M-ACC the-Zamalik-GEN
 ġadan
 tomorrow
 ‘Mamdouh Abbas leads the Zamalik meeting tomorrow’

Nouns referring to humans in the above sentences, whether crypto-masculine or true, are always seen to trigger a gender on the verb corresponding to their natural gender. In other words, nouns referring to humans are assigned their grammatical gender based on the semantic inherent properties of the referent. The biological sex of the human referent is the semantic rule that determines the grammatical gender assigned. No

morphological rules are seen to play any role in assigning singular human nouns their grammatical gender.

B. Singular nouns referring to large animals

The following are examples of nouns referring to large animals whose biological sex is differentiable:

- (48) a. **al-baqar-at-u** antaġ-at al-halīb-a
 the-cow-3S.F-NOM produced.Prf-3S.F the-milk-ACC
 ‘the cow produced the milk’
- b. **al-tawr-u** šarak-a fī al-sibāq-i
 the-bull.3S.M-NOM participated.Prf-3S.M in the-race.3S-GEN
 ‘the bull participated in the race’

This example presents an example of a single large animal for which the language provides two different vocabulary items—one corresponding to each biological sex. The noun referring to the female animal is seen to trigger feminine gender on the verb while the noun referring to the male noun triggers masculine agreement on the verb. Singular nouns referring to large animals where there is a separate noun for each biological sex are seen to have been assigned their grammatical gender based on semantic rules.

Similar to nouns referring to humans, nouns referring to large sex-differentiable animals are not restricted by formal rules of gender assignment.

C. Singular nouns referring to smaller animals

The following are examples of nouns referring to smaller animals whose biological sex is not differentiable by two vocabulary items, but through the morphological feminine marker ‘affixal tā’:

- (49) a. al-qitt-u kān-a tā’ih-an fī al-shāri’-i
 the-cat.3S.M-NOM was.Prf-3S.M lost.3S.M-Indf.ACC in the-street.3S-GEN
 ‘the cat was lost in the street’
- b. al-qitt-at-u jā’-at ‘inda al-nāfiḍ-at-i
 the-cat-3S.F-NOM came.Prf-3S.F at the-window-3S.F-GEN
 ‘the cat came at the window’

This example shows that for nouns referring to animals where there are not two different vocabulary items for both biological sexes, the noun that is inflected with the *affixal tā* ‘-at’, 49b, is seen to trigger feminine agreement on the verb, whereas the one not inflected with ‘-at’ is seen to trigger masculine agreement on the verb. This holds true for other nouns referring to small animals where there no two vocabulary items for each biological sex. For such nouns, we can say that both semantic and formal rules work hand in hand in assigning grammatical gender. It would not be right to assume that only formal rules are responsible for assigning the gender as the referent is a creature with a distinctive biological sex in real life. It is best to assume that the morphological rules here help in knowing the biological sex of the referent as the language does not hold distinctive vocabulary items for each.

D. Singular nouns referring to birds

The following examples are of singular nouns referring to birds:

- (50) al-‘usfūr-u ḥallaq-a ‘ālyian
 the-bird.3S.M-NOM flew.Prf-3S.M high
 ‘the bird flew high’

In this example, the noun refers to a small bird and is usually used with no *affixal tā* and is underspecified for gender. It is thus seen to trigger the masculine default grammatical gender. However, it can also be found in the feminine form ‘usfūr-at ‘female bird’ in children’s story books where there is empathy towards the bird. This example, in this sense, is similar to Example 49 in which morphological form helps in determining a certain biological sex. Since the biological sex is asserted, grammatical gender in this sense is assigned according to semantic gender with morphological form being the indicator of biological sex.

- (51) al-ḥamām-at-u ṭār-at fawqa ra’s-ī
 the-pigeon-3S.F-NOM flew.Prf-3S.F above head.3S-my.1S
 ‘the pigeon flew above my head’

The noun in Example 51 is inflected with the affixal *tā*, and seen to trigger feminine agreement on the verb. There is no other form of the noun where there is a reference to a male pigeon by removing the affixal *tā*. In fact, this noun can only be found in this particular form and is always seen to trigger feminine agreement. This noun is not singular; rather, it is a singulative form of the collective noun *ḥamām* ‘pigeons’. Singulative and collective forms are discussed in greater detail in section 7.3.2.

E/ Singular nouns referring to microscopic creatures

The following example shows nouns referring to microscopic creatures where it is very difficult to tell if they are sex differentiable. In this sense, it is the morphological form alone that instructs what grammatical gender is assigned to the noun:

- (52) a. *al-ḡurṭūm-at-u* *’intašar-at* *bi-sūr’-at-in*
 the-germ-3S.F-NOM spread.Prf-3S.F with-speed-3S.F-Indf.GEN
 malḥūz-at-in
 noticeable-3S.F- Indf.GEN
 ‘the germ has spread with noticeable speed’
- b. *al-fairūs-u* *dammar-a* *al-ḡism-a*
 the-virus.3S.M-NOM ruined.Prf-3S.M the-body.3S-ACC
 ‘the virus has ruined the body’

The noun in 52a *al-ḡurṭūm-at* ‘the germ’ is inflected with the affixal *tā*, and is thus seen to trigger feminine agreement on the verb. In 52b, in contrast, the noun is not inflected morphologically with a feminine marker, and is underspecified for biological sex. It is thus seen to trigger default masculine agreement on the verb.

The following examples are of nouns referring to inanimates (objects) and triggering feminine agreement.

F. Singular nouns referring to inanimates

The following examples show nouns that are inanimate; that is, no biological sex is attributed to the referent and thus there would be no semantic inherent properties of gender in the referent noun:

- (53) a. kān-at lī tāwil-**at**-un ṣagir-**at**-un aḍa'-u
 was.Prf-3S.F for.me table-3S.F-Indf.NOM small-3S.F-Indf.NOM put.Impr-1S
 fawqa-hā kutub-ī wa dafātir-ī
 on-it.3S.F books.3Pl.F-my.1S and notebooks.3Pl.F-my.1S
 'I used to have a small table on which I kept my books and notebooks'.

- b. min 'ayna ḡi't-a b-hāḍihi
 from where came.Prf.3.Sg-you.2S.M with-this.3S.F
 al-mimḥ-**āt**-i
 the-eraser-3S.F-GEN
 'where did you get this eraser?'

Nouns in 53a and 53b are inflected with the affixal *tā*, and so are seen to trigger feminine agreement on the target (adjectival agreement in 53a and demonstrative agreement in 53b). In the absence of a semantic inherent property (biological sex), grammatical gender is determined as per the formal rules. The same thing applies in Example 54 where neither noun is inflected with a feminine marker, and both are underspecified for biological sex, triggering masculine default agreement:

- (54) a. mizmār-u al-ḥayy-i la yu-ṭrib-u
 flute.3S.M-NOM the-neighbourhood.3S.M-GEN Neg Impr.M-chant-3S
 'the neighbourhood flute does not chant'

- b. qalam-un y-fūḥ-u bi-'anwā'i-in muḥṭtalif-at-in
 pen.3S.M-NOM Impr.M-smells-3S with-kinds.3Pl.F-GEN different-3S.F-GEN
 min al-'iṭr-i
 of the-perfume.3S.M-GEN
 'a pen that smells with different kinds of perfume'

The corpus examples of nouns referring to humans show that it is the biological sex of the referent that determines the assigned grammatical gender. Like humans, big animals are seen to have a grammatical gender corresponding to their biological sex. This is the case when the language has two vocabulary items of nouns to label each sex of those big animals. Small animals whose biological sex is not differentiated with different vocabulary items are differentiated by adding the feminine morphological ending 'affixal *tā*' to the word so that there are two nouns: one referring to one biological sex as *qiṭṭ* 'male cat' and the other as *qiṭṭ-at* 'female cat'.

At the other end of the animacy hierarchy, animals that are very tiny, are microscopic or whose biological sex cannot be determined, as well as inanimate nouns referring to objects, are not assigned their grammatical gender by semantic rules; rather, they are assigned their grammatical gender arbitrarily based on morphology (with no relevance to semantics). Grammatical gender is, thus, divided into interpretable gender, which is semantically assigned and is based on biological sex; and uninterpretable gender, which is assigned arbitrarily and is not based on semantic rules.

It might seem tempting at this point to think of the MSA gender system as an animacy-based one, where animacy splits all nouns into highly animate or inanimate. This hypothesis is true only if MSA provides one grammatical gender for all animate nouns, and another grammatical gender for all inanimate nouns. MSA data, however, show that there are two grammatical genders, feminine and masculine that are assigned to all nouns whether human or completely inanimate.

This is in line with Ryding's (2005) comments about arbitrary gender assignment of gender in MSA, in Section 6.1.2.3. I, however, add one point to Ryding's claim that the arbitrariness of gender assignment to inanimate nouns in MSA originally stems from animacy:

A singular noun is animate in MSA when it is assigned its interpretable grammatical gender based on the biological sex of the referent, a singular noun is inanimate in MSA if no biological sex of the referent can be identified and thus it is assigned an uninterpretable grammatical gender.

Figure 6.1 explains in much detail how grammatical gender is assigned to singular nouns with different morphological forms.

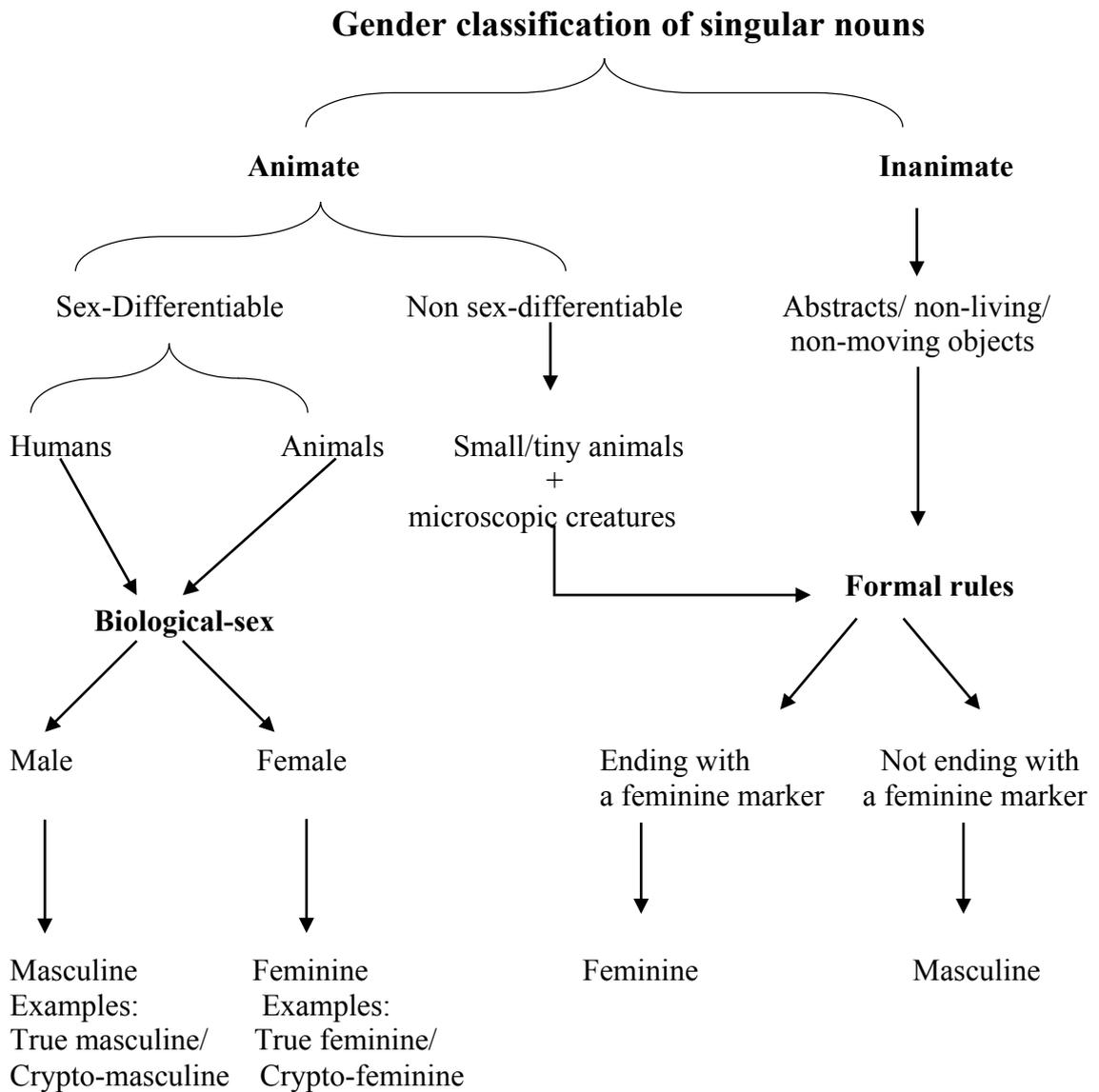


Figure 6.1: The gender assignment system for singular nouns in Arabic

Figure 6.1 shows the order of assigning grammatical gender to singular nouns in MSA. First, animacy splits nominals into higher animates and inanimates. Second, the biological sex of the referent determines whether it is classified under higher animates (including humans and bigger sex-differentiable animals), or under inanimates (including small non-sex-differentiable animals and lifeless objects). This classification determines what grammatical gender the referent is assigned as is seen in Figure 6.2 below.

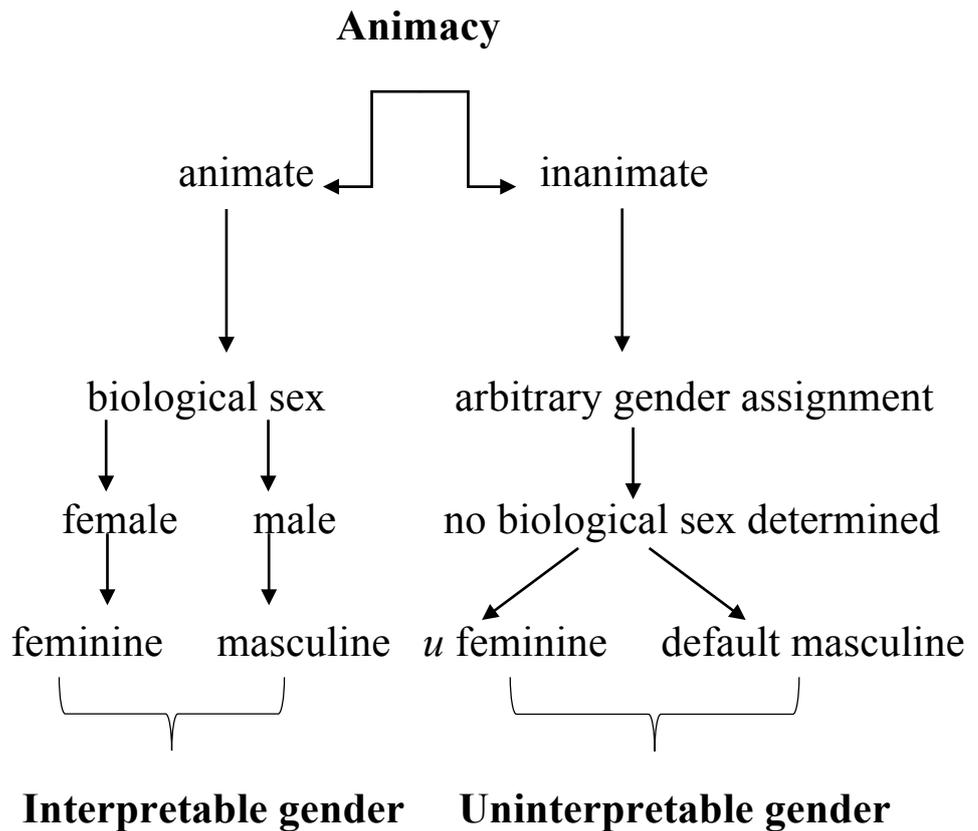


Figure 6.2: Illustration showing how interpretability of gender of singular nouns in MSA is related to the grammatical gender.

Figure 6.2 above demonstrates how the assigned grammatical gender of a particular noun can be explored in terms of interpretability.

In case of inanimates, no other semantic rule determines what grammatical gender the entity is assigned. As discussed above, neither *mizmār* ‘flute’ nor *mimḥāt* ‘eraser’ are specified for biological sex. They are both assigned their grammatical gender arbitrarily. Because the inanimate noun is inflected with the *affixal tā*, it is assigned its feminine gender accordingly. The feminine gender assigned is arbitrary and uninterpretable.

6.3.2.3.2 The gender assignment system for dual nouns in Modern Standard Arabic

MSA has dual number value marked on nominals, adjectives, verbs and demonstratives. Dual value in MSA has two main morphological inflections based on the gender of the referent. In other words, both the number and gender in dual are realised in the same suffix. These are as follows:

Dual feminine suffix: <i>-at-ān</i>	for nominative case
<i>-at-ayn</i>	for accusative and genitive cases
Dual masculine suffix: <i>-ān</i>	for nominative case
<i>-ayn</i>	for accusative and genitive cases

Both animate and inanimate nouns can occur in the dual form. As with singular nouns as in the previous section, this section provides a preview of corpus examples of agreement with dual nouns. Some sentences are in VSO, and others show adjectival or demonstrative agreement. Also, nouns chosen from the corpus vary in the animacy hierarchy. This enables us to empirically investigate where animacy cuts through in the dual noun gender assignment system.

A. Dual nouns referring to humans

The following corpus examples are of dual nouns referring to humans:

- (55) a. *daḥal-at* *fatā-tān* *al-maḥḥaf-a*
 entered.Prf-3S.F girls-3D.F.NOM the-museum.3S-ACC
 ‘two girls entered the museum’
- b. *ḡulām-ān* *flāh-ān*
 boys-3D.M.NOM farmers-3D.M.NOM
 ‘two farmer boys’

Example 55a is a VSO word order in which the verb agrees in person and gender with the post-verbal subject. Example 55b is a NP that demonstrates adjectival agreement. The dual noun that refers to human is assigned its grammatical gender based on semantic properties of the noun. Since the noun is human and is sex differentiable, the gender assigned is interpretable.

B. Dual nouns referring to large animals

The following corpus example shows the noun *ḡi`b-ān* ‘wolves’ in full adjectival agreement with the adjective *munfarid-ān* ‘single’:

- (56) la'alla ḍalik ma 'aḡḡal-a bi-'i' tiqāl-i
 might that what speeded.Prf-3S.M with-arrestment.3S-GEN
 al-ḍi'b-ayn al-munfarid-ayn
 the-wolves-3D.M.GEN the-single-3D.M.GEN
 'This might be what speeded the arrestment of the two single wolves'

The noun refers to a large animal that is sex differentiable. MSA differentiates the two biological sexes for this animals with two vocabulary items: *ḍi'b* 'wolf' for the male wolf and *sindāw-at* 'female wolf' for the female wolf. The dual form of the female wolf is *sindāw-atān* 'two female wolves'.²⁷ The noun is assigned its grammatical gender based on its biological sex. It also happens to be that the noun is inflected morphologically for the masculine dual morpheme –ān.

C. Dual nouns referring to smaller animals

The following examples are of dual nouns referring to smaller animals.

- (57) a. al- ḍifda' -ān qafaz-ā fi al-buḥair-at-i
 the-frogs-3D.M.NOM jumped.Prf-3D.M into the-lake-3S.F-GEN
 'the two frogs jumped into the lake'
- b. taḡāhal-at al-ḍifda' -atān tilka al-ta' līq-āt-i
 ignored.Prf-3S.F the-frogs-F.3D.NOM this the-comments-3Pl.F-GEN
 'the two female frogs ignored those comments'

The two examples above are of the noun *ḍifda' ān* 'two frogs'. Usually this noun is used in MSA with the masculine gender inflection either to refer to the male frog or to refer to the creature in general with no sex specifications. However, it can occur with a feminine inflection as in Example 57b, although only in more literary contexts or in children's story books. As in Example 49, the animal referred to is a sex-differentiable animal and morphological inflection happens to facilitate the interpretation of this semantic property (biological sex). The grammatical gender of the dual nouns in this example is interpretable and assigned according to the semantic properties of the referent.

²⁷ No examples showing an agreement relationship with *sindāwatān* 'two female wolves' could be recovered from the corpora.

D. Dual nouns referring to birds

The following are dual nouns referring to birds:

- (58) a. fa-**ta**-bta'id-u al- ḥamām-**atān** naḥwa al-samā'-i
 and-Imprf.F-move away-3S the-pigeons-F.3D towards the-sky.3SF-GEN
 bi-'itiḡāh-i 'abrāḡ-i al-'adyīr-at-i al-multāṣiq-at-i
 in-direction-GEN towers.3Pl.F-GEN the-montastaries-3Pl.F-GEN the-stuck-3S.F-GEN
 bi-al-ḡuyūm-i
 with-the-clouds.3Pl.F-GEN
 'and the two pigeons fly away towards the sky in the direction of the chapels' towers
 that are stuck to the clouds'
- b. al- ḡurāb-**ān** al-'abyaḡ-**ān** ya-ḥūm-**ān** ḥawla al-'arīn-i
 the-crows-3D.M the-white-3D.M Impr.3.M-wander-D around the-den.3S-GEN
 'the two white crows wander around the den'

In 58a, the noun is the dual form of the singulative *ḥamām-at* 'pigeon' mentioned in Example 51. There is no masculine gender inherent to it. It only comes in the singulative form²⁸, which is feminine and thus its dual form is feminine as well. The noun with its feminine gender, whether referring to one (singulative) or two (dual), can be used to refer to pigeons in general regardless of the biological sex they have. Similarly, in 58, the noun *ḡurāb-ān* 'two crows' in the dual or *ḡurāb* 'crow' in the singular is used to refer to this bird in general regardless of its biological sex. Other nouns referring to birds in MSA, such as *nasr* 'eagle' and *ṣaqr* 'falcon', are also used only in the masculine form. It seems that since these nouns do not differentiate biological sex of the referent or that the biological sex is not important, gender assignment is arbitrary and uninterpretable.

E. Dual nouns referring to inanimates The following corpus example is of a dual noun referring to an inanimate entity that is marked morphologically with a dual feminine marker and triggers adjectival feminine agreement:

²⁸ The singulative form refers to the singular form of a collective noun. It ends with an affixal tā and can be dualised and pluralised. Detailed discussions of singulative and collective are found in Section 7.4.2, and in Section 8.6.1

- (59) nam-at ‘alay-hi šağara-**tān** ra’ siyya-**tān** min
 grew.Prf-3S.F on-it.3S.M trees-3D.F vertical-3D.F from
 naw‘-in ‘āḥar-in
 different.3S-GEN kind.3S-GEN
 ‘two vertical trees of a different kind grew on it’

The following corpus example is a dual noun referring to an inanimate that is marked morphologically with a dual masculine marker and triggers adjectival masculine agreement:

- (60) wa ṭammata manzil-**ān** mahjūr-**ān** ‘ila al-ğānūb-i
 and there houses-3D.M abandoned-3D.M towards the-south.3S-GEN
 al-ğarb-i min al-mawqī‘-i
 the-west.3S.M-GEN from t he-location.3S-GEN
 ‘And there are two abandoned houses to the south-west of the location’

These corpus examples all show dual nouns in MSA with referents ranging from humans to inanimates. Human dual nouns in MSA are assigned grammatical gender based on the biological sex of the referents: feminine gender if the referent is biologically female and masculine gender if the referent is biologically male. Like singular nouns, animacy comes first to split off nouns to what is sex differentiable and what is not. As long as the referent of the nouns is capable of being sex-differentiated, the nouns takes its grammatical gender based on the biological sex, and thus this grammatical gender is interpretable. Once the biological gender of the noun becomes undetermined or not important, then the noun takes an arbitrarily grammatical gender that is uninterpretable. This is the case seen with tiny/microscopic creatures and lifeless entities, which are assigned grammatical gender that is uninterpretable.

Similar to the singular nouns above, dual nouns are diagnosed as being animate or inanimate depending on the biological sex of the referent:

A dual noun is animate in MSA when it is assigned its interpretable grammatical gender based on the biological sex of the referent, a dual noun is inanimate in MSA if no biological sex of the referent can be identified and thus it is assigned an uninterpretable grammatical gender.

Figure 6.3 summarises the grammatical gender of the dual nouns between form and semantic properties which is the same as that of singular nouns.

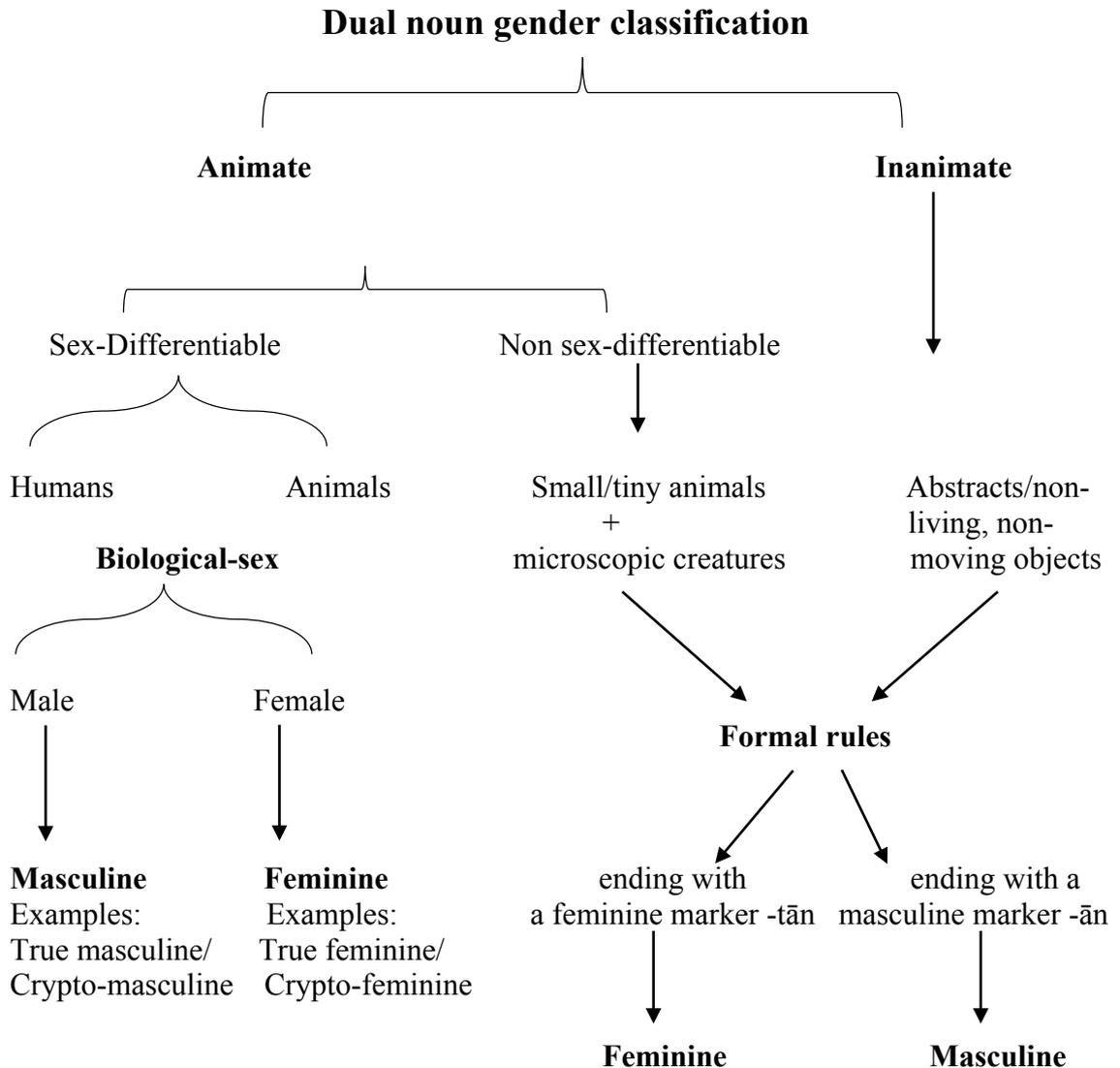


Figure 6.3: The gender assignment system for dual nouns in MSA

6.3.2.3.3 The gender assignment system for plural nouns in MSA

The gender assignment system for plural nouns has special importance for two main reasons. First, the description of nouns triggers different gender agreements when changing number must depend on comparison between singular nouns and plural nouns. This is the difference in gender marking between singular and plural that best explains how these nouns in MSA behave. Second, and more important with respect to this

thesis, is the effect of animacy on agreement in MSA. The effect of animacy is best seen in the patterns of agreement between plural inanimate nouns with different targets (verbs, demonstratives or adjectives). Before discussing the gender assignment system for plural nouns in MSA, the following section provides a brief introduction to the system of morphology marking in plural nouns in MSA to assist in understanding the corpus data.

In MSA, plural nouns come in various forms. Each of these forms provides an indication of the meaning, the importance of the referent or the number of referents composing the group:

1. Sound plural forms

This type of plural has regular morphological forms and is sometimes referred to as regular plural. It has two subtypes:

- a. the feminine sound plural: plurals of this type end with ‘*āt*’
- b. the masculine sound plural: plurals of this type end with ‘*īn*’ in the accusative and genitive cases, or ‘*ūn*’ in the nominative case.

2. Broken plural forms

This form of the plural is not formed regularly by adding a suffix to the singular form; rather, it is formed through certain vowelings or phonotactic changes which the root undergoes. For more on the types of plural of MSA, refer to section 7.3.1.3

As for the singular and dual nouns above, the following are sets of corpus data consisting of sentences with a plural subject from different levels of the animacy hierarchy. The aim is to observe the effect of animacy with plurality in partial agreement in SVO word order.

A. Plural nouns referring to humans

The following corpus example is of a plural noun referring to humans:

- (61) a. al-mu‘allim-**āt** mujtami‘-**āt** fī al-‘idār-at-i
 the-teachers-3Pl.F gathered-3Pl.F in the-administration-3S.F-GEN
 ‘the teachers are gathered in the administration office’
- b. al-mu‘allim-**ūn** ṭalab-**ū** bi-‘ilgā’-i
 the-teachers-3Pl.M.NOM asked.Prf-3Pl.M for-removing.3S.M-GEN
 mukāfa’-āt-i al-ṭalabat-i
 reward-3Pl.F-GEN the-students.3Pl.M-GEN
 ‘the teachers asked for removing the students’ reward’

Example 61a shows adjectival agreement in gender between the noun and the adjective.

Example 61b is a SVO word order sentence in which the noun shows full agreement with the verb. Nouns referring to humans are assigned gender based on the biological sex of the referent. Plural nouns referring to female humans trigger feminine gender on the target whereas plural nouns referring to male humans trigger masculine agreement on the target. The grammatical gender assigned to plural nouns referring to humans is thus interpretable.

B. Plural nouns referring to large animals that are sex differentiable

The following examples demonstrate the gender of lion and lioness.

- (62) a. wa ḡar-at al-‘ād-at-u ‘anna al-‘usūd-a
 and became.Prf-3S.F the-usual-3S.F-NOM that.C the-lions.3S.F-ACC
t-adrus-u al-makān-a qabla al-huḡūm-i ‘ala al-farīs-at-i
Impr.F-study-3S the-place.3S-ACC before the-attack-GEN on the-prey-3S.F-GEN
 ‘and it is usual that lions study the place before attacking the prey’
- b. tilka al-labaw-āt-i t-akūn-u ‘awwala man
 those.3S.F the-female.lions-3Pl.F-GEN Impr.F.was-3S first who
 ya-taqaddam-u li-al-‘akl-i
 Impr.M.3- approach-S to-the-food-GEN
 ‘those female lions are the first to approach the food’

Example 62a is of a SVO word order in which the noun ‘usūd ‘lions’ triggers feminine gender agreement on the verb. The singular form of the noun ‘asad ‘lion’ triggers masculine agreement as this noun has a corresponding vocabulary item for the female

lion. The dual form also triggers masculine agreement. It is only when the noun is in the plural that it is seen to trigger feminine gender. The noun is also seen to trigger singular number on the verb, which is an intriguing behaviour. I do not discuss the singular agreement in this chapter as it will be discussed thoroughly in Chapters 7 and 8.

The noun *labaw-āt* ‘female lions’ from Example 62*b* is morphologically marked with the sound feminine plural, and is seen to trigger feminine agreement. The noun refers only to the female lion, and is always seen to trigger feminine agreement whether in the singular, dual or plural—in this sentence, the plural. Before making a generalisation about the gender assignment of plural nouns referring to large animals, the following example is provided of nouns referring to large sex-differentiable animals; cows and bulls:

- (63) a. **al-’abqār-u** **t-durr-u** ḥalīb-an ’athnā’a
the-cows.3Pl.F-NOM **Impr.F-produce-3S** milk.3S-Indf.ACC while
 istimā’-i-ha li-al-mūsīq-a
 listening-GEN-it.3S.F to-the –music.3S.F.GEN
 ‘the cows produce milk while listening to the music’
- b. fa-shāhad majmū’-at-an min **al-ṭīrān-i**
 and-saw.Prof.3S.M group-3S.F-Indf.ACC of **the-bulls.3S.F-GEN**
al-ḍahm-at-i allati ta-kūru
the-huge-3S.F-GEN that.3S.F Impr.3.F-bellow.S
 ‘and he saw a group of huge bull bellowing’

The noun in Example 63*a* *’abqār* ‘cows’ is in the broken plural form and is seen to trigger feminine gender agreement with the verb. The noun in the singular triggers feminine agreement as it is biologically distinguished to refer to cows (females). The noun *ṭīrān* ‘bulls’, however, is biologically distinguished for the male animal. Therefore, it is expected to trigger masculine agreement. However, it is seen to trigger feminine agreement on the adjective in Example 63*b*. As seen in 63, both plural nouns are seen to trigger singular agreement.

C. Plural nouns referring to smaller animals

The following examples are for smaller animals, including birds:

- (64) **al-ṭuyūr-u** **ta-kūn-u** **dāta** **ḥassāsiyy-at-in**
the-birds.3Pl.F-NOM **Impr.F.S-be-S** with sensitivity-3S.F-Indf.GEN
 ‘āliy-at-in
 high-3S.F-Indf.GEN
 ‘the birds are with high sensitivity’

The noun *ṭuyūr* ‘birds’ is seen to trigger feminine gender agreement on the verb in SVO word regardless of the morphological form.

The next corpus examples involve cats, dogs and mice:

- (65) a. **al-qīṭaṭ-u** **la** **t-a’ḥuḍ-u** **’idn-an** **min** **’aḥad-in**
the-cats.3Pl.F-NOM **Neg** **Impr.F-take-3S** permission.3S-Indf.ACC from anyone
 ‘cats do not take permission from anyone’
- b. **al-kilāb-u** **t-anbaḥ-u** **wa** **al-qāfil-at-u** **ta-sīr-u**
the-dogs.3Pl.F-NOM **Impr.F-bark-3S** and the-wagon-3S.F-NOM Imprf.F.3-moves-S
 ‘the dogs bark, and the wagon moves’
- c. **wa** **al-fi’rān-u** **t-a’kul-u** **al-naḥl-a**
 and **the-mice.3Pl.F-NOM** **Impr.F-eat-3S** the-bees.3Pl.F-ACC
 ‘and the mice eat the bees’

In 65a, the noun *qīṭaṭ* ‘cats’ is seen to trigger feminine gender on the verb. The noun in its plural form can be a plural of either *qīṭṭ-at* ‘a female cat’, or *qīṭṭ* ‘a male cat’. It is not clear which biological sex of the animals the plural noun is referring to. It may be referring to mixed sexes. In all cases, the noun in the plural is seen to trigger feminine agreement on the verb. In 65b, the noun *kilāb* ‘dogs’ is also seen to trigger feminine agreement on the verb. The same observation holds for the noun *fi’rān* ‘mice’ in 65c.

D. Plural nouns referring to very small animals including insects

The noun *ḥašar-āt* ‘insects’ in the corpus example 66a triggers feminine gender agreement on the adjective:

- (66) a. ta-astaṭī^ʿ-u al- ḥašar-āt-u muktamil-at-u
 Impr.F.3-can-S the-insects-3Pl.F-NOM full-3S.F-NOM
 al-numuw-i al-ṭayārān-a
 the-growth.3S-GEN the-flying.3S-ACC
 ‘Fully grown insects are capable of flying’
- b. ta-taḡadḏa al- ‘aqārib-u laylan ‘ala
 Imprf.F.3-feeds.S the-acorpions.3Pl.F-NOM night on
 al-ḥašar-āt-i al-ṣaḡīr-at-i
 the-insects-3Pl.F-GEN the-small-3Pl.F-GEN
 ‘the scorpions feed on small insects at night’

The noun in its singular form is *ḥašar-at* ‘an insect’ and is not sex differentiable, so the noun in its plural form is not sex differentiable either. The noun in 66b *‘aqārib* ‘scorpions’ also triggers feminine agreement on the verb in the VSO word order sentence.

E. Plural nouns referring to microscopic creatures

The following corpus examples are of nouns referring to microscopic creatures.

- (67) a. ‘indama t-abda^ʿ-u al-ḡarāṭīm-u našāṭa-ha
 when Impr.F-start-3S the-germs.3Pl.F-NOM activity.3S-its.3S.F
 al-mu ‘ḏī
 the-harmful.3.S.M-GEN
 ‘when the germs start their harmful activity’
- b. al-mikrūb-āt-u tu-lawwin-u al-fann-a al-ḥaḡarī
 the-microbes-3Pl.F-NOM Impr.F.3-colour-S the-art.3S-ACC the-stone.3S.M-GEN
 al-qadīm-i
 the-old.3S.M-GEN
 ‘the microbes colour the old stone art’

The nouns *ḡarāṭīm* ‘germs’ and *mikrūb-āt* ‘microbes’ are in the plural form and their singular forms are *ḡurṭūm-at* ‘a germ’ and *mikrūb* ‘a microbe’, respectively. The singular *ḡurṭūm-at* ‘a germ’ is non-sex differentiable and thus assigned its grammatical gender arbitrarily. Since it ends with a feminine morphological marker, it is expected to trigger feminine agreement on the target as seen in Example 52a. The same thing applies to the noun *mikrūb* ‘a microbe’. Both nouns, despite their differences in the gender agreement they trigger in the singular, are seen to trigger feminine agreement. In 67a, the sentence is in VSO word order and the plural noun triggers feminine agreement

on both the verb and the pronominal object clitic that refers to the noun. In 67*b*, the noun triggers feminine gender agreement on the verb.

F. Plural nouns referring to inanimate

The following corpus examples are for non-moving objects and abstracts:

(68) **al-kutub-u** **tu-uṭri** al-maʿrif-at-a
 the-books.3Pl.F-NOM Impr.F.3-enrich.S the-knowledge-3S.F-ACC
 ‘books enriches knowledge’

(69) **al-ʾahlāq-u** **ta-rfaʿ-ū** al-ʾumam-a
 the-morals.3Pl.F-NOM Impr.F.3-elevate-S the-nations.3Pl.F-ACC
 ‘morals elevate nations’

Similarly, the nouns in examples 68 and 69 are inanimate plurals and are seen to trigger feminine agreement on the verb.

The corpus examples above demonstrate that with plural nouns in MSA, animacy level as seen in humanness seems to split all plural nouns in MSA into categories in terms of gender interpretability. Only plural nouns referring to humans are assigned interpretable gender values based on the referent’s biological sex. In contrast, anything else that is not human is assigned arbitrary grammatical feminine gender, which for now I call uninterpretable feminine gender.

The corpus examples above have covered the whole spectrum of the animacy hierarchy starting from humans and moving down to non-animate objects. Apart from human plural nouns that trigger agreement corresponding to their biological sex, all the other plural nouns seem to follow a consistent pattern of triggering feminine gender with singular number.

In addition, in all the corpus examples above—with the exception of sentences in the VSO word order in which the verb shows default number impoverishment—the noun triggers not only feminine gender agreement, but also singular number agreement on verbs, adjectives and referential pronouns. This agreement pattern shows that plurality

interacts with animacy in conditioning partial agreement of plural nouns in MSA.

Singular agreement with plural nouns in SVO is discussed in more detail in Chapters 7 and 8.

Similar to the singular and dual nouns above, plural nouns are diagnosed as being animate or inanimate depending on *humanity*:

A plural noun is animate in MSA only when it refers to human. It is thus assigned interpretable gender based on the biological sex of the human. A noun whose referent is non-human—whether or not it is sex differentiable—is inanimate and thus assigned uninterpretable gender, which is feminine.

Figure 6.4 summarises how plural nouns in MSA are allotted their genders.

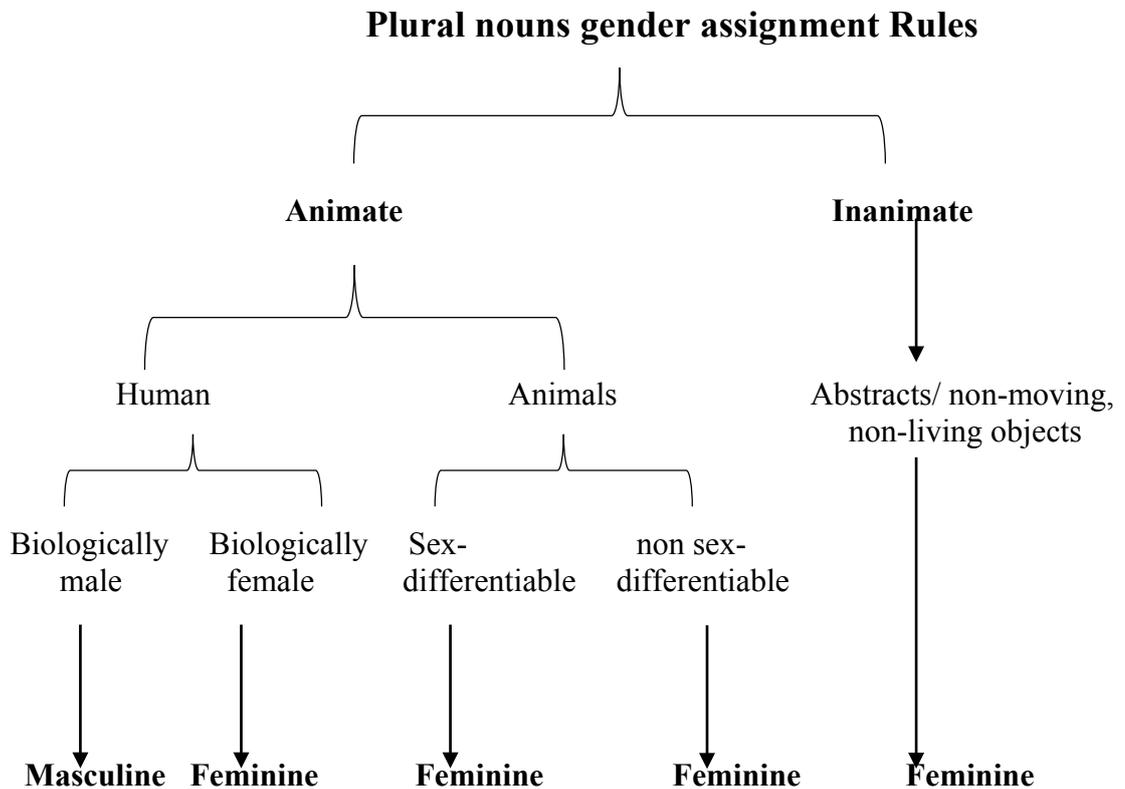


Figure 6.4: The gender assignment system for plural nouns in MSA

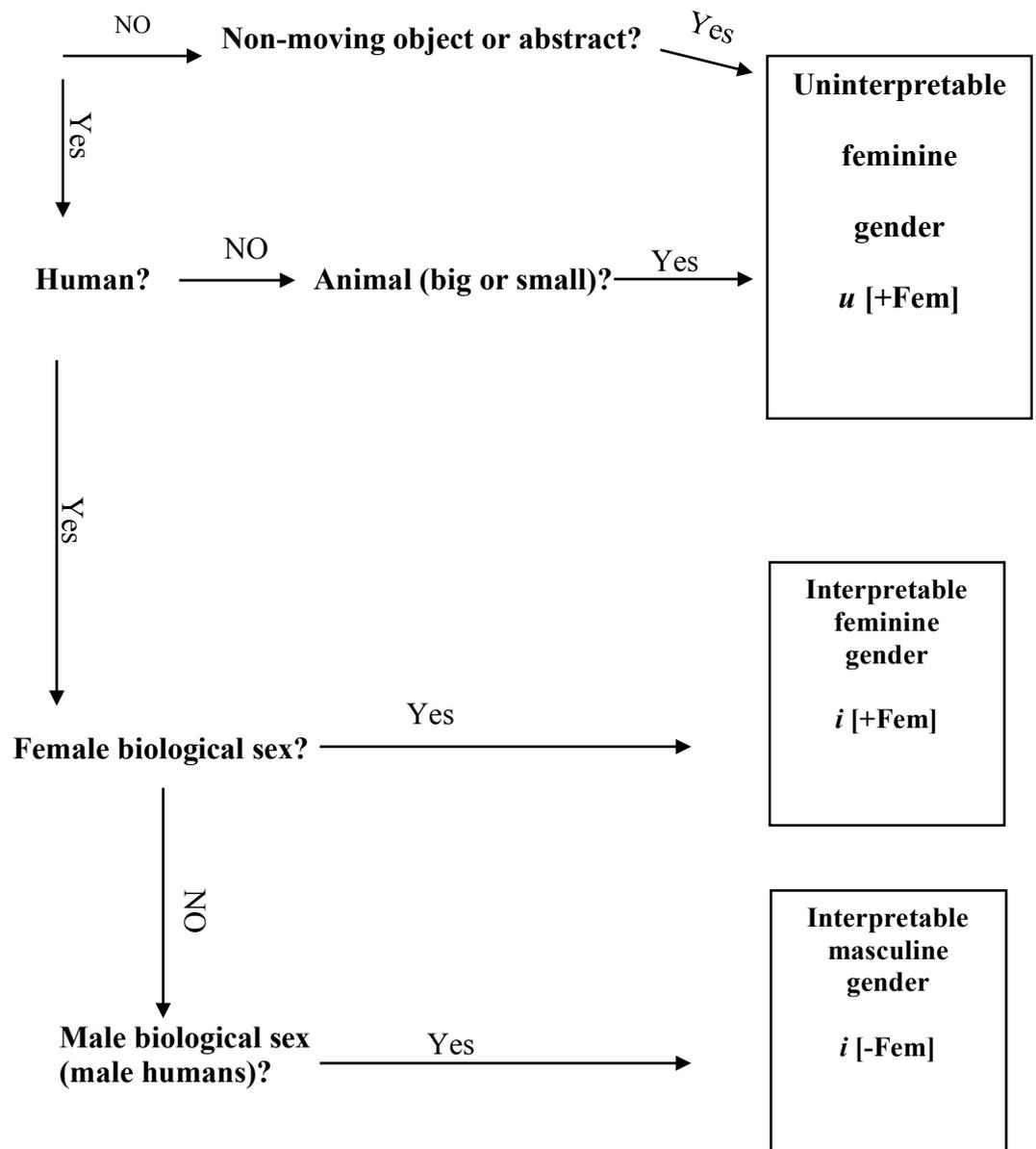


Figure 6.5: Hierarchical order of the process of gender assignment for plural nouns in MSA

The above discussion offers empirical corpus evidence for the postulation made at the beginning of the chapter that the gender of a plural noun is not necessarily the same as its singular counterpart. While the gender assignment system for singular and dual nouns in Arabic employs both semantic and formal rules together, the gender assignment system for plural nouns is a purely semantic one. This is because the features responsible for gender assignment in Arabic differ according to the number

value of the noun in question. Nouns showing these shifts in gender marking are labelled as marked for inqorate gender.

6.3.3 Mixed-agreement nouns and exceptions in gender assignment systems in MSA

Although the above system works well for the majority of nouns in MSA, it is worth noting that there are some inanimate nouns that deviate from following that system of rules in receiving gender. The exceptions to the above rules can be summarised as follows:

1. Crypto-feminine (semantic feminine) nouns denoting inanimates:

a. Crypto-feminine nouns having feminine gender:

Examples are *qadam* (foot), *nār* (fire), *šams* (sun), *yad* (hand) and *ard* (earth). These nouns have feminine gender in all three number variations: singular, dual and plural. Hasan (1975, pp. 585–586) notes that these nouns are feminine but are not marked morphologically for feminine gender as they have an ‘implied feminine marker’. Wright (1955, p. 178) and Hasan (1975, pp. 585–586) argue that when these three-lettered nouns are put in the diminutive form, they become morphologically marked for feminine gender. Refer to Tables A3, A10, A11, A12 and A13 in the appendix for more corpus examples.

b. Crypto-feminine ‘*mixed-agreement*’ nouns:

These nouns provide good empirical evidence for the existence of the ‘inqorate gender’²⁹ class in MSA, as they show various values of gender with each number variation. Such nouns can also be labelled

²⁹ Refer to Section 6.3.1 for more on the definition of inqorate gender nouns.

mixed-agreement nouns. Mixed-agreement nouns belonging to this inquorate gender class can be divided into the following subclasses:

i. Mixed-agreement inquorate nouns only in the singular form:
ra's (head) and *kabid* (liver) are two examples of inquorate nouns that demonstrate mixed agreement in only the singular form. In other words, they can be either masculine or feminine in the singular form but have a fixed gender (masculine) in the dual form and a fixed gender (feminine) in the plural form. Since they change gender marking according to number they are classified as inquorate nouns (see Tables A6 and A7 in the appendix). These can be classified as inquorate gender in MSA: as per Corbett's definition in Section 6.1.4 they form a few number of nouns in the language.

ii. Mixed-agreement inquorate nouns in the singular and dual form:
dirā' (arm), *baṭn* (belly), *sāq* (leg), *'unuq* (neck) and *dār* (home) are all inquorate nouns that demonstrate mixed agreement in both the singular and dual form but have a fixed gender (feminine) in the plural (see Tables A4, A5, A8, A9 and A14 in the appendix).

iii. Mixed-agreement inquorate nouns in all number variations:
 The corpora showed no examples of nouns that demonstrate mixed agreement in plural form. This is in line with the argument that all inanimates in Arabic are feminine in gender

regardless of any other factor. The agreement behaviour of these mixed-agreement nouns is discussed in Chapter 8.

2. The names of countries and cities are mainly feminine. However, there are some exceptions to this rule, such as *al-ğazā'ir* 'Algeria', *Al- 'irāq* 'Iraq' and *Al-yaman* 'Yemen'.

6.3.4 Mixed and indeterminate gender

There are some cases in which the assignment of gender to nouns is not straightforwardly following the previously discussed semantic or formal rules. This becomes clear with nouns that indicate a group of people with multiple genders, or with collective nouns. In languages with feminine and masculine genders, the masculine is often the default gender assigned to nouns indicating groups of mixed gender. This also applies to nouns that refer to generic singular referents, such as 'child', 'baby', 'employee', 'doctor' and 'teacher', which are always assigned masculine gender (as reflected in agreement) unless modified by a female modifier.

This tendency to use the masculine as the default gender applies in MSA. It is expected that the word for 'people' in MSA, *nās*, will be assigned masculine gender, as observed in the following examples:

(70) *al-nās-u* *qāl-ū* *'innah-u* *ṣağīr-an*
 the-people.3Pl.M-NOM said.Prf-3Pl.M that-it.3S.M.ACC small.3S.M-Indf.ACC
 'People said that it is small'

(71) *al-nās-u* *ğama' -at* *al- 'amwāl-a*
 the-people.3Pl.M-NOM collected.Prf-3S.F the-money.3Pl.F-ACC
li-al-mutaḍarrir-īn
 for-the-needy- 3Pl.M.GEN
 'People collected money for the needy'

(72) *ba' ḍu* *al-nās-i* *'atā* *li-al-ḥafl-i*
 some.NOM the-people.3Pl.M-GEN came.Prf.3S.M to-the-party.3S-GEN
 'Some people came to the party'

In the corpus examples 70, the verb ‘said’ agrees with the noun ‘people’ in gender (masculine) and in number (plural), as the noun refers to a group. This provides evidence that nouns that indicate a group of mixed genders are assigned the default gender, which is masculine. In the corpus example 71, however, we see different agreement patterns between the noun and verb. In 71, the verb is singular and feminine, which means that there is disagreement in the gender and number features of the noun. This is an indication that there are other factors at play affecting the values of both gender and number: feminine singular instead of masculine plural.

In both corpora used for the data in this thesis, a third pattern of agreement is very frequent. This is the singular masculine agreement seen in Example 72. This agreement pattern, however, occurs when the noun *nās* ‘people’ is preceded by the quantifier *ba ʿdu* ‘some’. In Example 72, the verb agrees with *ba ʿdu* ‘some’ not with the noun *al-nās* ‘the people’.

This evidence of a variety of agreement patterns provides support for my assumption that the gender of a plural noun is not necessarily inferred from the type of agreement it demonstrates with the elements around it. ‘People’ is a noun that demonstrates three different types of agreement, each of which are grammatical. This is yet more empirical evidence that gender undergoes a systematic assignment process.

6.3.5 Part 1 Conclusion

This part was about gender and included a discussion of different gender assignment systems cross-linguistically. The discussion in this part of the chapter shows that gender assignment is the process by which nouns are classed into categories based on several factors. Some nouns are assigned genders according to purely semantic rules. For other nouns, however, semantic rules alone fail to assign gender. Therefore, formal features are often employed alongside semantic features. This section provided cross-linguistic examples of these different types of systems and showed that while gender assignment

is a straightforward process in some languages, it can be very complicated in others. Even among those languages that operate typologically similar systems of gender assignment, there are considerable differences in the features that interact within these systems and that delineate the relevant semantic categories. Features may interact or overlap with each other, adding further complexity to the system. This part has also shown that the best way to examine which gender a particular noun has is to observe the marking of gender on its target(s).

In this part, it was shown that MSA uses a gender system that is semantically based. In terms of semantic rules, the first distinction is animacy: animates are distinguished from inanimates. In MSA, a large number of animals are not sex-differentiable with two distinct words. Therefore, most of the nouns referring to animals are treated by the grammar as being inanimate even though they demonstrate properties of living/ moving creatures. Also, I argued that in MSA, gender interacts with number as seen in the morphological marker of gender for the three number values: singular, dual and plural.

6.4 Part 2: The Morphosyntax of Gender

6.4.1 Introduction

As this thesis is concerned with features responsible for conditioning agreement patterns, these features must be in one way or another presented in syntax. To establish a satisfactory analysis of gender as a feature in the syntax of agreement, this part of the chapter focuses on two questions:

1. Where is the feature of gender located in the structure of the DP?
2. How do semantic properties of gender affect its interpretability?

6.4.2 The location of gender in the DP in the literature

As seen in the first part of this chapter, the value of gender as a nominal feature is conditioned by two main semantic properties that are considered inherent to the noun: animacy and biological sex. Neither of these semantic properties is realised morphologically nor participates directly in the process of syntactic agreement. They are still present and have an important role in conditioning the value of gender and its interaction with number. Therefore, both animacy and biological sex are considered nominal inherent properties of the noun *n*.

Gender is also considered a nominal feature. However, it remains controversial whether gender, being a morphosyntactic feature, projects its own head or is located on the *n*. The various proposals are as follows.

6.4.2.1 Gender is on GenP

Picallo (1991) argues that in Catalan, gender as a morphosyntactic feature has a separate projection that dominates the NP. The gender projection, however, is dominated by a separate NumP. Accordingly, Picallo's (1991) structure of the DP in Catalan is presented as in Figure 6.6.

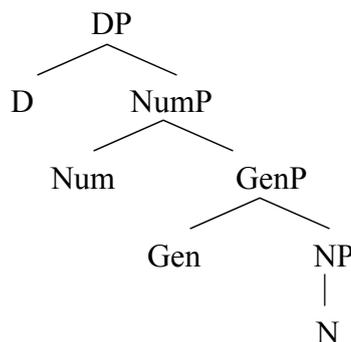


Figure 6.6: The DP structure of Catalan according to Picallo (1991)

Picallo argues that any feature that is morphologically inflectional should have a separate projection. Since gender is always realised morphologically, she argues that there must be a separate projection to host gender in Catalan.

Kramer (2016b, p. 663) presents and summarises two diagnostic criteria for the purpose of deciding whether a certain morphosyntactic feature can head its own projection.

These diagnostics are as follows:

1. A feature should be present at the syntactic level and capable of being a landing site for head movement in the syntax.
2. A feature should have a semantic interpretation and be present at the morphophonological level.

With regard to gender in MSA, the first diagnostic states that a feature should actively participate in syntax; gender is very active in agreement relationships as seen in the corpus examples in the first part of this chapter. Agreement is the only syntactic environment in which gender participates in syntax. As for semantic interpretation, gender in MSA cannot always be said to have interpretable values unless the referent is animate and has an identifiable biological sex. Gender, therefore, cannot be always seen to have a presence at the semantic interpretation interface. Further, gender is not always realised morphophonologically as seen with crypto-masculine and crypto-feminine nouns, and also broken plural nouns. Even when gender is morphologically realised on the noun, it does not necessarily correspond to natural gender, as it can be uninterpretable.

As seen from the above diagnostics for the existence of GenP in MSA, there is insufficient evidence (as seen from the corpus examples presented in Part 1) to show how gender and animacy of the subjects can disagree in grammatical gender with the verb.

6.4.2.2 *Gender is on NumP*

Ritter (1993) argues against the proposal that gender is located on GenP. Instead, she proposes that it is only number that projects its own head. The structure of the DP according to Ritter (1993) is as shown in Figure 6.7.

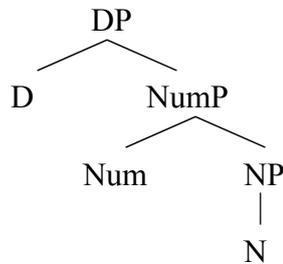


Figure 6.7: The structure of the DP according to Ritter (1993)

Ritter's (1993) proposal includes no gender projection. Her argument is that gender is a nominal feature and its interaction with the feature of number makes it possible for it to be only either on the head N or on the NumP depending on language-specific properties.³¹ Ritter provides empirical evidence against the proposal that gender has a separate projection: the first case is from Hebrew, where gender morphology is derivational. In other words, suffixes can be added to a noun of one gender to change it into another. Therefore, Ritter sees that gender is a feature that should be located on the nominal. Thus, changing the gender by adding a suffix results in a different noun. The second empirical example that Ritter presents as evidence against the proposal that gender has its own projection is from Romance languages. Unlike in Hebrew, changing the gender of a noun does not result in a new noun; thus, gender in Romance languages is inflectional. These two pieces of empirical evidence are the motivations behind Ritter's proposal that gender is located on either N or NumP, but not on GenP.

³¹ Ritter's derivational morphology proposal is not post-syntactic. She assumes that this inflection takes place in the lexicon.

Having argued that gender in MSA cannot be located on a gender projection head GenP, and since MSA nominal inflections occur with values of both gender and number together, it might be tempting to argue that gender is located on Num. Consider the following examples:

<i>a</i> zāwiya-tān	<i>b</i> ʿalām-āt
corners-3D.F	signs-3Pl.F
<i>c</i> muʿallim-ūn	<i>d</i> muʿallim
teachers-3Pl.M	teacher.3S.M

Examples *a*, *b* and *c* have morphological endings on the nouns in which both gender and number are realised. This motivates the assumption that both features must be realised together on the same head. Since there is no GenP to host gender values, gender could be located with number on Num. Ritter (1993) argues that a gender value can be located on NumP in some languages where both gender and number are morphologically exponed together as in Romance languages. In Italian, for example, the morpheme *-i* expresses masculine plural whereas *-e* expresses feminine plural. This is similar to nouns in *a*, *b* and *c* above. Noun *d*, however, is not inflected for number or gender, yet if seen in a complete sentence, it triggers masculine singular agreement morphology on the verb as in the following corpus example:

(73) ḥaraġa	al-muʿallim-u	min	al-faṣl-i
went.away.Prf.3S.M	the-teacher.3S.M-NOM	from	the-classroom.3S-GEN
‘the teacher went away from the classroom’			

The noun *muʿallim* ‘teacher’ in the example above is not inflected for number, and thus can be seen to have the default number value, which is singular. If a number value were to be added to the noun *muʿallim* ‘teacher’, it would appear overtly as a morphological ending: *-ān* or *-ayn* for dual and *-ūn* or *-īn* for plural. This overt number morphology

is inflectional, not derivational, and thus according to Ritter's proposal number should be on a separate inflectional head, NumP.

Does this mean that the noun lacking clear overt morphology of number actually lacks a number value, and thus should be assigned the default value for number—singular?

Since *mu'allim* 'teacher' has no morphological ending in which gender and number are exponed simultaneously, does this mean that gender is on the nominal head while number should be somewhere higher to host number morphology? These questions are not straightforward to answer. There is some empirical evidence to support the assumption that gender and number are located together on the same syntactic head based on the single morphological exponence of both in MSA. However, I argue in the following section that gender is only located on the noun. I first present the lexicalist approach to gender, which is outside the theoretical scope of this thesis but falls within the main thread of argument about the location of gender and, thus, deserves mention.

6.4.2.3 *Gender is on the noun N*

6.4.2.3.1 *The Lexicalist approach to gender (Lexicalism)*

The third approach to locating gender is the lexicalist approach, or Lexicalism, whose basic assumption is that each noun comes with a specified gender listed in its lexical entry.

A lexicalist approach to gender has been adopted in various works on gender cross-linguistically: Harris (1991) for Spanish and Alexiadou (2004) for Spanish and Greek, Hebrew and Italian. In this approach to gender, there is a distinction made between natural gender (biological sex) and grammatical gender (the gender value that is shown in syntax and morphology). The basic assumption that all works of gender within the lexicalist point of view have in common is that nouns are assigned grammatical gender values in the lexicon. These gender values are either specified or unspecified. Nouns

with specified grammatical gender values are those that do not have a natural gender. Nouns with no natural gender come out of the lexicon listed and specified with a grammatical gender. Nouns with natural gender, however, have unspecified grammatical gender. Therefore, the lexicon has to take the extra step of mapping the natural gender to a grammatical gender. In Spanish, for example, there is a rule called ‘*human gender*’ (Harris, 1991) in which a female human gender is changed into a feminine grammatical gender capable of entering into syntactic relationships.

Kramer (2015) argues against this lexicalist approach to gender as being not economical. This extra step that the grammar has to go through to convert all natural gender values into grammatical ones is an additional process, especially when languages have sex-differentiable cores in their gender system (Corbett, 1991). If all animates have to go through this prolonged step, then why not have the natural sex visible to syntax?

Further, it is unknown how nouns with undetermined biological sex, which can refer to both female and male natural genders, are converted into their grammatical genders. Given that discourse information is not visible to the lexicon, how can such generic nouns depend for their gender assignment in the lexicon on the surrounding context?

With regard to non-sex-differentiable nouns, which have no semantic core, it is unclear how they are assigned grammatical gender. This analysis is problematic with languages in which non-sex-differentiable nouns have an interaction between animacy and number to trigger *feminine agreement* as in MSA. Also, the lexicalist approach does not offer an explanation for why some gender values change according to number.

6.4.2.3.2 *Gender is on the noun N: DM approach*

As discussed in Chapter 4, a DM approach to analysing nominal features assumes the decomposition of the NP into a category-neutral root and a category-defining head (*n*)

bearing the feature values. The structure of a NP in the DM approach looks like that in Figure 6.8.

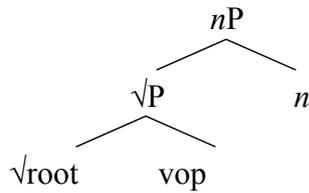


Figure 6.8: The structure of the *nP* in the DM approach

Several analyses assuming that the location of gender is on *nP* have also proposed that the gender values are found on both the category-neutral root and the *n* (Atkinson, 2012; Duek, 2014; Kramer, 2009; Steriopolo and Wiltschko, 2010). Having gender on both the root and *n* provides two different locations to locate both natural and arbitrary genders.

However, having proposed that this is the structure of the nominal that will be adapted to analyse features in MSA, we now have the root and the category-defining head (*n*) to decide on the location of the gender. In this part of the chapter, I emphasise only gender features. Although number is highly relevant to gender and both number and gender features are realised on the same suffix in most cases, number is discussed separately in the next chapter. A famous example of roots in MSA is \sqrt{ktb} from which the nouns in Table 6.4 can be derived by applying the DM notion of the root $\sqrt{\quad}$ to the Arabic consonant root $\sqrt{C_1C_2C_3}$.

Table 6.4: Some MSA nouns derived from the root \sqrt{ktb} and their grammatical genders

MSA noun	Gloss	Grammatical gender
kitāb	‘book’	masculine
kātib	‘writer’	masculine
kitābat	‘writing’	feminine
maktab-at	‘library’	feminine
maktab	‘office’	masculine

Table 6.4 provides clear evidence that gender values are definitely not located on the root. If gender were located on the root, each of the nouns in the table would have the same gender. Further, the nouns are all singular but if they were pluralised, the inanimate ones would be marked with a different value of gender as observed from the gender agreement they trigger. Consider the following corpus examples for the noun *kitāb* ‘book’ in the singular as seen in *a* and the noun *kutub* ‘books’ in the plural as seen in *b*:

(74) a. al-kitāb-u ṣadar-a mu’ aḥḥaran
 the-book.3S-NOM issued.Prf-3S.M lately
 ‘the book is issued lately’

b. al-kutub t-uṭri al-ma’rif-at-a
 the-books.3Pl.F Impr.F-enriches.3S the-knowledge-3S.F-ACC
 ‘books enrich knowledge’

The singular noun in *74a* triggers masculine agreement while the plural noun in *74b* triggers feminine agreement. If gender is located on the root, then it might be hypothesised that in MSA there are two roots for $\sqrt{\text{ktb}}$ as follows:

$\sqrt{\text{ktb}}$ [+Fem] feminine gender

$\sqrt{\text{ktb}}$ [-Fem] masculine gender

This assumption is rejected for the utter complexity and difficulty it causes in the language. It would not be economical to have two versions of every single root in the language. Also, it would classify all nouns that can be derived from the root $\sqrt{\text{ktb}}$ as belonging to the feminine version or the masculine version. There would be a set of additional rules for this classification. Therefore, this assumption is rejected for MSA.

Having argued against the assumption that gender is located on the root, we are left with assuming that gender is located on the category-defining head *n*. The idea of gender being located on the head *n* within a lexical decomposition approach has been explored cross-linguistically as well: for Somali (Lecarme, 2002), French and Yiddish

(Lowenstamm, 2008), Italian (Acquaviva, 2009), Bantu languages and Spanish (Kihm, 2005) and Amharic (Kramer, 2009, 2014, 2015, 2016a).

Acquaviva (2009) argues that to connect the category-neutral root with nominalising heads that carry the gender feature, there must be some licensing conditions with the semantic interpretation of gender. This analysis, however, is not free of problematic issues relating to the differences made between natural gender and arbitrary gender. Kihm (2005) proposes that the inflection class of gender in Spanish is located on *n*. This assumption leads to the idea that both natural gender and arbitrary gender values are located on the same head, which is no different from what is proposed in the lexicalist approach. There should be an alternative analysis to account for both natural and arbitrary genders on *n* without condensing them all on one head. In the following section, I present a DM lexical decomposition analysis of gender in MSA based on Kramer (2015, 2016) for Amharic data, and on previous *n* approaches to gender.

6.4.3 The morphosyntax of gender in MSA

In section 6.4.2.3 above, we saw that since gender is a feature that should be located on only the nouns, and there is no empirical motivation for it to head its own projection in MSA, we are left with a method of locating both types of gender—natural and arbitrary. Before starting to analyse the location of genders on *n* in MSA, a brief explanation about interpretability is needed.

6.4.3.1 Interpretability of gender

In the first part of the chapter, I argued that grammatical gender is assigned to nouns depending on different factors or conditions affecting interpretability. The majority of the languages reviewed in the cross-linguistic study by Corbett (1991) are based on a semantic assignment system. For a feature to be interpretable, according to the

Minimalist assumptions by Chomsky (2000, 2001), it has to have a presence at the syntax–semantics interface; that is, at the LF.

Previous analyses regarding the interpretability of gender have mainly followed one of three threads:

1. All gender features are interpretable (Dowty and Jacobson, 1989; Pesetky and Torrego, 2007; Picallo, 2006, 2007, 2008).
2. All gender features are uninterpretable (Asudeh and Potts, 2004; Carstens, 2010, 2011; Harris, 1991).
3. Gender features can be interpretable or uninterpretable (Kramer, 2009, 2014, 2015, 2016a; Percus, 2011; Matushansky, 2013).

6.4.3.1.1 All gender features are interpretable

This analysis is found in the works of Picallo (2006, 2007, 2008), Dowty and Jacobson (1989) and Pesetsky and Torrego (2007), who suggest that nominal genders are interpretable. There is no such a thing as uninterpretable gender values. According to this assumption, the nouns *mizmār* ‘flute’ and *mimḥāt* ‘eraser’ are interpreted as masculine and feminine, respectively. This approach to gender interpretability clearly lacks the main semantic base upon which most languages of the world rely—biological sex and animacy. These two semantic properties are in fact conditions on the interpretations of a certain nominal. If all gender values are assumed to be interpretable (based on semantics) then why would the interpretation of a *mizmār* ‘flute’ as masculine differ from the interpretation of an *mimḥāt* ‘eraser’ as feminine; they are both nouns referring to inanimate real-life objects. There is no interpretation relevant to labelling the former as masculine and the latter as feminine.

This assumption clearly relates to how the noun is interpretable in the mental representation in a given language rather than the value of the gender itself as a feature

to be interpretable or not (Legate, 2002). Theoretically, this approach reviews the interpretability of gender as per Domain D (Chomsky, 1981), a much older principles and parameters assumption that refers to a different level of the grammar that links words to their reference in the LF. Accordingly, *mizmār* ‘flute’ in MSA has a mental representation in Domain D as masculine in MSA; thus its masculinity becomes interpretable, albeit assigned arbitrarily.

6.4.3.1.2 *All gender features are uninterpretable*

The basic claim for this approach, which is mainly adopted by Carstens (2010, 2011), is that the rules that connect biological sex to grammatical gender have so many exceptions that the connection between the two concepts becomes unclear. An example relating to this claim is the abovementioned nouns: *mizmār* ‘flute’ and *mimḥāt* ‘eraser’. The fact that the first noun is masculine and the second is feminine casts doubt on the semantic correlation between natural gender and arbitrary gender that simply says that all female-referring nouns are feminine in gender and all male-referring nouns are masculine in gender. The fact that there are exceptions to these semantic rules makes all nominal genders, according to this claim, uninterpretable. This approach downplays natural/biological gender. However, as surveyed by Corbett (1991), no language in the world lacks a semantic core in its gender assignment system.

Similarly, under the same assumption that gender features are uninterpretable is the lexicalist approach. In Lexicalism, gender is assigned its value pre-syntactically in the lexicon (Harris, 1991). The lexicon assigns feminine gender to female-referring nouns and masculine gender to male-referring nouns. However, during the syntactic derivation these gender assignments are completely uninterpretable and have no correlation with semantics. This is the view adapted by Carstens (2010, 2011).

6.4.3.1.3 *Gender features are interpretable and uninterpretable*

To avoid the drawbacks of the two approaches above, this approach stands midway between the two extremes of interpretability. There are few differences between the works that adapt this assumption (Kramer, 2009, 2014, 2015, 2016a; Matushansky, 2013; Percus, 2011; Fassi Fehri 2017): they all agree with the basic assumption that gender features are of two main types; interpretable and uninterpretable.

Interpretable gender features are those that are assigned based on the semantic interpretation of the nominal semantic properties (animacy and biological sex).

Accordingly, a noun like *'umm* ‘mother’ is assigned an interpretable feminine gender because it is interpreted as a female-referring noun. Likewise, *'ab* ‘father’ is assigned an interpretable masculine gender because it is interpreted as a male-referring noun.

Uninterpretable gender features, in contrast, are not based on semantics. When the noun itself does not have semantic properties such as animacy or biological sex, that makes it unentitled to be interpreted as male referring or female referring. Regardless of the feminine or masculine morphological markers the noun might have, this gender morphology does not correspond to an interpretable gender, and thus is arbitrary.

Since humanness, biological sex and animacy are the basic lexical properties housed within the noun itself, they are responsible for the gender value being understood or interpreted semantically. Therefore, natural gender is referred to in the remainder of the thesis as *‘interpretable gender’* and is symbolised by $i[+Fem]$ for interpretable feminine gender and $i[-Fem]$ for interpretable masculine gender.

Grammatical gender assigned to inanimate nouns or other non-sex-differentiable nouns is arbitrary. It is this arbitrary gender that is not interpretable and, therefore, referred to as *‘uninterpretable gender’*, symbolised by $u[+Fem]$ (Kramer, 2009; Matushansky, 2013; Percus, 2011).

In the DM model adopted here—which depends on lexically decomposing the NP into a root and a category-defining element—as there is no generative lexicon within this framework, this analysis assumes that the gender value located on *n* can either be interpretable or uninterpretable as permitted by licensing conditions. The presence or absence of gender values on *n* is responsible for triggering one agreement pattern over the other. Following Harley and Noyer (1998, 1999, 2000), Sedighi (2010) and Acquaviva (2009), I propose four licensing conditions of the nominalising head on *n* in MSA:

- *n* i[+Fem] refers to female natural gender
- *n* i[-Fem] refers to male natural gender
- *n* u[+Fem] refers to arbitrary feminine gender (uninterpretable)
- *n* ∅ or unspecified gender, which refers to elements with no natural genders.

Semantics is present at this stage of gender assignment. Each root combines with a nominalising *n*. As shown above, there are several flavours of *n*. It is semantics, and particularly animacy as a semantic property, that licenses which root combines with which version of *n* (Acquaviva, 2009).

These licensing conditions are sorted in the encyclopaedia. If the root is interpreted as being animate with a clear natural gender, then the root is nominalised under the following licensing conditions:

- *n* i[+Fem] refers to female natural gender.
- *n* i[-Fem] refers to male natural gender.
- *n* ∅ refers to elements of undetermined/ unknown/ or mixed natural genders.

If, however, the root is interpreted as being an inanimate, then the root is nominalised under one of the following licensing conditions where no interpretation is involved, and the gender assigned is arbitrary:

- $n\ u[+Fem]$ refers to arbitrary feminine gender (uninterpretable).
- $n\ \emptyset$ refers to elements with no natural gender.

This analysis shows that there is a restriction on the occurrence for these licensing conditions. Interpretable versions of n are only licensed to co-occur with an [animate] condition. This analysis of the interpretability of gender features helps to integrate the semantics of gender into the syntactic theory of agreement. To present this analysis of gender syntactically, I consider the nouns *'umm* ‘mother’ and *'ab* ‘father’ in MSA.

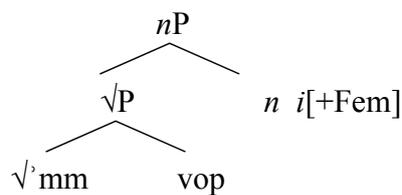


Figure 6.9: The DP structure of the noun *'um* ‘mother’

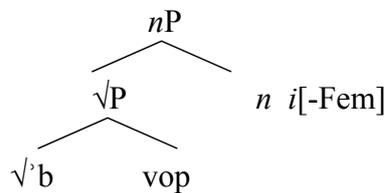


Figure 6.10: The DP structure of the noun *'ab* ‘father’

Nouns that refer to more than one gender, or those of undetermined gender, are licensed under the version of n with no determined gender (plain n). This is how default masculine gender is triggered in agreement relationships; otherwise the natural gender of the referent is specified. The noun *tifil* ‘child’ can only be licensed under one of the following two versions of n :

- $n\ i[-Fem]$ refers to male natural gender
- $n\ \emptyset$ refers to elements of undetermined/unknown or mixed natural genders.

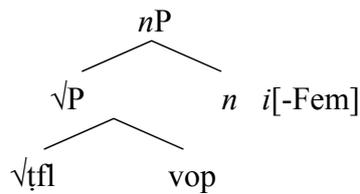


Figure 6.11: The gender location in the noun *tifil* ‘child’ in MSA if the referent is male

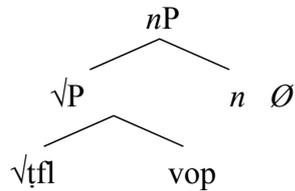


Figure 6.12: The gender location in the noun *tifil* ‘child’ in MSA if the referent’s biological sex is undetermined

The noun *tifil* ‘child’ in MSA cannot be licensed under the female version of *n* as child in MSA is inflected with the *affixal tā* if it refers to a female child *tifl-at* ‘female child’. Accordingly, the gender representation of this noun is as shown in Figure 6.13.

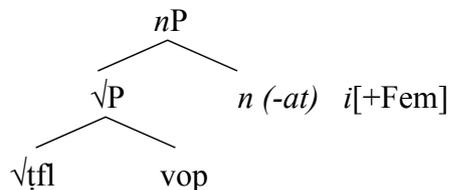


Figure 6.13: The gender location in the noun *tifil-at* ‘female child’ in MSA if the referent is female

The noun *’ulamā* ‘scientists’ is a plural noun in the irregular form and is not inflected with a particular gender. It is seen to always trigger masculine agreement, as in the following corpus example:

- (75) wa qadim-a al-’ulamā’-u ’ila qaṣr-i al-malik-i
 and came.Prf-3S.M the-scientists.3Pl-NOM to palace-3S-GEN the-king.3S.M-GEN
 ‘and the scientists came to the king’s palace’

The example is of a sentence in the VSO word order in which the verb agrees in gender (but not number) with the post-verbal noun. The noun refers to a group of undetermined/mixed biological sexes. Therefore, it triggers masculine default agreement.

6.4.3.2 The location of interpretable and uninterpretable features of gender within the DP

Above, we saw that for a category-and-root language like MSA, the root can combine with one of the following versions of the nominalising head *n* based on the animacy of the referent. For roots of animate-referring nouns, the following set of licensing conditions is available for the root:

- *n* *i*[+Fem] refers to female natural gender
- *n* *i*[-Fem] refers to male natural gender
- *n* \emptyset refers to elements of undetermined/unknown or mixed natural genders.

For roots of inanimate-referring nouns, the following set of licensing conditions is available for the root:

- *n* *u*[+Fem] refers to arbitrary feminine gender (uninterpretable)
- *n* \emptyset refers to elements of unknown natural gender.

With this in mind, it becomes important to ask whether both sets of licensing conditions (the semantic and the arbitrary) allow for both gender features to be located on the same syntactic head.

The uninterpretable feminine gender in MSA is assigned to plural inanimate nouns.

This accounts for the case of partial agreement observed with inanimate plural nouns in SVO word order. We saw in the range of corpus examples in the first part of this chapter that when an inanimate noun triggers a certain gender agreement when singular or dual, it might trigger a feminine agreement when pluralised. This means that the root

of the noun has a certain gender but another gender (uninterpretable feminine) is triggered by plurality. Thus, I assume that within the structure of the DP, there is another nominalising head *nP* above the basic root-nominalising head and under the NumP. I assume that this head is the host of the uninterpretable feminine gender assigned to inanimate nouns. If the root licenses a noun with a certain gender that is derived from semantic properties like biological sex or its absence, and the grammatical gender of the noun changes to uninterpretable feminine gender when it becomes pluralised, then there must be another head to host these two values of grammatical genders for plural inanimate nouns and for mixed-agreement nouns. The structure of inanimate plural nouns should appear as in Figure 6.14.

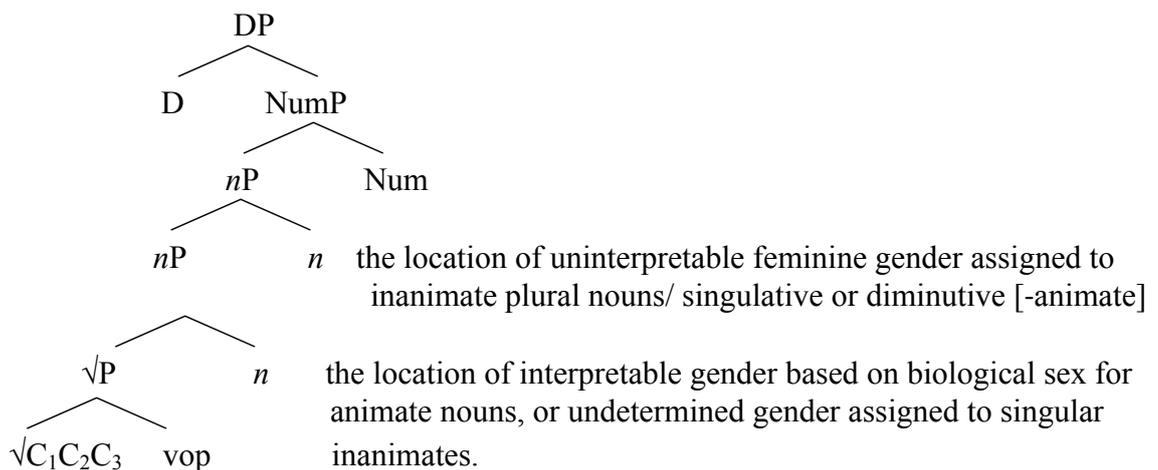


Figure 6.14: The location of both interpretable, and uninterpretable gender values in the DP.

The structure in Figure 6.14 not only provides for analysis of the location of different gender features, but also accounts for gender and number agreement with inanimate gender nouns, mixed-agreement nouns and collective nouns. This analysis is in line with others that posit the existence of an extra-nominal head dominating the base nominal head, as proposed for Amharic—a Semitic language (Kramer, 2015, 2016a)—and by Zabbal (2002) for Arabic. Although Zabbal labels this extra head as the class projection, ClassP, which dominates the NP and lies just below the NumP, I see that

Zabbal's ClassP is my higher *nP* for MSA. Zabbal (2002) in his semantic analysis of number in LA and MSA finds it important to introduce such a node midway between the base noun and the number head to account for some semantic properties of the noun that are more related to the number head, such as collectivity and individuation. I agree with Zabbal's proposal regarding the necessity of such a midway node to host some semantic properties. However, I add that it is not only motivated by number but also by some gender values and animacy, as examined in further detail in Chapters 7 and 8.

Having provided my analysis of gender as a feature, I compare it with Fassi Fehri's (2017) DM analysis of gender in Arabic I referred to earlier in chapter 2. Fassi Fehri proposes an analysis of gender which acknowledges its polysemic nature. Although his analysis bears many similarities to mine, where he operates on integrating both Minimalist and DM theoretical assumptions, and where he addresses the multiple semantic nature of gender interpretability, Fassi Fehri's analysis of gender is different in many significant ways. Firstly, Fassi Fehri's analysis departs from assuming that gender is located on GenP, or *nP*; rather, following the assumptions of DM he argues that gender is distributed all over the layers on the DP or higher in the CP. Secondly, and more importantly, Fassi Fehri focuses on the semantic-pragmatic interface of gender with morphology. He focuses on the polysemy of gender as a feature. In order to capture this nature, Fassi Fehri argues for a five-layer architecture of gender in Arabic. Besides the two main layers for interpretable and uninterpretable genders I argue for in my analysis, which Fassi Fehri names conceptual and grammatical genders respectively in his analysis, he proposes other layers to capture all sorts of nominal interpretations (\pm group/ individual, \pm big/small, good/bad, etc.). His analysis then takes scope over the pragmatic-syntactic interface and provides locations for gender in hearer/ speaker discourses.

6.4.4 Part 2 Conclusion

This part of the chapter presented the notion of interpretability of gender from a DM point of view. I introduced two values of interpretability for gender based on semantic properties of the noun: nouns whose referents are animates and sex differentiable are assigned interpretable gender values; while nouns whose referents are inanimates or non-sex-differentiable creatures are assigned uninterpretable (arbitrary) grammatical gender.

We also saw that since gender relies on the semantic property of the nominal it should be hosted on the noun *n*, and not on a separate gender head. For the root to be nominalised with a gender, there are two sets of licensing conditions for the nominalising root depending on the animacy of the noun.

In the following chapter, the discussion extends to the third feature, number. The discussion begins with an overview of the number system in MSA and moves on to a DM analysis of the nominal.

Chapter 7: Number in Modern Standard Arabic

7.1 Introduction

One of the most vital features of the analysis of agreement in this thesis is number. Talking about number in the simplest terms might at first appear as simplistic as referring to the number of entities in the real world. This point is observed by Jespersen (1924, p. 188):

Number might appear to be one of the simplest natural categories, as simple as ‘two and two are four.’ Yet on closer inspection it presents a great many difficulties, both logical and linguistic.

Number is underestimated as a grammatical feature because of the false assumption that it is present only as a two-value opposition expressing singular or plural entities in the real world, and thus that it might only be expected to be marked explicitly/morphologically on nouns (Corbett, 2000; Zabbal, 2002). However, number is much more complicated than simply the idea of opposition between singular and plural. In some languages, it extends to several more values between these two; that is, values that show dual for two real-world entities, trial for three real-world entities or even paucal for a small number of real-world entities (Corbett, 2000, p. 1).

In addition to the different values that a number system in a specific language might have, the behaviour of numeral systems—even if they are identical in the values they have for number—might differ. This is because of the interaction between the number system and various other features or conditions, be they linguistic or contextual.

In this chapter I investigate the nature of number as a grammatical feature with focus on both form and semantics. I also investigate the nature and semantics of collectivity in MSA.

7.2 Part 1: The nature of number as a feature

Number is a vital component in the analysis of agreement in both VSO and SVO word orders. As this thesis concerns partial agreement where number is shown to be impoverished on the verb in SVO word order with plural nouns, it is one of the basic features to be investigated. As seen previously with animacy and gender, number is present in the syntax of the DP in MSA as per Ritter's (1993) analysis of the structure of the DP. It plays a highly significant role in agreement. Like gender, number is realised morphologically on both the noun and the verb. I therefore assume that number is a morphosyntactic feature in MSA following Svenonius (2007).

Semantically speaking, number is also semantically charged. There is, however, a difference between the semantics of nominal number and verbal number as noted by Corbett (2012). Corbett comments that besides being classified as morphosyntactic, nominal number is also a semantic feature and the best way to refer to it is as a *morpho-syntactico-semantic feature* (Corbett, 2012, p. 49). According to Corbett (2012), the nominal number has a semantic mapping to the real world. The DP *three cups* refer to three separate cups. Verbal number, however, does not refer to the number of actions. Plural marking on the verb, for example, does not correspond to multiple actions; rather, it is only an indication of the number of entities to which the subject refers.

As the focus in this thesis is on nominal features, I analyse only the form and interpretation of nominal number.

7.3 Nominal number marking in MSA

Nouns in MSA are distinguished in relation to number as seen in overt morphological marking, and as reflected on agreeing elements. Some nouns in MSA, however, are not overtly marked for number distinctions in morphology, but this is sometimes reflected

only in agreement. In the following sections, I outline the differences between nouns in MSA that are morphologically distinguished for number (count nouns), and those that have one form and cannot have number morphology (collective nouns). The following section presents more formal definitions and provides some diagnostic tests to test whether a certain noun belongs to the first or second category.

7.3.1 Number marking on count nouns

Count nouns in MSA are those nouns that can be morphologically distinguished for number value (Corbett, 2000). In other words, they are able to show a different form corresponding to the three different values of number in MSA: singular, dual and plural. The following three sections present count nouns in MSA in terms of form and semantics in the three number values.

7.3.1.1 Singular marking on nouns

Singular is the default number value in MSA. There are, however, differences in gender among singular count nouns in MSA. Table 7.1 elaborates further on this point.

Table 7.1: Singular nouns in MSA where the morphological difference in form is made in gender through the ‘*affixal tā*’

Masculine	Feminine	Translation
ṭālib	ṭālib-at	student
mu‘allim	mu‘allim-at	teacher
ṭabīb	ṭabīb-at	doctor

Table 7.1 provides some examples of singular nouns where feminine gender is marked through the morphological suffixation of the *affixal tā*. There are other singular nouns in MSA where the difference in gender is achieved not through morphology, but by a modifying noun.

On the semantic side, singular number is the unmarked (default) value of number as there is no zero value for number of entities [+Sg].

7.3.1.2 Dual marking on nouns

Unlike singular nouns, dual nouns in MSA are marked morphologically for the dual value of number. This number morphology is also distinguished in relation to gender, as seen with the dual nouns in table 7.2.

Table 7.2: Dual nouns in MSA in which the morphological endings denote both gender and dual values

Masculine	Feminine	Translation
tilmīd-ān	tilmīd-atān	two students
mu‘allim-ān	mu‘allim-tān	two teachers
ṭabīb-ān	ṭabīb-atān	two doctors

Semantically, dual number value in MSA denotes two separate entities in the real world.

This value is marked on the nominal only with regular morphology: *ān* for dual masculine and *-tān* for dual feminine. Dual number value is, therefore, symbolised by [+D].

7.3.1.3 Plural marking on nouns

Marking of singular and dual number values on nominals is straightforward at both the syntactic and semantic level. Plurals in MSA are more complex to analyse and interpret both syntactically and semantically. Plurals in MSA are of two main types.

7.3.1.3.1 Regular (sound) plurals

This type of plural is formed through suffixes at the end of the singular (basic) form of the noun. There are two kinds of regular (sound) plurals according to the gender. The first is the masculine sound plural, which is realised by two main suffixes: *-ūn* for the nominative case and *-īn* for the accusative and genitive cases. The second kind is the

feminine sound plural, which is realised by $-\bar{a}t$ for all cases. For the remainder of this chapter, I argue for the existence of a number head that serves as the locus for number values following a most commonly assumed stream cross-linguistically (Bernstein, 1991; Carstens, 1991; Picallo, 1991; Ritter, 1991, 1993 for Hebrew; Acquaviva, 2008; Zabbal, 2002 for Arabic; Kramer, 2016a for Amharic).

I assume that both kinds of sound plural as well as the dual in MSA are located syntactically under the Num head. Since the dual and the sound plurals are formed by attaching morphological endings to the singular form of the noun—resulting also in a noun but with a different number value—both sound plurals and duals are inflectional.

7.3.1.3.2 Irregular (broken) plurals

This type of plural in MSA is not formed by adding a certain morphological ending to the basic form of the noun; rather, it is formed by nominalising the consonantal root via certain vowel change.

The semantics of plural nouns is far more complicated than just the denotation of more than two entities in the real world. Plurality interacts with gender and animacy in producing different levels of interpretation. The difference between sound and broken plurals in relation to semantics is outside the scope of this thesis.³² The semantic side that is relevant to this thesis is the level of interpretability of number values in MSA, and to which level the morphological form of the feature applies. In the remainder of this chapter, I discuss the different number values and where they are located within the structure of the DP in MSA.

7.3.2 Number marking on collective nouns

A certain class of nouns in MSA is seen to be singular in form in that such nouns do not end with dual or plural morphological endings, and might trigger singular agreement in

³² Refer to Zabbal (2002) for the formal semantics of plurality in Arabic.

most cases; yet their meaning refers to more than one entity. This class of nouns is often referred to as collective or non-count nouns (Acquaviva, 2008; Ojeda, 1992; Zabbal, 2002). The term *collective nouns* is used differently in the literature cross-linguistically that it is often seen to cause confusion. What is referred to as a collective noun in one language is not necessarily a collective noun in another language. Following, is a review of the definitions of collective nouns in the literature, and a discussion of the semantic and syntactic nature of this class of nouns.

7.3.2.1 *What are collectives*³³?

According to Lyons (1987, p. 315), ‘collective nouns may be defined semantically as lexemes which denote collections or groups of persons and objects’. Several definitions of collective nouns are found in the literature, varying in the criteria used for diagnosing collective nouns. As seen in the literature, these definitions use two major diagnostic criteria: syntactic behaviour in agreement and semantic properties.

7.3.2.1.1 *Defining collectives on the basis of their syntactic behaviour in agreement*

In this definition, the syntax as seen in agreement, is the major criterion used to diagnose whether or not a singular noun is collective. This definition is mainly found in the works of Juul (1975, p. 90) and Crystal (1997, p. 69) for English. Here, syntax refers to the agreement pattern the noun demonstrates with verbs. Quirk et al. (1985, p. 316) take syntactic behaviour in agreement as the basis for defining collective nouns in English. They also include personal pronouns and relative pronouns as targets agreeing with the collective noun.

This method of defining collective nouns is widespread throughout the literature. For English, Zandvoort (1975, p. 248f), Hudson (1999, p. 182) and Quirk et al. (1985, p.

³³ The definitions and examples presented in this section do not necessarily represent real collective nouns in MSA. They are different definitions of collectives in the literatures. In Section 7.3.2.2, I present collectivity diagnostic tests to account of what are collective nouns in MSA.

316) all stress that plural agreement is used if the singular collective noun is perceived as composed of several individuals performing the action, while singular agreement is used when the singular collective noun is perceived as a whole unit performing the action as one entity. It is not uncommon in Arabic for some nouns to demonstrate both singular and plural agreements with their targets, with an equal level of grammaticality and acceptability. Consider the following example, which includes two sentences from the MSA collective corpus:

- (75) a. ...lakin al-nās-a 'akal-at waǧha-hu ḥatta 'akmalt-u
 ...but the-people-ACC ate.Prf-3S.F face.3S-his until completed.Prf-1S null pro.1S
 al-sirtifīk-ā
 the-certificate-3S.F
 '...but people ate my father's face until I completed the certificate'
- b. ...'anna an-nās-a fī-ha la y-ḥb-ūn al-'aǧānib-a
 .. that the-people-ACC in-it.3S.F.GEN NEG Imp.M-like-3.Pl.M the-foreigners-ACC
 '... that people in it do not like foreigners'

This variability in the choice between a singular and a plural verb seems in many cases to be related to how the users of a language conceptualise the meaning of a collective noun in a certain context.³⁴

7.3.2.1.2 Defining collective nouns based on the semantic properties of the referent

A. Animacy

Visser (1963, p. 68) and Nixon (1972) were the first to address the effect of animacy on the syntactic behaviour of collective nouns in English. They argue that whenever the collective noun is high in its degree of animacy, it will demonstrate plural agreement

³⁴ This variability in the choice of a certain collective noun is different from the notion of 'shift of agreement' referred to in the agreement hierarchy (Corbett, 2006, 2012). In agreement shift, the same controller shows a different pattern of agreement according to the nature of the target. Shifts in agreement are discussed widely as a syntactic factor affecting agreement in corpus-based studies, as this factor clearly works at the corpus level rather than the sentence level. Shifts in agreement are not discussed in this thesis, as they do not serve the aims with the given data. The variability referred to in this thesis is that a certain collective noun may appear in some sentences with a singular verb and in other sentences with a plural verb. This is the definition I adopted for the mixed-agreement nouns discussed in Section 6.1.8.

with the verb it controls. Presson (1989) agrees, in that animacy is a vital component of the definition of collectives as a class of nouns. Further, he strongly emphasises that the relationship observed between animacy and the syntactic behaviour of collectives is due to animate collective nouns being self-driven or self-motivated in the actions they perform. With animate collectives, this places the focus more on the individual members of the group rather than on the group as a whole. However, collective nouns that are lower in their degree of animacy lack this feature of self-motivation, which places the focus more on the group as a whole, as there is no sense of individuation in these nouns. Examples of collective nouns with low animacy in MSA are *qaṭī* ‘herd’ and *sirb* ‘flock’ as seen in Example 76. Both examples are taken from the corpus. The collective nouns are used only to refer to animals or birds and are thus seen to trigger singular agreement:

- (76) a. qaṭī -u ʿaḡnāmi-hi ya-taṭallab-u rā ʿī-īn
 herd.3S-NOM sheep.3Pl.F-his.3S.M.GEN Impr.M.3-requires-S shepherds-3Pl.M.ACC
 ‘his herd of sheep requires shepherds’
- b. sirb-u al-ḥamām-i ya-rsum-u qaws-an
 flock.3S-NOM the-pigeons.3Pl.F-GEN Impr.M.3-draw-S arch.3S-Indf.NOM
 māʾil-an ṭumma y-staqīm-u
 slanted.3S.M-Indf.NOM then Impr.M.3-becomes. straight-S
 ‘a flock of pigeons draws and arch then becomes straight’.

B. Volition and mobility

Presson (1989) also argues that animacy itself should not be the only feature of the referent noun to be taken into consideration when defining or diagnosing the collective noun. Other semantic features, such as *volition* and *mobility*, should be considered as well. In his analysis of English collective nouns, he finds that collectives such as *nation* and *race* have a high degree of animacy, but show singular agreement with their targets. Therefore, in his definition of collectives, he depends on volition and mobility as two semantic features to be added to the degree of animacy. Volition refers to the entity’s ability to choose the state of belonging to a certain collection or group. Mobility refers

to the entity's ability to leave or move from a certain collection or group. According to Presson's (1989, p. 182) analysis, if a collective noun has a high degree of animacy and is labelled as having the features (+volition) and (+mobility), it is more likely to show plural agreement.

In MSA, *'ummat* 'nation' and *'irq* 'race' also show the same analysis. They both refer to individuals composing a group or entity. However, they demonstrate singular agreement with the verbs with which they occur. People belonging to a nation or a race are ranked highly on the animacy scale, as they are human and humanness is the ultimate level of animacy. People from a nation or a race do not have the ability to choose their nation or race, as this is something that they are born with. Further, people do not have the ability to leave or move away from a certain nation or race. Nation and race, in this sense, have the following semantic features: (-volition) and (-mobility). They are expected to demonstrate singular agreement with the verb.

Consider the following constructed example:

- (77) a. *'umma-at-u* *Muhammad-in* *ta-ad' -ū* *'ila* *as-salam-i*
 nation-3SF-NOM Muhammad-GEN Impr.S.F-call-S for the-peace.3S-GEN
 'Muhammad's nation calls for peace'
- b. *al-'irq-u* *al-'araby-u* *ya-faḍil-u* *al-intimā' -a*
 the-race-NOM the-Arabic-NOM impr.M.3-prefers-S the-affiliation-ACC
 'The Arabic race prefers affiliation'

However, not all collectives are expected to behave according to this definition. Though Presson's approach seems plausible when defining and distinguishing collective nouns from other classes of nouns, people of one race or nation, for instance, can still behave and represent themselves in an individual manner, and in this case the emphasis would be on the individuals forming this collection or group rather than the group as a whole.

C. Spatial restrictions

Presson (1989) also points to another semantic property to be considered when defining collective nouns. This is spatial restriction, which means that for some collective nouns, it is understood that all the individual entities composing the noun should be present at the same time and place, and performing the same action. An example of this type of collective noun sharing the time, place and action dimensions in English is ‘crowd’. This definition means that the more spatial restriction the collective noun shows, the more likely it is to show singular agreement with its target. In MSA, as can be seen in the corpus, these collective nouns do not follow a fixed pattern. Consider the following example :

- (78) a... **fawj-in** siyāḥ-in yūnānīy-in kān-a fi
 ...regiment.3S-GEN tourist.3S.M-GEN Greek.3S.M-GEN was.Prf-3S.M in
 ṭariq-i-hi ila al-shari-i
 way.3S-GEN-his.3S.M to the- street-GEN
 ‘.. a Greek tourist regiment that was in its way to the street’
- b... anna **nafar-an** min qawmi-hi **’intaḷaq-ū**
 ...that band.3S-Indf.ACC of people.3S-his.3S.M went.ahead.Prf-3Pl.M
 ’ila ḥaibar
 to ḥaibar
 ‘.. that a band of his people went ahead to ḥaibar’.
- c. ’anna **raḥṭa-an** min Qurayṣh **kan-ū** ḡulūs-an
 ..that troop.3S.M-Indf.ACC of Quraish were.Prf-3.Pl.M sitting.3Pl-ACC
 ‘that a troop of Quraish were sitting’

All the above collectives do not necessarily share the same spatial restriction dimensions mentioned in Presson’s definition: time, place and action. In Example 78a, the collective *fawj* ‘regiment’ demonstrates singular agreement, while the collectives in Examples 78b and 78c, *nafar* ‘band’ and *raḥṭ* ‘troop’, demonstrate plural agreement. Each of these collectives demonstrates a consistent pattern of agreement in all the examples of our MSA collective corpus. It is also worth noting that all three collectives refer to human groups, since we are discussing the semantic features of each of those collectives. The word *fawj* refers to a group of individuals that are usually found

together, moving together or approaching a certain place together. Therefore, we can easily understand that the meaning of this collective noun itself denotes the spatial restriction referred to in Presson's definition. The word *qatī' u*, meaning 'herd', behaves in the same way. The difference here is that *qatī' u* refers to a group of animals moving, eating or undertaking activities together. Consider the following example:

- (79) *qaṭī' -un* *min* *al-ḍi' āb-i* *'at-a* *min*
 herd.3S.M-NOM of the-wolves-GEN came. Prf-3S.M from
 jamī' -i *anḥā' -i* *al-miṭṭaḡat-i*
 all-GEN over-GEN the-area-GEN
 '..a herd of wolves came from all over the area'

The words *fawj* 'regiment' and *qatī' u* 'herd' in this sense, demonstrate 'spatial restriction' and occur with singular verbs in the provided corpus examples³⁵. This shows that the reason for this type of agreement (singular) is that when the semantic property of spatial restriction is present in the collective noun, attention is directed to conceptualising the group as a whole, acting together as a one unit. In contrast, the words *naḡar* 'band' and *raḡṭ* 'troop' refer to a group of humans that share some properties but are not necessarily found in the same location at the same time. They might have, for example, the same religion and the same political opinions, with each member being in a different physical location. The focus here is on the individuals, rather than the group as a whole, and therefore they occur with plural verbs.

It is true that animacy, volition and mobility are all important semantic factors conditioning the choice between singular and plural targets, yet we cannot always say that they are the defining diagnostic features for collective nouns and how they behave syntactically. This characterisation, therefore, is explored more with the collective

³⁵ This is only when the noun *qatī' u* 'herd' occurs in its normal context in referring to a group of animals. There are other instances, however, when the noun is shown to trigger plural agreement on the verb when it is used to refer to a group of humans as discussed in section 7.4.2

nouns included in the MSA corpus of this study. Collective nouns included in this corpus refer to different levels of animacy.

To study how these words behave in a syntactic environment (agreement), we should observe nouns in relation to their syntactic properties and group them into categories in an attempt to redefine the notion of collectivity.

7.3.2.2 Collectivity diagnostic tests

In this section, I present some of the characteristics of classes of nouns whose semantics are taken to be referring to more than two entities in the real world. I present diagnostic tests to narrow down the type of nouns presented in the corpus examples into well-described classes of nominals to make agreement analysis in the next chapter more comprehensible.

In his analysis of the semantics of number in MSA, Zabbal (2002) refers to three types of nouns that refer to more than two entities in the real world: plural count nouns, mass nouns and furniture-type nouns. Following the diagnostic criteria presented in Chierchia (1998) for mass nouns in English and Zabbal (2002) for collective nouns in Arabic, I lay out two diagnostic tests to differentiate collective nouns from plural count nouns in MSA.

7.3.2.2.1 The range of number values available to count and collective nouns

Plural count nouns and group nouns all share the property of denoting more than one entity. There are various types of nouns that refer to groups of entities that sometimes become confused because all are called collective nouns. In this section, I present the first diagnostic to differentiate between these group nouns. Nouns of groups or collections differ in how the entities composing the group are unified. Chierchia (1998) proposes a test to differentiate between count nouns and non-count nouns on the basis of the noun's capability of being counted or modified with a numeral. In MSA, for

example, nouns such as *ṭāwilāt* ‘tables’, *ʿaqlām* ‘pens’ and *karāsī* ‘chairs’ are all count nouns that accept number morphology and can also be modified with a numeral as shown in Table 7.3.

Table 7.3: Count nouns in MSA with different number morphological endings

Singular	Dual	Plural	Translation
ṭāwil-at	ṭāwil-tān	ṭāwil-āt	table
qalam	qalam-ān	ʿaqlām	pen
kursī	kursīy-ān	karāsī	chair

The count nouns in Table 7.3 can also be modified with a numeral:

(80) a. ṭāwil-at-un wāḥid-at-un
table-3S.F-ind.NOM one-3S.F-ind.NOM
‘one table’

b. ṭalāt-at-u ʿaqlām-un
three-F-NOM pens.3Pl.F-NOM
‘three pens’

Count nouns, in this sense, are distinguished from non-count *mass nouns* such as *mā*’

‘water’, *milḥ* ‘salt’ and *ḥalīb* ‘milk’, as in the corpus example 81 below, in that the latter cannot have a number morphological ending of dual or plural. They also cannot be modified with a numeral as they cannot be counted:

(81) a. al-mā’-u ya-fsid-u al-riḡīm-a ʿhyānan katab-at
the-water.3S-NOM Imprf.M.3-ruins-S.M the-diet.3S-ACC sometimes wrote.Prf-3S.F
‘water ruins diet sometimes- she wrote’.

b. al-milḥ-u yu-qātil-u al-turāb-a
the-salt.3S-NOM Impr.M.3-fight-S the-dust.3S-ACC
‘salt fights dust’

c. al-ḥalīb-u ya-ḡmur-u ʿarḍ-a al-wiʿā’-i
the-milk.3S-NOM Impr.M.3-cover-S bottom.3S-ACC the-container.3S-GEN
‘the milk covers the bottom of the container’

d. *³⁶ al-mā’-ān yu-fsid-ān al-riḡīm-a
the-waters-3D Impr.M.3-ruin-D the-diet.3S-ACC
‘the two water ruin the diet’

³⁶ Note that when the nouns *mā*’ ‘water’, and *milḥ* ‘salt’ cannot be dualized; they can be pluralized. The plural form of these mass nouns has a different meaning or intentions. Like in English, *ʿamlāḥ* ‘salts’ refer to different types of chemical substances that are referred to as salt. *mīyāḥ* ‘waters’ if used in the plural refers to various sources of water.

- c. *al-ḥalīb-ān ya-ḡmur-ān ʾrd-a al-wiʾāʾ-a
 the-milk-3D.NOM Impr.M.3-cover-D bottom.3S-ACC the-container.3S-ACC
 ‘the two milks cover the bottom of the container’

Other examples of group nouns that are taken from the corpus to always show singular agreement are *tamr* ‘dates’, *shajar* ‘trees’ and *naml* ‘ants’. I call these nouns here *collective nouns* following Zabbal (2002). Corbett (2000:13) argues that collective nouns do not occur with numerals. They cannot accept the dual or plural forms, nor can they be modified with a numeral, as seen in Example 82. These examples, however, do show a singular that is often referred to as the *singulative* to differentiate it from the singular value of count nouns. Singulative³⁷ nouns are those that denote a part of a unity. Singulatives can be dualised, pluralised and modified with a numeral as in the constructed Example 83:

- (82) a. al-tamr-u ya-amnaʾ-u tasawwus-i al-ʾasnān-i
 the-dates.3S-NOM Impr.M.3-prevents-S decay.3S-GEN the-teeth.3Pl.F-GEN
 ‘dates prevent tooth decay’
- b. al-šaḡar-u lā ya-taḥarrak-u
 the-trees.3S-NOM Neg Impr.M.3-move-S
 ‘trees do not move’
- c. al-tamr-at-u la t-aʾtī ʾala al-waḡh-i allaḏi
 the-date-3S.F-NOM Neg Impr.F-come.3S on the-way.3S-GEN which.3S.M
 y-aʾtī al-ʾnsān-u ʾlay-hi
 Impr.M-come.3S the-human.3S.M-NOM on-it.3S.F-GEN
 ‘a date does not come in the same way a human comes in’
- d. šaḡar-at-u al-kīwī ta-ḥtāj-u ʾila zurūf-in
 tree-3S.F-NOM the-kiwi Impr.F.3-needs-S to conditions.3Pl.F-InfD.GEN
 bīʾī-at-in munāsib-at-in
 environmental-3S.F-InfD.GEN suitable- 3S.F-InfD.GEN
 ‘a kiwi tree needs suitable environmental conditions’
- (83) a. al-tamra-tān šaqaṭ-tā ʾala al-ʾarḏ-i
 the-dates-3D.F-NOM fell.down.Prf-3D.F on the-floor.3S-GEN
 ‘the two dates fell down on the floor’
- b. al-šaḡar-atān ta-qif-ān šāmid-atān
 the-trees-3S.F-NOM Impr.F.3-stand-D still-3D.F
 ‘the two trees stand still’

³⁷ I return to discuss the nature of singulative semantically and syntactically in the second part of this chapter, in the morphosyntactic analysis of number.

- c. al-tamr-āt-u ṣaqaṭ-at ‘ala al-’arḍ-i
 the-dates-3Pl.F-NOM fell.down.Prf-3S.F on the-floor.3S-GEN
 ‘the dates fell down on the floor’
- d. al-šaḡar-āt-u ta-qif-u ṣāmid-at-an
 the-trees-3S.F.NOM Impr.F.3-stand-S still-3S.F-Indf
 ‘the trees stand still’

These collectives do sometimes come in the plural form as in *tumūr* ‘dates’, *’šḡār* ‘trees’, *’smāk* ‘fish’. These plurals are formed out of the collective noun itself not from the singulative. The singulative can be dualised and pluralised by regular morphology only. Collective nouns, on the other hand, cannot always be pluralised. They accept to be pluralised in some of the irregular plural morphological patterns *’f āl* as in *tumūr*, or *fu ’ūl* as in *’šḡār*. Pluralising collective nouns in these forms is to achieve the meaning of variety or abundance. Also, not all collective nouns can be pluralised irregularly, such as: *naḥl* ‘bees’, and *naml* ‘ants’.

This test differentiates between countable entities and nouns that refer to masses or substances that are inseparable. The test does not, however, classify other nouns referring to groups found in MSA, such as *qaṭī’* ‘herd’ and *sirb* ‘flock’ as collectives, but as count nouns instead. In other words, they are semantically interpreted to be plural, but are singular in form and can still be dualised and pluralised as in the following corpus example:

- (84) a. qiṭ’ān kabīr-at min al-ḡimāl-i
 herds.3Pl.F large-3S.F of the-camels.3Pl.F-GEN
 ‘large herds of camels’
- b. qaddam-a sirb-ān min al-ḡirā’-i al-ḡaww-i ṭayarān-an
 offered.Prf-3S.M flock-3D from the-arm.3S-GEN the-air.3S-GEN flight.3S-.Indf.ACC
 muḥaffaḍ-an
 cheap.3S.M-Indf.ACC
 ‘two flocks from the air arms offered cheap flights’
- c. ’asrāb-un min al-farāš-i al-laṭīf-i t-stami’-u
 flocks.3Pl.F-Indf.NOM of the-butterflied.3Pl.F-GEN the-nice.3S.F-GEN Impr.F-listen-3S
 ‘flocks of nice butterflies listen’

d. ya-qṭun-u qatī'-ān min hā'ūlā'-i qurba nahr-i Liārd
 Impr.M.3-lives-S herds-3D of those near river.3S-GEN Liard
 'two herds of those live near River Liard'

I call these nouns *group-denoting nouns* to differentiate them from the count nouns, mass nouns and collective nouns mentioned above. According to this test, group-denoting nouns are classified as in Table 7.4.

Table 7.4: Some properties of MSA nouns according to the first diagnostic test (plural morphology and numerals) proposed by Chierchia (1998)

Diagnostic test	Count nouns	Group-denoting nouns	Collective nouns	Mass nouns
Examples	<i>kursī</i> 'chair'	<i>qatī'</i> 'herd'	<i>naml</i> 'ants'	<i>sukkar</i> 'sugar'
Have dual and plural morphology?	yes	yes	no	no
Can be modified with a numeral?	yes	yes	no	no
Have a singulative form?	no	no	yes	no

According to this test, collective nouns and mass nouns are grouped together with similar properties; whereas group-denoting nouns and count nouns are grouped together with very similar properties. While nouns such as 'chair' and 'herd' are similar in their morphological behaviour, they bear different semantic denotations in the real world. Therefore, an additional diagnostic test is needed to explore more of these nouns in MSA.

7.3.2.2.2 *Occurring with collective predicates*

Since our discussion is about nouns referring to groups or collections of entities, this diagnostic test is about the noun's capability of being a subject to a collective predicative as referred to in the literature (Landman, 1989; Link, 1983; Schwarzschild,

1996): for example, ‘surround’, ‘meet’ and ‘gather’. In other words, such verbs require that the noun has semantic plurality regardless of the morphological form they have. Applying the test on the above four types of nouns is seen in Table 7.5.

Table 7.5: Some properties of MSA nouns according to the second diagnostic test (occurring with collective predicates) proposed by Chierchia (1998)

Diagnostic test	Count nouns	Group-denoting nouns	Collective nouns	Mass nouns
	Type 1	Type 2	Type 3	Type 4
Examples	<i>kursī</i> ‘chair’	<i>qaṭī</i> ‘herd’	<i>naml</i> ‘ants’	<i>sukkar</i> ‘sugar’
Can it be a subject to a group-level verb, such as <i>yuhītu</i> ‘surround’?	Yes, but only with the plural	yes	yes	yes
Sentence example	Example 85a	Example 85b	Example 85c	Example 86d

- (85) a. al-karāsī t-uḥīṭ-u bī
the-cahirs.3Pl.F.NOM Impr.F-surround-3S of.me.GEN
‘the chairs surround me’
- b. al-qaṭī -u y-uḥīṭ-u bī
the-herd.3S.M-NOM Impr.M-surround-3S of.me.GEN
‘the herd surrounds me’
- c. al-naml-u yuhīṭ-u bī
the-ants.3S-NOM Impr.M-surround-3S of.me.GEN
‘the ants surround me’
- d. al-sukkar-u y-uḥīṭ-u bī
the-sugar.3S.M-NOM Impr.M-surround-3S of.me.GEN
‘the sugar surrounds me’

The purpose of this diagnostic test is to determine whether or not the group-denoting noun is semantically plural. Type 2, Type 3, and Type 4 of nouns above are proven to be semantically plural even though they are syntactically singular. Type 1, however, does not pass this test as a singular noun as *kursī* ‘chair’, or *qalam* ‘pen’ cannot

surround a person, for instance. Type1 proves to pass the test only when the noun is in the plural form, which makes the noun both semantically and syntactically plural.

Having said that, it should be noted that if a noun is proven to be semantically plural, this does not entail that it cannot be collective or trigger collective reading. Being semantically plural can only mean that they refer to more than one entity, and this is exactly the reference of group-denoting nouns this section is discussing. All of the above four types of nouns are seen in the corpus to trigger singular agreement only.

Based on the diagnostic tests found in the literature to differentiate between count and non-count nouns, I focus in my analysis on two types of nouns that are semantically plural and syntactically singular. With reference to table 7.5 above, these are type 2 which I refer to in the remainder of the thesis as *group-denoting nouns*, and type 3 which I refer to in the remainder of the thesis as *collective nouns*. I discard type 1 (count nouns) and type 4 (mass nouns that refer to substances that can never be individuated). I shall demonstrate the analysis of the interpretability of these two types of nouns in section 7.4.2 below.

7.4 Interpretability of number

Having discussed the form of nominal marking on both count, group-denoting nouns and collective nouns, and the means to differentiate between them, this section is concerned with the semantics of both types of noun³⁸ and whether number as a feature should be considered interpretable or uninterpretable.

³⁸ By both I mean count nouns on one hand and group nouns (with both kinds: collective nouns and group-denoting nouns) on the other. For this section on interpretability, I distinguish between distributive reading of duals and plural of count nouns, and the collective/unindividuated reading of collective and group-denoting nouns discussed above. In reviewing the literature about collective nouns, I refer to the term collective nouns as it is used in the reference cited. This does not necessarily correspond to the same definition of collective nouns in MSA referred to in Section 7.3.2.2.

7.4.1 Interpretability of count nouns

It seems straightforward to discuss the interpretability of number when it comes to number marked on count nouns. As mentioned above, the number marked morphologically on the nominal is straightforwardly interpreted as there is a direct semantic mapping between the morphological marking on the nominal and its indication in the real world. A dual marking on the noun refers to two real-world entities, plural marking to multiple real-world entities. However, this neat picture becomes more complicated with collective nouns and other nouns denoting groups. More complication is added because of the interaction with semantic features, such as animacy and other discourse factors.

7.4.2 Interpretability of collective nouns and group-denoting nouns

In section 7.3.2.1, it was mentioned that speakers vary in when they conceptualise the group noun/collective noun as having an individual meaning and when they conceptualise it as having a holistic meaning. This issue brings us to the discussion of the effect of certain properties or features of the collective noun itself. Some of these semantic factors were discussed above, including volition, mobility, animacy and spatial restrictions.

This variability in number agreement leads to an important question that can be postulated here as a hypothesis for this chapter:

The use of a singular verb with a singular collective noun suggests the interpretation of the collective as one holistic unit, while the use of a plural verb with a singular collective noun suggests interpreting the members as individuals composing the group.

This hypothesis is supported by many of the definitions of collective nouns in the literature (e.g., Hudson, 1999; Whitley, 1978; Zandvoort, 1975). Biber et al. (1999, p. 188) finds three types of collective nouns in English: collectives that only take singular

verbs (e.g., family); collectives that take only plural verbs (e.g., staff); and collectives that take both singular and plural verbs (e.g., committee). Levin (2001, p. 30) argues that these instances of agreement patterns observed with collective nouns in English demonstrate that collective nouns cannot be classified as a homogeneous category, and that they instead are subject to lexical constraints. According to this analysis, an important factor conditioning the agreement pattern is semantic interpretation.

This introduction about the behaviour of collective nouns in agreement patterns is taken as a diagnostic method to reflect how the collective noun itself is interpreted. In other words, it is the number value interpretability of the collective noun itself that triggers one type of agreement over the other. Number agreement that is triggered on the verb is seen as the reflection of the number interpretability of the collective noun.

The group nouns found in the MSA corpus data in this thesis can be divided into three main categories based on the agreement type they trigger on the verb:

1. Nouns that occur with only singular verbs: for example, *qaṭī* ‘herd’ as in example 79, repeated below as example 86 for convenience; and *sirb* ‘flock’, as in example 87 below, and *tamr* ‘dates’ and *šajar* ‘trees’ as in example 89 and 90 below.
2. Nouns that occur with only plural verbs: for example, *naḡar* ‘band’ and *raḡt* ‘troop’, as in Example 78*b* and 78*c* above repeated below as examples 91*a* and 91*b* respectively for convenience.
3. Nouns that occur with alternate verb number values (singular and plural), as in the noun *nās* ‘people’ in the corpus example 92.

(86) qaṭī^{-un} min al-ḡi`āb-i `at-a min
 herd.3S.M-NOM of the-wolves-GEN came. Prf-3S.M from
 jamī⁻ⁱ anḡā⁻ⁱ al-miṡaḡat-i
 all-GEN over-GEN the-area-GEN
 ‘..a herd of wolves came from all over the area’

- (87) *sirb-u* *al-ḥamām-i* *ya-rsum-u* *qaws-an*
 flock.3S-NOM the-pigeons.3Pl.F-GEN Impr.M.3-draw-S arch.3S-Indf.NOM
mā'il-an *ṭumma* *y-staqīm-u*
 slanted.3S.M-Indf.NOM then Impr.M-becomes. straight-3S
 'a flock of pigeons draws and arch then becomes straight'.

The two corpus examples above are of nouns that are classified in group 1 as being found to trigger singular agreement. The semantic meaning of the nouns themselves might add to the ongoing discussion about the role animacy plays in agreement with collective nouns. The noun *qaṭī'* 'herd' refers to a group of animals or cattle usually moving about together in one inseparable group. Likewise, the noun *sirb* 'flock' refers to a group of birds flying together. This is possible evidence that because these two nouns refer to low-animate entities that are inseparable in their occurrence, they are seen to be conceptualised as less individuated and thus the noun is seen to trigger singular agreement.

Having said that, the same nouns are seen in other instances of the corpus to behave differently when they contain an embedded PP. Consider the following example:

- (88) a. *sirb-un* *min al-yahūdīy-āt-i* *ya-rquṣ-na*
 flock.3S-Indf.NOM of the-jewish.ladies-3Pl.F-GEN Impr.3-dance-Pl.F
 'a flock of Jewish ladies are dancing'
- b. *qaṭī'* *min al-ḡā'iz-i* *ya-tabāarak-ūn*
 herd.3S-Indf.NOM of the-elderlies.3Pl-GEN Impr.3-ask.for.blessing-Pl.M
bi-al-'atab-at-i
 by-the-step-3S.F-GEN
 'a herd of elderly people ask for blessing by the step'

In Example 88a the noun *sirb* 'flock'—which is said to always refer to a group of inseparable birds and always triggers singular agreement if seen by itself—is seen triggering plural agreement on the verb. This is attributed to the noun being followed by a PP whose NP is a plural human referent. It is the semantics of discourse that triggers the individuated interpretation of the whole DP. The DP is thus seen as having a [+animate] feature, which when present with plurality interpretation, triggers plural agreement. It is also significant to add that the discourse implication of the sentence is

positive. The group of ladies is pictured in a beautiful figurative language to resemble the birds in a flock.

On the other side of this analysis is the DP in Example 88*b*. The noun *qaṭīr* ‘herd’ in this sentence contains an embedded PP whose noun refers to human referents, thus the DP triggers plural agreement. This is again because of the semantics of the discourse. The discourse implies a negative connotation to the use of the word *qaṭīr* ‘herd’ to refer to a group of illiterate people.

It is, up to this point of the analysis, evident how the general semantics of the discourse implied in the degree of animacy and the level of individuation are significant in conditioning the number interpretation of collective nouns as reflected in agreement. Nouns of this category are the nouns I called in Section 7.3.2.2.2 group-denoting nouns. They are semantically plural, syntactically singular, can be dualised and pluralised, and they trigger singular agreement.

Also belonging to this category of corpus group nouns that are found to trigger singular agreement are the nouns *tamr* ‘dates’ and *šajar* ‘trees’. These nouns are the nouns I called collective nouns in Section 7.3.2.2.2. They are semantically plural, syntactically singular and cannot be dualised or pluralised, but have a singulative form. Consider the corpus examples in 89 for for collectives, and the corpus examples in 90 for the singulatives.

(89) a. al-tamr-u ya-amna‘-u tasawwus-i al-‘asnān-i
 the-dates.3S-NOM Impr.M.3-prevents-S decay.3S-GEN the-teeth.3Pl.F-GEN
 ‘dates prevent tooth decay’

b. al-šaḡar-u lā ya-taḡarrak-u
 the-trees.3S-NOM Neg Impr.M.3-move-S
 ‘trees do not move’

(90) a. al-tamr-at-u la t-a‘tī ‘ala al-waḡh-i allāḡi
 the-date-3S.F-NOM Neg Impr.F-come.3S on the-way.3S-GEN which.3S.M
 y-a‘tī al-‘nsān-u ‘lay-hi
 Impr.M-come.3S the-human.3S.M-NOM on-it.3S.F-GEN
 ‘a date does not come in the same way a human comes in’

- (92) a. al-nās-u qāl-ū annah-u ṣaġīr-an
 the-people.3Pl.M-NOM said.Prf-3Pl.M that-it.3S.M.ACC small.3S.M-Indf.ACC
 ‘People said that it is small’
- b. al-nās-u ġama‘ -at al-’amwāl-a
 the-people.3Pl.M-NOM collected.Prf-3S.F the-money.3Pl.F-ACC
 li-al-mutaḍarrir-īn
 for-the-needy- 3Pl.M.GEN
 ‘People collected money for the needy’

Example 92a shows that the noun *nās* ‘people’ triggers plural agreement on the verb, and because this is a group of people with undermined gender, it triggers masculine default agreement on the verb. In Example 92b, however, the same noun is seen to trigger singular number agreement on the verb. Not only does it trigger singular agreement but also feminine gender agreement. This feminine as explained in Chapter 6 is not assigned as per the biological sex of the referent. This gender is, therefore, a *u*[+Fem] arbitrary gender that is assigned on a higher *n* node, which is the locus for [-animate] feature. This is an indication that the DP is conceptualised as being inanimate. Inanimacy here is a direct reason for un-individuating the group of people.

To simply analyse the interpretability of both count nouns and group nouns including all the different types—collective nouns, group-denoting nouns and plural mixed-agreement nouns—I assume that there are two types of reading: a distributive reading, which is the interpretation of all count plural nouns or plural nouns that are syntactically plural; and a collective reading, which is responsible for the collective reading of all nouns that are semantically plural but trigger singular agreement. These two types of interpretability are explained in much detail regarding their location within the DP in Part 2 of this chapter.

7.4.3 Part 1 Conclusion

The aim of the first part of the chapter was to investigate the nature of number as a feature in MSA. Since it participates in agreement between the verb and the subject, and

is morphologically marked on both nominals and verbs, I assumed that number is a morphosyntactic feature.

In this part of the chapter, I investigated both the form and interpretation of nominal number. I provided diagnostics tests for the purpose of differentiating among group-denoting nouns. Nominal number is seen to be interpretable and is subject to conditioning by various semantic and discourse factors. This interpretability ranges from distributive reading to collective reading, as is analysed from the DM perspective in the next part of the chapter where I present a morphosyntactic analysis of number in MSA, and how this interacts with gender and animacy at Vocabulary Insertion at PF.

7.5 Part 2: The Morphosyntax of Number in Modern Standard Arabic

Above, I introduced the basic preliminaries of the nature and semantics of number as a feature in terms of form and semantics. This section of the chapter addresses the question of where the number feature in MSA is located in the DP. In Chapter 6, I argued that gender features are located on the nominal and not on the number head. In this chapter I argue that the number feature in MSA has its own syntactic projection that it heads (NumP). With this argument, I face two challenges. The first is the morphological exponence of both gender and number values as a single morpheme in many words of MSA. The second relates to the two interpretable readings of number in MSA: distributive and collective.

7.5.1 The location of number in MSA

As mentioned above in relation to the structure of the DP, Ritter (1993) proposes that number projects its own syntactic head (NumP) that is higher than the nominal head as shown in Figure 7.1.

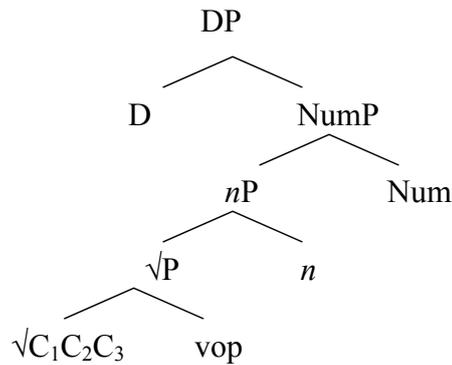


Figure 7.1: The structure of NumP in the DP in MSA

The two challenges I postulated above might cast doubt on the validity of the structure in Figure 7.1. The first challenge is the exponence of both gender and number into a single morpheme. This supposes that both features must be located on a single head for this to happen. The discussion on the location of gender in section 6.4.2.3.2 presents this issue clearly. There, I argue that although gender and number appear together on a single morpheme, this does not mean that gender is located on NumP. I argue, instead, that gender with all the semantic properties by which it is conditioned is located on *n*. I also assume, with regard to the single morphological exponence of the two features, that number must be located somewhere on a higher node than the noun. Adapting a DM approach to analysing these features, I assume that both nodes undergo the two morphological operations of Lowering followed by Fusion, as is discussed in detail in section 7.6.1.1.

Since I argue that gender is not located on NumP, the challenge that I face here is whether or not number itself is located on *n*, and that it might not be motivated well to have its own projection that dominates the noun. To elaborate on this in more detail, I recall the diagnostic criteria proposed by Kramer (2016b) to determine whether a morphosyntactic feature is motivated to head its own syntactic projection.

7.6 Evidence that number is located on NumP

According to the two diagnostic criteria that Kramer (2016b) proposes to test whether or not a feature heads its own projection, number is well motivated as a feature to head its own syntactic projection for the following reasons:

1. Number as a feature is an active participant in agreement. Number can be a landing site for nominal movements in the syntax as argued by Ritter (1991) for Hebrew and Valois (1991) for French.
2. Number has an important role in the semantic interpretations of nominals. Singular nominals have different interpretations from duals and from plurals. Also, collective and singulative nominals are interpreted differently cross-linguistically (Dryer, 2013). This cross-linguistic differentiation between singulars and plurals is often expressed in overt morphology. Therefore, number as a feature can easily be said to have an effect on interpretation and on morphophonology (Chomsky, 1995, p. 335).

Having argued that number in MSA has its own syntactic projection, a question that arises here is where this projection is located within the structure of the DP

Alexiadou et al. (2007, p. 234) argue that NumP is located directly above the NP.

Having argued in Chapter 6 that gender values are located on the nominal itself *n*, number values being located on Num directly above the *n*P makes both gender and number syntactically very local to each other to undergo Fusion and be expounded as one morpheme (Halle, 1997; Kramer, 2016a, 2016b). Further, it can easily be said that this syntactic locality of location between gender and number values makes it possible for gender (and its semantic properties such as animacy and biological sex) to condition the number value. Likewise, gender is local enough to number to enable the number value

to affect gender marking, as shown in the analysis of plural inanimate nouns in the following section.

Another motivation for number to have its own projection is quantifiers. The specifier of NumP serves as the best location for quantifiers (Zabbal, 2002).

7.6.1.1 Number is not on N

Having gender and number occur on the same head would result in an extended number of n values. Instead of having a nominalising head with two gender values to choose from, there would be three more versions (singular, dual and plural) for each gendered n , resulting in six versions of the nominalising head n . These six versions would compete for insertion according to their matching with the features in the given slot.

However, arguing that gender is located on n is more natural as n is a category-defining head, and for it to change the root into a noun, this noun has to have a grammatical gender. This gender can be biologically sexed or unsexed, but it cannot be without grammatical gender. Further, since gender is a nominal feature that is conditioned by some major semantic properties such as animacy and biological sex, which are semantically inherent in the interpretation of the noun, gender has to be located on n and not on any other head. Therefore, assuming that number is morphologically located on a different head makes it easier for the noun to be formed with default singular value, be dualised or pluralised.

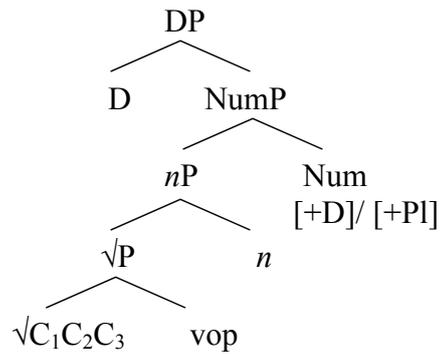


Figure 7.2: The structure shows that the value of gender is located on the nominalising node while number values are located under the NumP.

Assuming this analysis makes us face the problem of plural inanimate nouns whose gender marking changes according to number. Adapting this analysis means that we might end up with two gender values, one located on *n* and the other located on NumP, since it is the change of number that leads to the difference in gender marking. Lecarme (2002) notes that plural strategies impose certain gender values on the noun that might be different from the value of the singular. That is exactly what we see with plural inanimate nouns in MSA, which have one grammatical gender in the singular and dual, but then end up with a different grammatical gender in the plural, most notably feminine. The other gender marking that is marked only in the plural is usually uninterpretable. Lecarme's (2002) note is clearly seen empirically in the MSA data discussed and analysed syntactically in Chapter 8. As a possible solution for the problem of having double genders, one on the noun and one on the number, I follow Kramer (2015) for Amharic in assuming the existence of another nominal node on top of the base nominal node and right under the number head node. This extra node has to be nominal as it will host the uninterpretable gender, which is uninterpretable. I argue that this node hosts the uninterpretable feminine grammatical gender for inanimate and unindividuated nouns (see Figure 7.3).

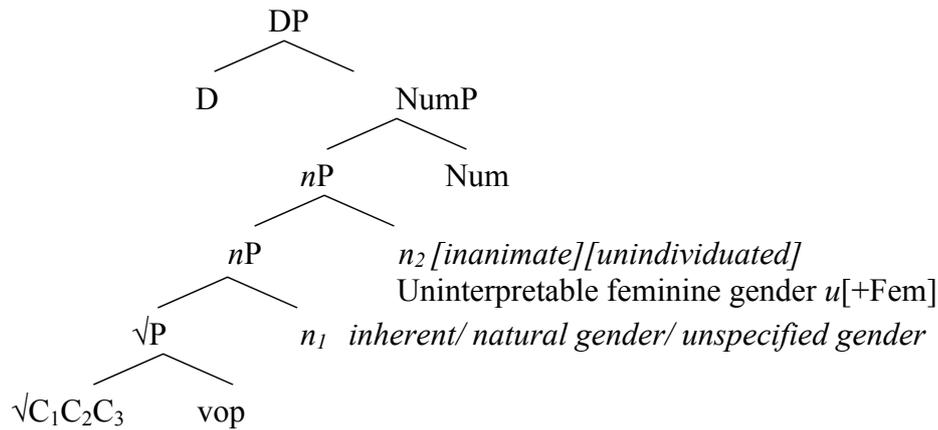


Figure 7.3: The extra-nominal node between the base nominal node and the number head, which hosts the uninterpretable feminine gender for nouns that are inanimate, collective or unindividuated.

In Figure 7.3, the DP has two nominal nodes to host the two possible grammatical genders assigned to the noun. The gender located on the base nominal node *n* is the inherent gender of the noun. As discussed in Chapter 6, each noun has to have a grammatical gender in MSA. This grammatical gender may be based on biological sex, and thus is interpretable; or it may not imply any biological sex and thus be unsexed, and so the root becomes nominalised with the unspecified version of *n*, which will then trigger the default masculine agreement. If the noun is inanimate, or unindividuated, it has to have its gender located on the higher nominal node *n*, which hosts the uninterpretable feminine gender for [-animate] nouns. Number morpheme then undergoes Lowering and then Fusion to this higher gender node to create one bundle of gender and number.

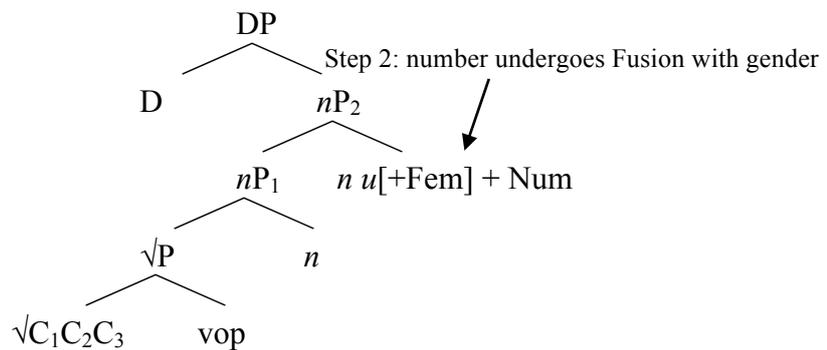
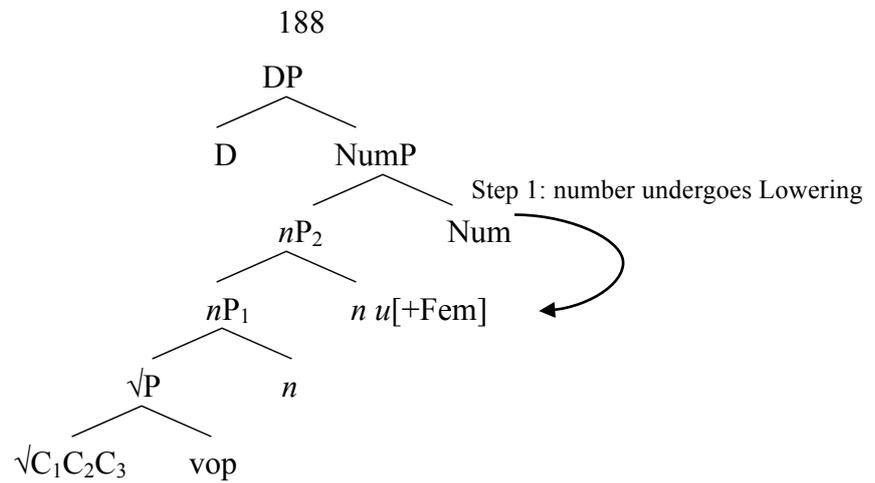


Figure 7.4: Two morphological operations the number head undergoes to obtain both features of number and gender together

In Figure 7.4, the number morpheme undergoes two morphological post-syntactic operations: Lowering, in which one node lowers down to the node right below it; and Fusion, in which a feature fuses with the feature of the lower node to create one morphological feature bundle.

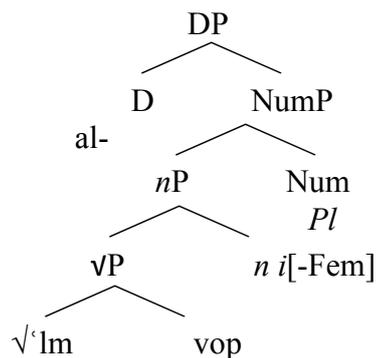
On the other end of the scale, if a noun is assigned its grammatical gender based on the referent's biological sex, this makes the gender interpretable so it does not undergo any change in gender marking as a plural inanimate noun. Nouns referring to humans and high-animacy nouns are assigned their grammatical gender based on biological sex, and thus are nominalised with one of the following versions of the noun:

- *n i*[+Fem] for female biological sex
- *n i*[-Fem] for male biological sex

- *n* for humans of mixed biological sexes.

All the above genders are located on the lower nominalising head, as the grammatical genders in this case become interpretable during the root nominalisation process. Since humans are not inanimate, and cannot be interpreted as inanimate by undergoing any strategies of plurality, they are not possible candidates to have a higher nominalising node to host uninterpretable gender features. As long as they are not uninterpretable feminine-gendered or unindividuated nouns, which are discussed in greater detail in relation to agreement with mixed-agreement nouns in section 8.7, then their gender will always be located on the base nominalising head. Consider Figure 7.5 for a human referent noun in MSA *al-mu‘alimūn* ‘the male teachers’.

A/ During syntax



B/ Post-syntax (Lowering and Fusion)

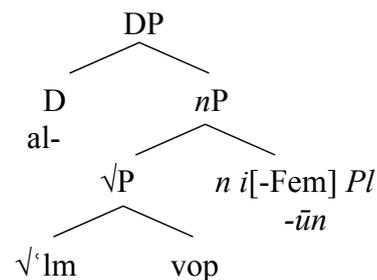


Figure 7.5: The structure of the noun *mu‘alimūn* ‘male teachers’ and formation of the features of gender and number post-syntactically

I argued above that number is not located on the nominalising head with gender, but that it heads its own projection. I also discussed one challenge to this assumption, which is the mixed-feature morphemes that we see in MSA for duals and plurals in which gender and feature are spelled out as a single morpheme. I argued that the single morpheme showing both features together is not an indication that number is located on the same node with gender; rather, number is located on a separate node that undergoes two post-syntactic operations through which the feature of number and the feature of

gender become spelled out as a single morpheme. A major point of discussion missing from the above analysis is the types of plurals in MSA. I showed at the beginning of this chapter that MSA has regular (sound) plurals, irregular (broken) plurals. The above analysis only shows that dual and plural morphemes are located on the Num node, and that the same node is empty in the case of singular nouns. I have not differentiated between regular and irregular morphemes. Are both types of morphemes located on the same number head? Are they located on different heads? These questions are discussed in the following section when I deal with the second challenge to the structure for which I argue in this chapter.

The second challenge that faces the proposed structure of NumP in MSA is the distributed *v.* collective interpretation, a pattern that gives rise either to full plural agreement or the feminine singular agreement. To open the discussion, I present the following two plural nouns in MSA: the first is irregular (broken) and the second is regular (sound):

(a) *riġāl* ‘men’

The root for this noun based on the three-consonantal model presented earlier is:

$\sqrt{C_1C_2C_3} = \sqrt{rġl}$. The noun in the singular form is *raġul* ‘man’ and in the plural form, *riġāl* ‘men’.

(b) *mu‘allimūn* ‘male teachers’

The root for this noun based on the three-consonantal model presented earlier is:

$\sqrt{C_1C_2C_3} = \sqrt{‘lm}$. The noun in the singular form is *m‘uallim* ‘male teacher’ and in the plural form, *mu‘allimūn* ‘male teachers’.

It becomes clear from these examples that the regular plural in MSA is formed through the attachment of the plural suffix to the singular form. Irregular plurals, in contrast, are formed by undergoing certain vocalic insertion processes while forming the noun to

form the plural. The noun then becomes pluralised with an affix prior to Vocabulary Insertion. This difference between the two types of plurals does not change the fact that they are both inflectional plurals and should be located on the same syntactic head. Derivational morphology is meant to change the category of the element. Inflectional number morphology, in contrast, retains the category as it is but only adds a value of number to it, which is number morphology. This is what both types of plural do. They are both considered inflectional as they do not change the category of the noun. Similar to plurals are duals. Duals are formed via regular inflectional morphology. Consider Figure 7.6, which shows the location of inflectional number morphology.

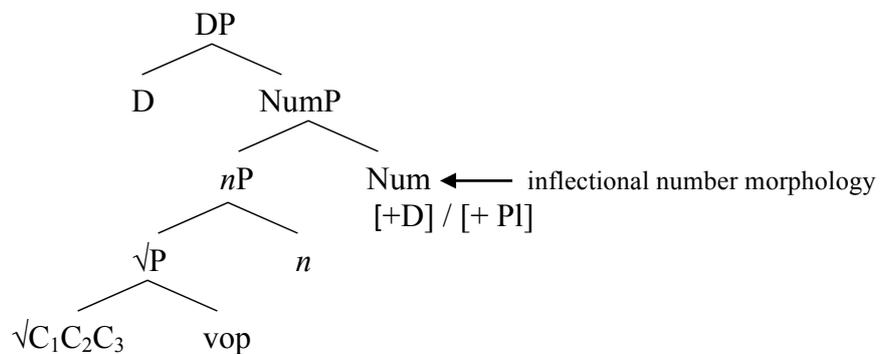


Figure 7.6: The location of the inflectional number morphology in the DP structure of MSA

With this explained, I can summarise the above information about plurals in MSA in the following assumption:

Both types of plurals are located on NumP. In this case, both types compete for post-syntactic Insertion as per the Pāṇinian Principle.

From the DM perspective, this assumption suggests that both types compete for morpho-phonological insertion post-syntactically as per the Pāṇinian Principle based on the following conditions: when the root can only be pluralised irregularly, the irregular plural morphology wins; when, in contrast, the root can only be pluralised regularly, regular plural morphology wins; and when the root is not specified for irregular plural

morphology, the default morphology is regular (Halle, 1997; Halle and Marantz, 1993; Embick and Noyer, 2007 on English plurality).

The structure of the DP can be presented with both plurals on the NumP head. In case of regular morphology, it undergoes Lowering and Fusion to merge with the gender of the noun. Irregular morphology, in contrast, is never spelled out as inflected for gender morphologically so it does not need to undergo Lowering or Fusion. Its grammatical gender is either interpretable (if it is human) and located on the nominalising *n*, or uninterpretable feminine (if non-human) and located on the higher *n*. To elaborate on this, consider Figures 7.7 and 7.8 showing the structures of two plural inanimate nouns: *ḥayawānāt* ‘animals’ and *ḥadā’iq* ‘gardens’.

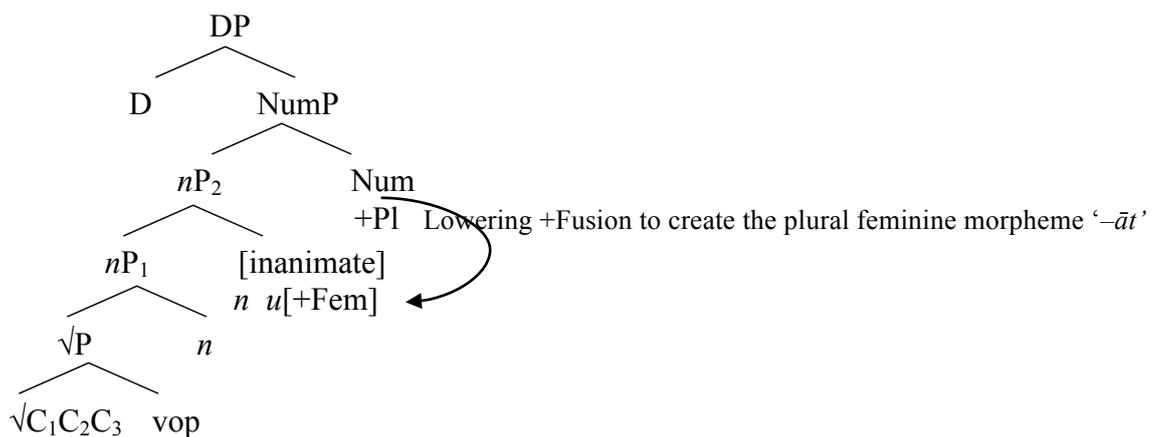


Figure 7.7: The DP structure of inanimate regular plural nouns: *ḥayawānāt* ‘animals’

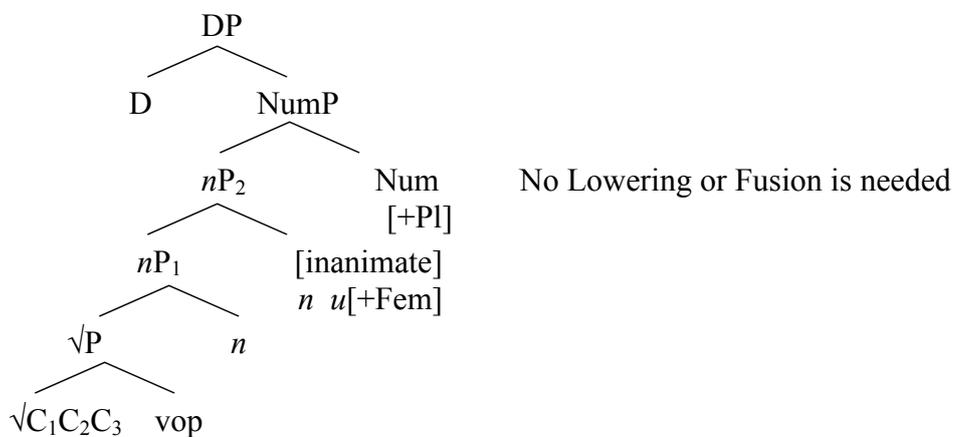


Figure 7.8: The DP structure of inanimate irregular plural nouns: *ḥadā’iq* ‘gardens’

Figures 7.7 and 7.8 provide no reason to not argue for both types of plurals to be located on the same head. It is evident that both types of plurals are located under Num as they are both inflectional. Regular number morphology (dual or sound plural) is close enough to the gender *n*, whether interpretable or uninterpretable, to undergo Lowering and Fusion. Irregular plurals, in contrast, can still interact with gender without the need for Lowering as the irregular plural is not exponed with a gendered suffix.

7.6.1.2 Interpretability of number feature

In Chapter 6, I argued that gender has interpretable values as well as uninterpretable ones. I also argued that interpretable values of gender are located on *n* along with the semantic properties of the noun (animacy and biological sex) that are seen to condition the value and interpretability of gender. Accordingly, I argued, based on the MSA data, that plural nouns that are seen to trigger feminine gender with no correspondence to female biological sex are assigned an uninterpretable gender, which I argued to be located on a nominal head higher than the nominalisation head and right under the number head.

In this section, I investigate whether number as a feature has its interpretability divided on two syntactic nodes, as in gender. Sauerland (2003, 2004) argues that the basic nominal head never carries any interpretable feature values; rather the interpretable values of number are located somewhere in the DP higher than the base nominal head. Sauerland argues for the existence of an unpronounced number value whose interpretability is taken to be the interpretable value of number of the whole DP. I follow Sauerland's argument in that the interpretability of number should not be located on the basic nominalising head, and that it should be located on a higher node, which in the current analysis is the NumP head. I present the following corpus examples and diagram to support this argument:

- (93) al-walad-u 'akal-a al-ta'ām-a
 the-boy.3SM-NOM ate.Prf-3S.M the-food.3S-ACC
 'the boy ate the food'

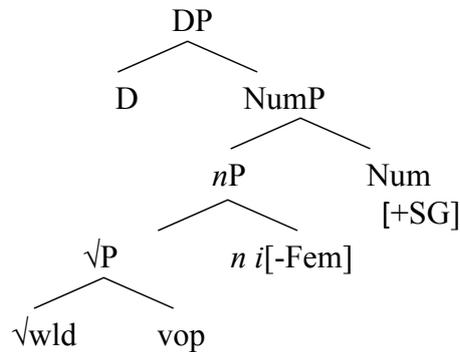


Figure 7.9: A DP structure of the noun *al-walad* ‘the boy’ in MSA

In Example 93 and Figure 7.9, the root is nominalised in the form of a singular noun.

No morphological endings realise the number value of the noun. The number head does not locate any morphemes to give a number value. Therefore, the value is understood to be default (singular). This number value is unpronounced but understood and interpreted to be the number value of the whole DP. Therefore, SG indication in Figure 7.9 is unpronounced, and not spelled out as a separate morpheme.

Example 94 and Figure 7.10 below show that the NumP not only hosts the morphological form of the dual value, it also carries the interpretability of the number of the DP. The number of the whole DP is dual and thus triggers dual agreement on the verb.

- (94) al-walad-ān ḥadar-ā al-dars-a
 the-boys-3D.M.NOM attended.Prf-3D.M the-lesson.3S-ACC
 ‘the two boys attended the lesson’

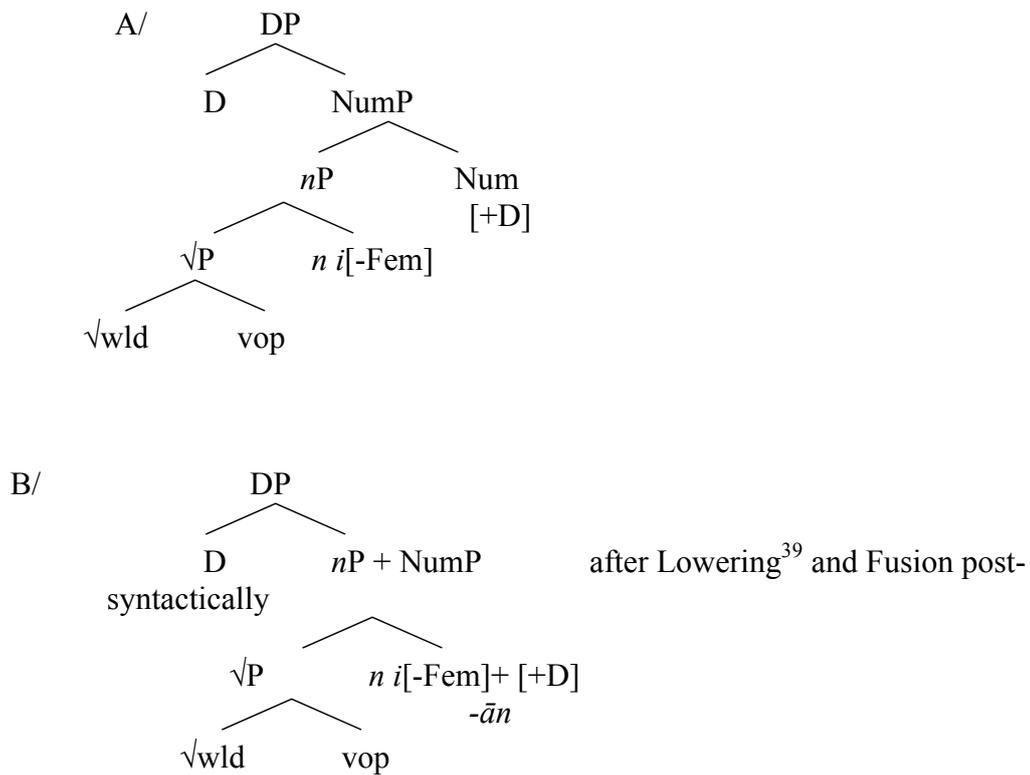


Figure 7.10: A DP structure of the noun *al-waladān* ‘the two boys’ in MSA

Example 95 and Figure 7.11 below show that the irregular plural is located on the Num head which carries the interpretability information of the plural noun. The whole DP is interpreted as plural in number and thus triggers plural agreement on the verb through Agree.

- (95) *al-’awlād-u* *fariḥ-ū* *bi-al-’īd-i*
 the-boys.3Pl.M-NOM were.happy.Prf-3Pl.M with-the-Eid.3S-GEN
 ‘the boys were happy with Eid’

³⁹ The number head is lowered but not deleted. It has not gone through Impoverishment which is another DM post-syntactic operation. Therefore, the number head is still in the structure carrying the value and the morpheme.

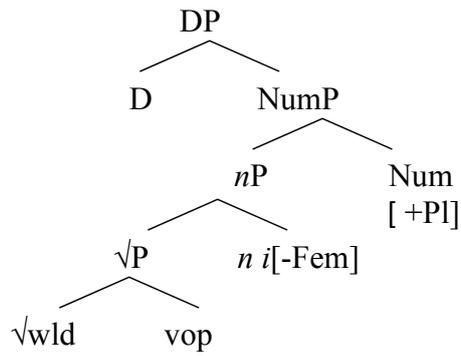


Figure 7.11: A DP structure of the noun *al-awlād* ‘the boys’ in MSA

Below is an example in which the noun has an uninterpretable feature because it is either inanimate, collective or unindividuated. Consider corpus example 96 and Figure 7.12:

- (96) *al-tā'ir-āt-u* *t-asīr-u* *'ala mudarraġ-āt-i-ha*
 the-planes-3Pl.F-NOM Impr.F-moves-3S on paths-3Pl.F-GEN-it.3S.F
 ‘the airplanes move on their paths’.

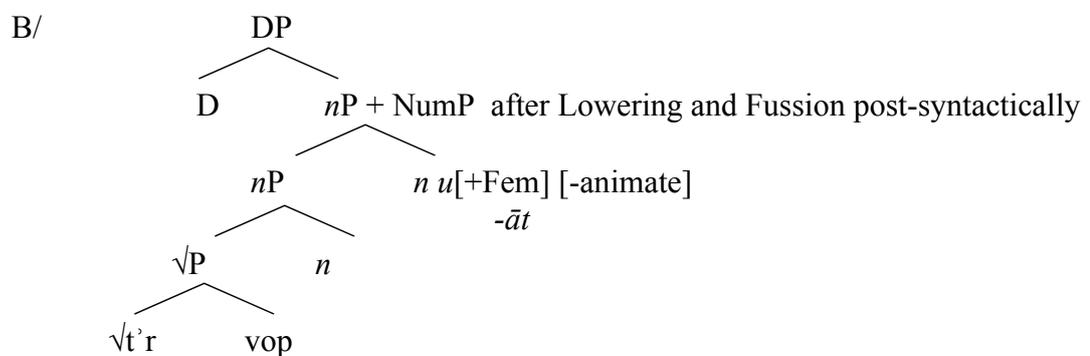
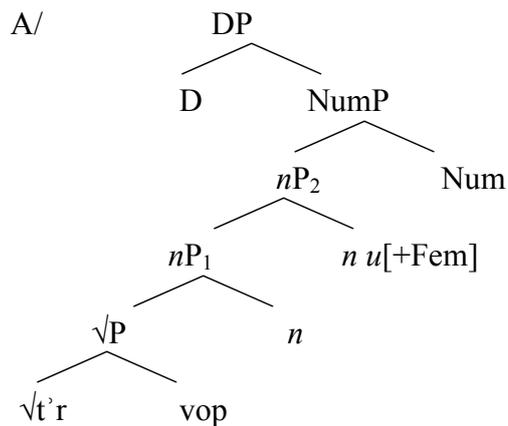


Figure 7.12: A DP structure of the noun *al-tā'irāt* ‘the airplanes’ in MSA

Figure 7.12 shows that the noun *tā'ir-āt* 'airplanes' in its basic nominalising head is not assigned its grammatical gender based on biological sex. Therefore, its nominalising head is licensed as unspecified *n* with indefinite grammatical gender. However, since the noun is inanimate and the form of the noun shows the affixal *ta* at the end, it receives its grammatical gender from another nominal node on which uninterpretable gender values are located. The number head carries a plural number value as this noun is pluralised regularly. For number +Pl and gender *u*[+Fem] to spell out as one single morpheme, the number node has to undergo two post-syntactic operations: Lowering and Fusion. Once this happens, the number value on the Num head becomes default singular. This feature loss is conditioned by inanimacy. In other words, when plurality meets inanimacy, the interpretable number value of the whole DP is default singular. This is the unpronounced number value argued for by Sauerland (2003, 2004). I provide more empirical evidence for the unpronounced number value in Chapter 9 in my analysis of agreement with conjoined DPs in SVO word order in MSA.

At this point of the discussion, I need to return to the morphosyntax of the two groups of group nouns in MSA which I chose to call ***group-denoting nouns*** and ***collective nouns***. Both are syntactically singular, semantically plural and trigger singular agreement as seen in the corpus examples. The first type is nouns referring to a group of people, animals or birds together, such as *qaṭī* 'herd' and *sirb* 'flock'. The second type is nouns referring to a unity of objects or creatures occurring together, such as *tamr* 'dates', *naml* 'ants' and *šaḡar* 'trees'. I discuss the morphosyntax of their number in this section.

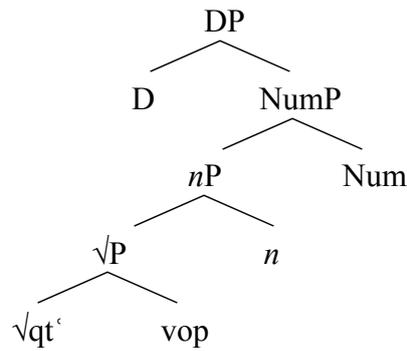


Figure 7.13: the morphosyntactic structure of the DP of *qatī*

Figure 7.13 shows that the noun *qatī* ‘herd’ is derived from the root with a

nominalising head *n*. There is no determined grammatical gender associated with the nominalising head as the noun refers to a group of undetermined or mixed genders.

With respect to number value, the noun refers to one group of animals. It is semantically plural according to the diagnostic tests proposed in section 7.3.2.2 in that it refers to a number of entities composing its whole. However, it is one group that can be dualised *qatī ān* ‘two herds’ or pluralised *talātatu qatī ān* ‘three herds’. Figure 7.13 demonstrates that this noun is predicted to trigger masculine (default) gender and singular number agreement. This is borne out in the corpus examples of the noun *qatī*.

The second type, as seen according to the diagnostic test to be semantically plural and syntactically singular, is similar to the first type. However, this type of noun does not show any ability to show dual or plural morphology except from some broken plural seen to stress the idea of variety or abundance. It does, however, have a singulative form to denote a unit of the whole (see Table 7.6).

Table 7.6: Collective nouns with their singulative form

Collective	Translation	Singulative	Translation
<i>tamr</i>	‘dates’	<i>tamr-at</i>	‘date’
<i>šajar</i>	‘trees’	<i>šajar-at</i>	‘tree’
<i>naml</i>	‘ants’	<i>naml-at</i>	‘ant’
<i>naḥl</i>	‘bees’	<i>naḥl-at</i>	‘bee’

Figure 7.14 shows the structure of the collective noun *naml* ‘ants’, which should be similar to all collective nouns within the same type.

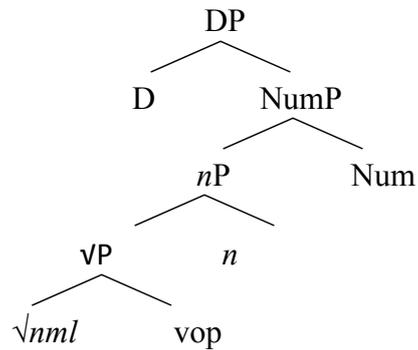


Figure 7.14: The morphosyntactic structure of the collective noun *naml* ‘ants’ in MSA

The structure in Figure 7.14 shows that *naml* ‘ants’ is derived from the consonantal root \sqrt{nml} through the nominalising head *n*. The nominalising head here is undefined for gender in that the biological sex of *naml* ‘ants’ cannot be determined. It is thus seen to trigger masculine (default) gender on agreeing elements. As for the number value, *naml* ‘ants’ is seen to be semantically plural in that it refers to a group or unit of small entities within. However, it is syntactically singular. It is not defined for number, so I assume that it receives the default singular value. Corpus examples show that *naml* can only trigger singular agreement. Also, as diagnostic test 1 in section 7.3.2.2.1 showed, this noun does not take the dual or plural morphology.

The above structure is applicable to all collective nouns of the same type in MSA that are semantically plural, syntactically singular and trigger singular masculine agreement, such as *nahl* ‘palm trees’, *samak* ‘fish’, *baqar* ‘cows’, *ward* ‘flowers’, *ushb* ‘grass’ and *zar* ‘plants’. This type of collective nouns in MSA has another distinctive feature, which is the singulative form. Each collective noun listed in the examples above has its own singulative form that denotes the single item of the whole unity of collection. The singulative form is derived by attaching the feminine *affixal tā* to the end of the collective noun, resulting in *nahl-at* ‘a palm tree’, *samak-at* ‘a fish’, *baqar-at* ‘a cow’,

ward-at ‘a flower’, *ushb-at* ‘piece of grass’ and *zar'-at* ‘a plant’. The morphosyntactic structure of the singulative is presented in Figure 7.15.

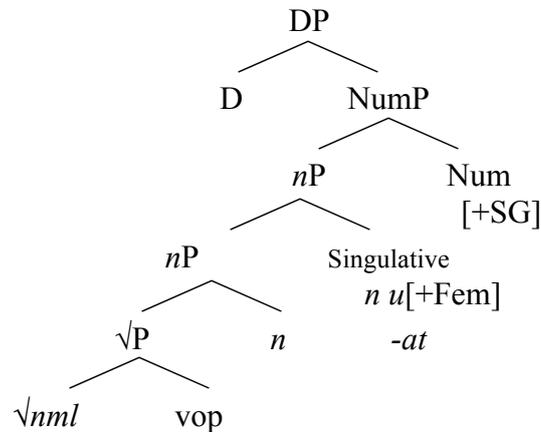


Figure 7.15: The morphosyntactic of features in the MSA singulative noun *naml-at* ‘an ant’

Figure 7.15 represents the structure of singulative nouns in MSA. At the bottom of the structure, the noun is derived from the consonantal root \sqrt{nml} under the nominalising head n with no specified grammatical gender value as the referent’s biological sex cannot be determined. Thus, we have the collective noun *naml* ‘ants’. The singulative form, however, is derived on a higher nominal head at the location of the singulative. The morphological ending of the singulative, the *affixal ta*, is attached at this node. The uninterpretable feminine gender is also located at this nominal head. When it comes to number value, the singulative noun is already derived with no number value, which is default singular. The Num head carries the interpretability of the number value of the whole DP, singulative or part of a unit.

The last point to discuss in relation to the morphosyntactic analysis of collective nouns in MSA is the nature of nouns in the third column of Table 7.7. These nouns occur to be marked for dual and plural morphological endings.

Table 7.7: Some MSA singulative nouns, collectives and their morphologically number-marked counterparts

Collective	Singulative	Morphologically marked for number	
naml	naml-at	naml-atān	naml-āt
ants.3Coll.	ant-3S.F	ants-3D.F	ants-3Pl.F
tamr	tamr-at	tamr-atān	tamr-āt
dates.3Coll.	date-3S.F	dates-3D.F	dates-3Pl.F
samak	samak-at	samak-atān	samak-āt
fish.3Coll.	fish-3S.F	fish-3D.F	fish-3Pl.F

The nouns in the third column are similar to the collective nouns in the first column, but are morphologically marked for dual and plural values. They might seem to be the dual and plural forms of the collective nouns. If this is the case, then this would violate our predictions that these nouns are always syntactically singular, and they cannot be dualised or pluralised, or modified with numerals⁴⁰. I argue that these nouns that are morphologically marked for number are the dual and the plural forms of the singulative form. To support my argument, I propose gender values of both singulative and collective. Consider Figures 7.16 and 7.17 showing the collective noun *tamr* ‘dates’ and its singulative counterpart *tamr-at* ‘a date’.

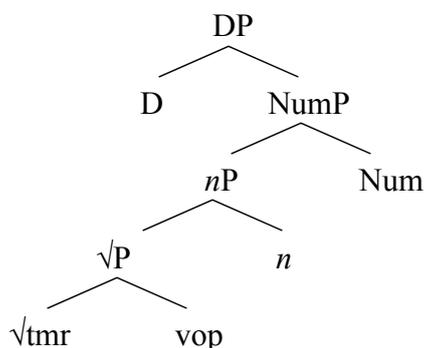


Figure 7.16: The morphosyntactic structure of the collective noun *tamr* ‘dates’ in MSA

⁴⁰ An exception to this is the irregular plural forms of the collective discussed previously in Section 7.3.2.2.1

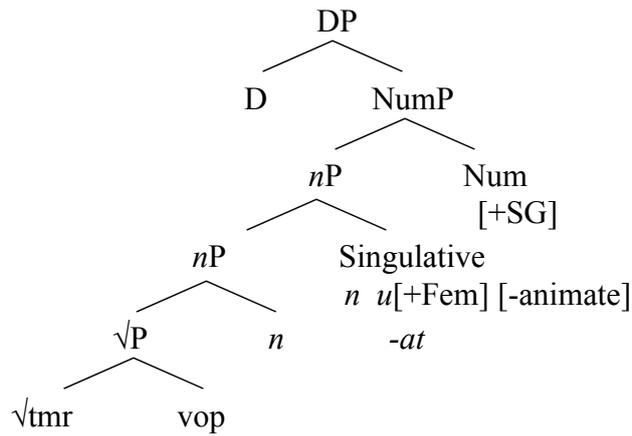


Figure 7.17: The morphosyntactic structure of the singulative noun *tamr-at* ‘date’ in MSA

The structure of the noun *tamr* in Figure 7.16 shows that the noun on the nominalising head has no value of grammatical gender, and thus is expected to trigger masculine gender in agreement unless it is assigned uninterpretable feminine gender on the higher nominalising head. For this noun to be licensed for this feature, it has either to be inanimate plural, or singulative. Its inanimacy does not entitle it to be assigned an uninterpretable gender value on the higher nominalising head as with the singulative *tamr-at* ‘date’ as in Figure 7.17. Having agreed that the only gender available for *tamr* in this case is default masculine, we can move on in attaching the dual and the plural morphology. Repeating the same structure above and adding a number morpheme on the Num head results in the structure in Figure 7.18.

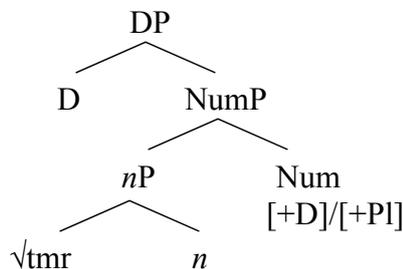


Figure 7.18: The structure of the collective noun *tamr* ‘dates’ when it is marked for dual or plural number

Figure 7.18 shows that when we try to merge the dual number morphemes to the collective noun at the bottom of the structure, the Num node does not need to undergo post-syntactic morphological operations of Lowering or Fusion with the nominalising head, as the latter has no grammatical gender and will be spelled out with default masculine gender. Number morphology then is spelled out as dual masculine $-\bar{a}n$, $-ayn$ resulting in the following nouns, which do not exist in MSA:

<i>a</i>	<i>tamr</i>	+ [+D] =	* <i>tamr-ān</i>	For nominative
	<i>dates.3Coll.</i>	+ [+D] =	* <i>dates-3D.M.NOM</i>	
<i>b</i>	<i>tamr</i>	+ [+D] =	* <i>tamr-ayn</i>	For accusative or genitive
	<i>dates.3Coll.</i>	+ [+D] =	* <i>dates-3D.M.ACC / GEN</i>	

The above reasoning shows that the group of nouns that accept the dual morphological endings are not collective nouns; rather they are the singulatives as seen in Figure 7.19 below.

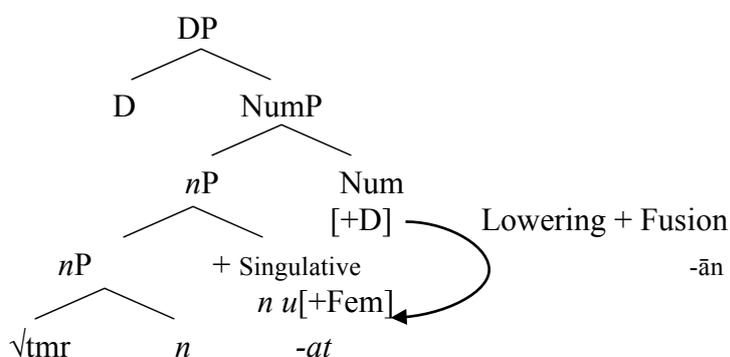


Figure 7.19: The structure of the singulative noun *tamr-at* ‘a date’ when it is marked for dual number values

The singulative noun *tamr-at* is derived with the unspecified nominalising head *n*, with no grammatical gender assigned to the root as no biological sex is identified for the referent. Since it is a singulative noun, it receives an uninterpretable feminine gender from the higher nominalising head *n* [+ Singulative]. Thus, it has a gender (uninterpretable feminine) and number (default singular) and if spelled out at this stage,

it would be *tamr-at* ‘a date’. If the Num head is occupied with a dual or a plural morpheme, the Num head needs to lower to become a bundle with the uninterpretable feminine gender feature, resulting in the following nouns in MSA:

tamr-at + [+D] = tamr-at-ān

dates.3S.F + [+D] = dates-3D.F

The above reasoning of dual morphemes applies for the regular feminine plural form.

The plural morpheme on Num if combined with the singulative results in *tamrāt* ‘dates’.

The post-syntactic morphological operations which take place here are Lowering and Fusion. Fusion, in this particular example, operates a phonotactics process of vowel lengthening to the *-a* to become *-ā*.

b tamr-at + [+Pl] = tamr-āt

dates.3S.F + [+Pl] = dates-3Pl.F

This analysis has shown that the group of nouns that are marked for regular number morphology are not derived from collectives; rather, they are dual and plural forms of the singulative form of the collectives. The dual and the plural behave similarly to count nouns in their agreement patterns; that is, the dual triggers full agreement, and the plural triggers uninterpretable feminine gender agreement. It is now borne out in MSA that collective nouns (of the *tamr* and *nahl* type) have a singulative form, but never a dual or regular plural form. They do, however, have an irregular plural form as in *tumūr* ‘dates’, and *’asmāk* ‘fish’⁴¹.

What remains to be mentioned at this point is the semantic difference between *tamr* ‘dates’ as a collective noun and *tamr-āt* ‘dates’ as a morphologically plural noun. The first is semantically plural but syntactically singular while the second is semantically and syntactically plural. Both nouns trigger singular agreement on verbs. However, the

⁴¹ Refer to Section 7.3.2.2.1 for detailed information.

singular agreement of *tamr-āt* is attributed to its inanimacy and syntactic plurality (behaving similarly to inanimate count plural nouns). The only semantic difference between the two is in relation to their interpretation. *Tamr* is interpreted as a unit of things, whereas *tamr-āt* is interpreted, as Zabbal (2002) argues, as abundant varieties of things. That is why the syntactic plurality is emphasised.

7.7 Conclusion

This chapter reviewed number as a morphosyntactic feature in MSA. Number in MSA is marked on both nominals and verbs. Number in MSA has three main values—singular, dual and plural—each with a different morphological form. I also reviewed the basic nominal characteristics of both count and collective nouns in MSA, and how they behave differently in terms of agreement patterns.

The chapter also included a morphosyntactic analysis of number as a feature regarding its location and interpretability in the DP. I argued for a split-plurality analysis of number in MSA. Plurals in MSA can be located on one of two locations in the DP. Since sound plurals are regular morphemes that are conditioned by gender, they need to be close enough to the node at which gender is located. Therefore, regular plurals are located on Num where it is possible for them to attach to the gender value—be it interpretable or uninterpretable—to form one bundle at Spell Out. Broken plurals, in contrast, have irregular morphology and are formed by undergoing certain vocalic mechanisms. Therefore, they do not undergo Lowering or Fusion as they do not need to form a bundle with gender at Spell Out. Similar to regular plurals, they are inflectional and so are located under NumP.

Dual morphology is another form of regular morphology. Therefore, it is also located on the Num and close enough to either interpretable or uninterpretable gender values of the DP to mix post-syntactically.

I also discussed double plurals in MSA and argued that the existence of such a class of nouns is an empirical motivation arguing for a split-plurality analysis in MSA. Data in MSA show that there are two types of double plurals in MSA: the first is derived through regularising an irregular plural; the other by irregularising an already irregular plural. I argued that the first type is analysed by locating it at two different locations in the DP: the irregular part located on the nominalising head and the regular morphology, on Num. The second type is best analysed as being derived irregularly from the root on the nominalising head, in just the same way as the single irregular plural is derived. Although within the framework of DM there is no clear distinction between inflectional and derivational morphology, the theoretical grounds for this analysis was that NumP is a non-category-defining head. Also, it is found cross-linguistically to be the host for number feature (e.g., Zabbal, 2002 for Arabic; Kramer, 2009, 2016a for Amharic to name only a few). It is found to carry the number inflectional morphology, which is why it is seen as the best location to host sound plurals and dual overt morphology. In contrast, *n*, according to the assumptions of DM, is a category-defining head (it nominalises roots). It is not necessary that it carries an overt morpheme, as its basic function is defining/categorising the root. Since the irregular plural and the double irregular plural are derived through certain phonotactics and vowelizing techniques, these are hosted on the *n*.

The last point of discussion in this chapter concerned the interpretability of number features. Having agreed on the existence of the number head NumP in the basic structure of the DP in MSA, its role is not only to host the morphology of the regular plural, but also as the locus for the interpretability values on number for that particular DP. This view is advanced by Sauerland (2003, 2004) who argues that the nominal head never holds any interpretable values of the number; rather the interpretable number values are located on Num head. Sauerland argues that there are unpronounced number

values in the DP higher than the *nP*. I follow Sauerland's assumption to account for the empirical data in MSA in which plural morphology is not always a true indication of the real value of number the DP has. I present further empirical evidence for this argument in Chapter 9 in the analysis of agreement with conjoined DPs in MSA.

Chapter 8: Subject–Verb Agreement in Modern Standard Arabic

Arabic

8.1 Clause structure in MSA

Having analysed the basic morphosyntactic features of nominals and how interpretation affects the final value assigned to features, this chapter offers analysis of SVO agreement over a selection of corpus-extracted sentences. I first need to present the clause structure in MSA that I adopt for the analysis.

The theoretical basis of analysis in this chapter and the next is a combination of late Minimalism (for agreement) and DM for feature valuation within the DP.

I present the syntactic structure in Figure 8.1 to account for the MSA clause.

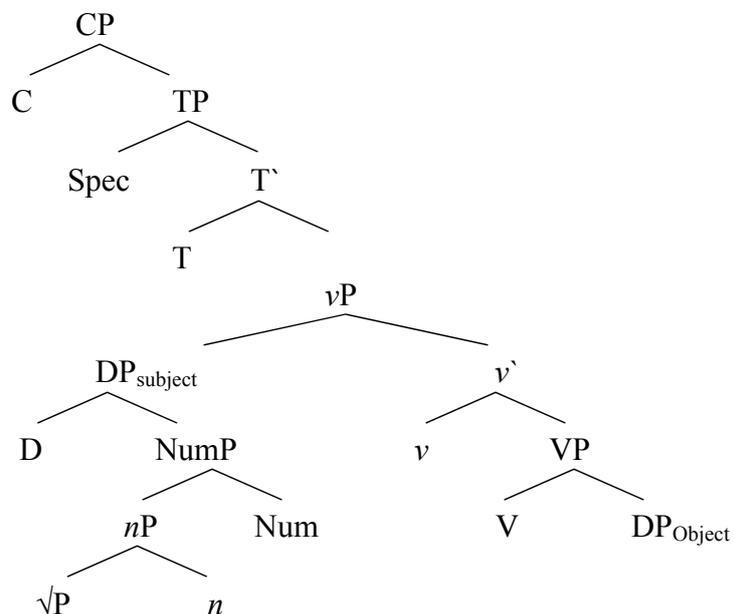


Figure 8.1: The clause structure in MSA

The structure in Figure 8.1 shows that the verb is merged inside the VP. It successively moves up towards T. The subject, in contrast, is base generated in the thematic shell, the specifier of vP [Spec, vP]. Depending on the word order needed, the

subject may be positioned either in situ within the thematic shell or move up to the specifier of the TP. In Chapter 2, I provided some synopses of the most relevant agreement account in MSA in which word order forms a key aspect in any analysis.

Figure 8.1 shows that the structure of the MSA clause is compatible with previous analyses of Arabic (Crone, 2014; Tucker, 2011) and other Semitic languages such as Hebrew (Doron, 2000; Shlonsky, 1997).

8.2 Subject–Verb–Object and Verb–Subject–Object word order

derivation

My attention in the clause structure is on the TP and downwards, since the topic is about SVO agreement and Agree in the Minimalist framework. **VSO word order** is derived by the subject either remaining in situ or, as Crone (2014) argues for LA, rising to a position lower than T, which is [Spec, AspP].⁴² The verb then rises to T resulting in a VSO structure. **SVO word order**, in contrast, is derived from the verb rising to T and the subject rising to [Spec, TP], resulting in a SVO structure. Consider Figure 8.2 for further elaboration on the steps of movement. These are the assumptions made in the majority of clause structure analyses in Arabic (Fassi Fehri, 1993; Mohammad, 2000; Ouhalla, 1994; Tucker, 2011).

⁴² Crone (2014) has a similar clause structure to the one I assume here. Crone (2014) goes further in his analysis by including AspP to account for sentences in LA and MSA that contain auxiliaries. I do not pursue any analysis of sentences with auxiliaries in this thesis. For more information about the clause structure in which auxiliaries are located, the reader is referred to Crone (2014).

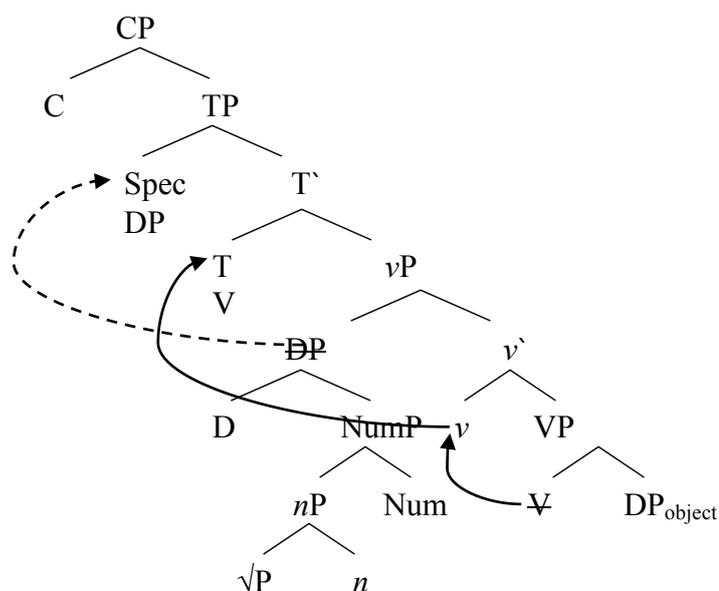


Figure 8.2: Verb and subject movement through the derivation of both word orders (straight line shows verb movement, dotted line shows subject movement)

I follow Travis's (1984) proposal regarding head movement constraint, which states that movement of a head from position *a* to position *c* cannot skip position *b*, which intervenes midway. Figure 8.3 demonstrates the successive cyclic movement of the verb during the derivation of VSO word order.

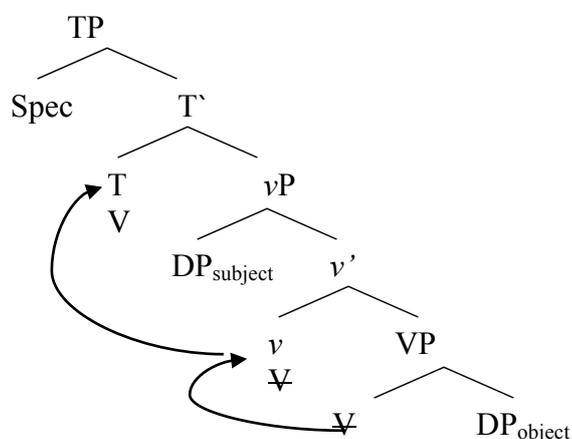


Figure 8.3: Successive cyclic movement of the verb.

The subject also undergoes successive cyclic movement from the location at which it is base generated, [Spec, vP] to [Spec, TP].⁴³ Accordingly, in deriving SVO word order,

⁴³ Again, for structures where AspP is clearly indicated, the subject moves as follows: [Spec, vP] to [Spec, AspP] to [Spec, IP]. For the current analysis, I do not address any structures with auxiliary verbs. Therefore, AspP is intentionally left out of the above figures.

the verb moves higher to T so that tense is realised on the verb, then the subject has to rise to a location higher than the T. Movement of the subject to the [Spec, TP] location is motivated by satisfying the EPP (see Figure 8.4).

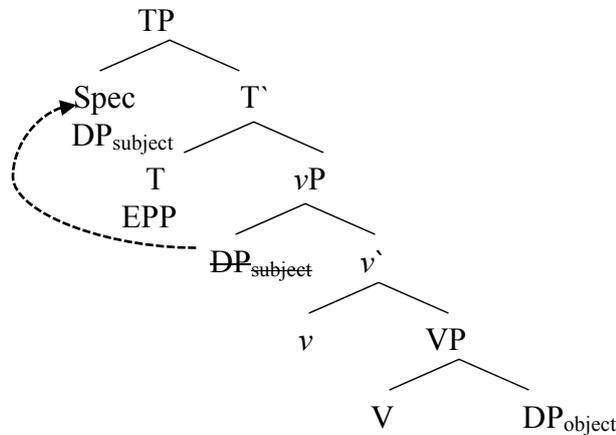


Figure 8.4: Successive cyclic movement of the subject in the derivation of SVO word order.

8.3 Features and the process of agreement

As mentioned in Chapter 4, within the Minimalist framework for agreement, a feature is unvalued iff it is uninterpretable (Chomsky, 2001). In other words, features that are uninterpretable and remain uninterpretable cause the syntactic derivation to crash. This assumption, however, is refuted by Pesetsky and Torrego (2007) who offer an alternative assumption in which uninterpretable features can be valued and are of equal importance to valued interpretable features. For them, uninterpretability does not hinder the feature from being valued. It is still valued with the uninterpretable value of the feature and can enter the syntactic derivation with this value. More recently, Kramer (2015) has also challenged Chomsky's (2001) assumption in which uninterpretable features are unvalued and that they might cause the derivation to crash.

In the analysis of the interpretability of features presented in Chapters 5, 6 and 7, I showed that because of some discourse factors, the semantic interpretation of a feature can have different values. This, however, does not render the feature unvalued.

Uninterpretable gender feature, for instance, is still valued with an uninterpretable feminine gender $u[+Fem]$. This feature on a nominal still enables it to enter into an Agree relationship and trigger feminine gender on the target. Therefore, I adopt the view in which an uninterpretable feature is in fact valued and does not cause the derivation to crash; rather, only unvalued features cause the derivation to crash.

In my analysis, both unvalued and uninterpretable features are found. The former are not legible at PF and need to be valued, while the latter are not legible at LF. During syntactic derivation, some elements, such as verbs or adjectives, have unvalued features that need to be valued prior to PF or the derivation will crash.

The Agree-based approach to agreement (Chomsky, 2000, 2001) relates two elements in a relationship of agreement. One of these elements has unvalued Phi-features and thus becomes an active probe for Agree. The other element has valued Phi-features and therefore serves as a goal for the unvalued probe. For Agree to take place between a goal and a probe, Chomsky (2000) identifies four conditions that must be met:

1. The c-command condition (p. 122): a functional head T agrees with a maximal projection DP iff T c-commands DP.
2. The intervention condition (p. 122): for an Agree to take place between T and DP, there should be no intervening XP between the two.
3. The phase condition (p. 108): both T and DP should be included within the same phase.
4. The activity condition (p. 123): DP is an active goal for agreement for having valued Phi-features.

Assuming the clause structure above, the TP head has a number of unvalued features. T has unvalued Phi-features (person, gender and number). It probes down within its local c-command domain to search for a target with valued Phi-features. The only two DPs within the probe's local domain are the DP_{subject} and the DP_{object} . The DP_{object} is

asymmetrically c-commanded by the DP_{subject} and thus blocked from being targeted by the probe. The only remaining DP with all valued Phi-features for the probe to agree with is the DP_{subject}. After the probe has located a goal within its c-command domain, which is the DP_{subject}, it enters into an Agree relation with it. It is now the role of the EPP (Chomsky, 1993, 2000) to decide on the movement of the DP goal. Chomsky presents this principle as the requirement that every sentence must have a subject to be positioned on the functional head responsible for tense inflection. If this EPP is strong enough, it motivates the movement of the subject to [Spec, TP] or else motivates that this position is occupied by an expletive. In order to derive SVO word order, movement of the DP from [Spec, vP] to [Spec, TP] to satisfy the EPP –if obligatory- must take place after Agree, unlike pre-Minimalist approaches to agreement (Aoun et al., 1994).

Whether the movement of the subject to [Spec, TP] is obligatory or not is an issue that remains outside the scope of this research. The theory of feature agreement that I assume would still work well regardless of the position of the subject. In the meantime, I assume that the two major word orders in MSA are derived as per Figures 8.3 and 8.4. Regarding my analysis of agreement and word order variation in MSA, the presence of EPP on T requires that the DP moves up to occupy the [Spec, TP]. The verb then rises up to T to satisfy the *uV*. The result is a sentence in the order SVO.

Regarding verbal features, a verb enters the derivation with unvalued features and is motivated to rise to T by the presence of *uV* on TP, which requires the verb to be inflected for tense. The movement of the verb to the functional head responsible for tense inflection is therefore obligatory. It is thus more appealing to assume that the EPP is optional rather than assuming that the movement of the verb to T is optional.

After the unvalued Phi-features on TP become valued through Agree with the DP_{subject}, the verb in turn has its valued V features from T.

These are the basic syntactic operations according to the Agree-based approach to agreement within Minimalist syntax. It is at this point that post-syntactic morphological operations come into play. A detailed analysis of agreement and how features are structured post-syntactically is revealed within the data analysis in the remainder of the chapter. The following three sections highlight the three most important categories on nominals in agreement patterns in MSA as per the data extracted from the corpus. Section 8.4 highlights the agreement patterns found in sentences with single noun subject with different number values: singular, dual and plural. Section 8.5 highlights the agreement patterns in sentences with collective nouns. Section 8.6 highlights agreement patterns with mixed-agreement nouns; those are mainly seen to be collective nouns that trigger two different agreements on the verb with almost the same meaning. These three sections involve only analysis of sentences in SVO word order, as the main focus is to closely study the behaviour of agreement features and their interpretability during the course of agreement. This behaviour will not be shown in VSO word order in MSA, as the verb always shows partial agreement in VSO.

8.4 Agreement with single subjects in MSA

Data presented for analysis in this section are all in the SVO word order. The main feature with which to categorise the data is number marking. Consider the following set of corpus data with singular DP subjects:

(97) al-mu‘allim-u šağğā‘-a al-ṭullāb-a
 the-teacher.3S.M-NOM motivated.Prf-3S.M the-students.3Pl.M-ACC
 ‘the teacher motivated the students’

(98) al-tāwil-at-u kān-at fī al-faṣl-i
 the-table-3S.F-NOM was.Prf-3S.F in the-classroom.3S-GEN
 ‘the table was in the classroom’

(99) al-kursī-u suhib-a min taḥt-ī
 the-chair.3S-NOM was.Pulled.Pass-3S.M from under-me.1S
 ‘the chair was pulled from under me’

These corpus examples show that in SVO the verb fully agrees in person, gender and in number with the subject, regardless of animacy for singular nouns. Figures 8.5–8.7 represent a DP structure analysis of each of the subjects in these three corpus examples.

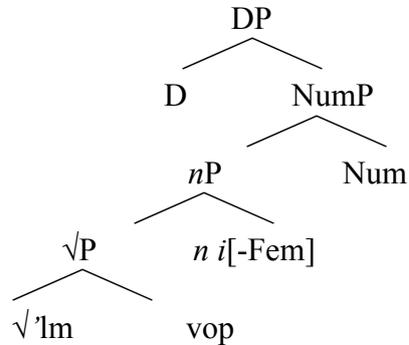


Figure 8.5: DP structure analysis of the nominal features in *mu'allim* 'teacher'.

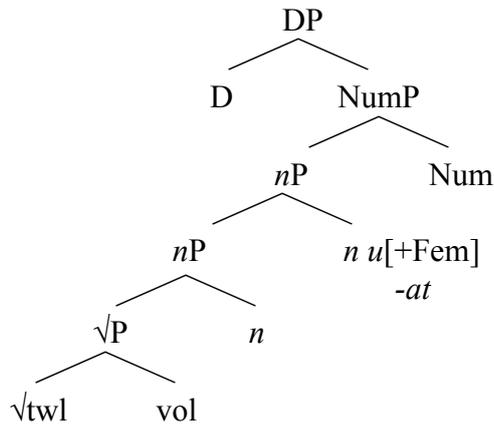


Figure 8.6: DP structure analysis of the nominal features in *tāwilat* 'table'.

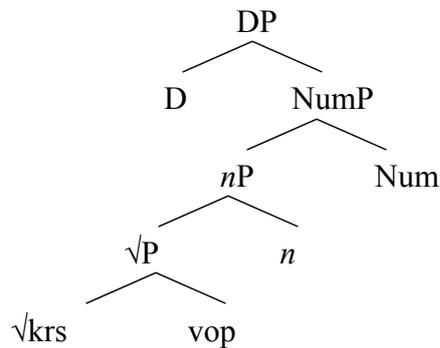


Figure 8.7: DP structure analysis of the nominal features in *kursī* 'chair'

The subject DPs above are good examples of when the gender is interpretable or uninterpretable. The first is human, and according to the human/animacy split in MSA,

interpretable gender values are assigned to entities with natural gender. Uninterpretable gender values are assigned uninterpretable grammatical gender as there is no corresponding natural gender to refer to.

The three examples above are all sentences with single DP subject in the singular form and in the SVO word order. Singular DPs represent the simplest instances for analysis as the base noun itself (*nP*) would represent all the relevant information needed for the Phi-probe to enter into an Agree relationship. Whether the gender feature is interpretable or uninterpretable, both values of gender and number are acquired by the full DP, which is now the most local DP in the c-command domain with which the Phi-probe T can enter into an Agree relationship. The singular DP has a separate node for number, which is NumP. This number head is simply empty for singular nouns. It has no number value and thus no dual or plural inflections will be required at Vocabulary Insertion. When a DP has no number value, it is interpreted with the default value of number, singular.

TP has unvalued Phi-features and is therefore probing into its c-command domain to obtain an Agree relationship with a DP with valued Phi-features. Once this Agree relationship is established, the DP has to rise to a high position to satisfy EPP on TP, which involves the obligatory movement of the subject to [Spec, TP]. The verb then rises to T to satisfy the *uV* features on T, at which point the verb receives its Phi-features, which are seen at Vocabulary Insertion post-syntactically. Therefore, an Agree relationship in this sense is seen as a reflection of the features of the nominal.

The following corpus examples are of dual nouns for both interpretable and uninterpretable gender values:

- (100) a. al-ṭifla-tān qadima-tā 'ila al-ḥadīq-at-i
 the-girls-3D.F.NOM came.Prf-3D.F to the-garden-3S.F-GEN
 ‘the two girls came to the garden’

b. al-kursīy-ān	kān-ā	bi-al-ġiwār-i
the-chairs-3D.M	were-3D.M	in-the-surrounding.3S-GEN
‘the two chairs were close by’		

Agreement is achieved in exactly the same way as explained for singular nouns above. The only difference with dual nouns is Spell Out of the features at Vocabulary Insertion. This becomes clear when observing the structure of the features within the DP in Figures 8.5–8.7. The structure of the DPs in Example 100 above is different from the first three DPs in that the number head this time has a dual value. Gender, as for the previous nouns, is located on the base noun and is differentiated according to the referent’s interpretability. While gender is interpretable in 100*a*, it is uninterpretable in 100*b*. As for the number values, dual values in MSA are spelled out in overt morphology. If the current structures of the DPs in 100 above are kept the same, then at Vocabulary Insertion, each of the gender and number values on the DPs would be spelled out as different morphemes. This is not the case in MSA dual morphology, which is defined for both gender and number at the same time: ‘*ān*’ for dual masculine and ‘*tān*’ for dual feminine. This problem is solved after the syntactic derivation has ended and just before Spell Out through two main DM operations: Lowering, and Fusion. Figure 8.8 is a representation of how the dual morpheme combines with the gender morpheme to create one bundle of morphemes combined together before Vocabulary Insertion.

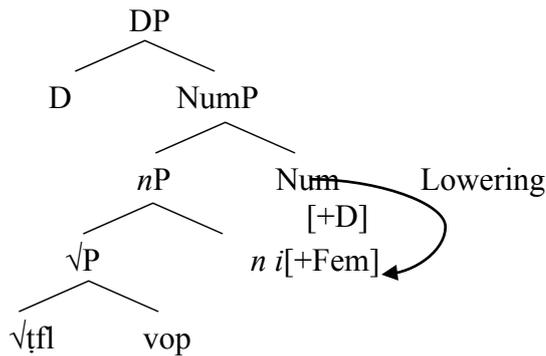
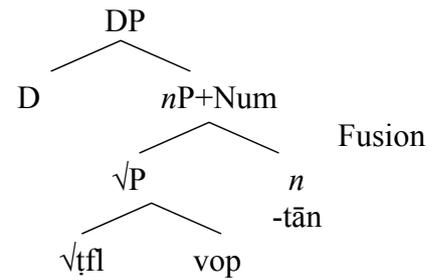
A/ Lowering**B/Fusion**

Figure 8.8: A representation of two morphological operations that take place post-syntactically to merge number and gender into one syntactic head prior to Spell Out

Plural nouns in SVO word order in MSA have exceptional behaviour compared with nouns in the singular or in the dual number. This exceptional behaviour in agreement can only be observed in SVO word order sentences. To begin the analysis, I present the following corpus examples:

- (101) a. al-kilāb-u ta-nbaḥ-u wa al-qāfil-at-u ta-sīr-u
 the-dogs.3Pl.F-NOM Impr.F.S-bark-S and the-wagon-3S.F-NOM Impr.F.S-move-S
 ‘the dogs bark and the wagon moves’
- b. al-kutub-u kān-at ‘ala al-tāwil-at-i
 the-books.3Pl.F-NOM was.Prf-3S.F on the-table-3S.F-GEN
 ‘the books were on the table’

These examples show that despite the fact that the word order is SVO, there is a partial agreement pattern on the verb: the verb is in the singular form despite the plural morphology on the noun. This pattern, however, is only found when nouns are of a certain position in the animacy hierarchy. Example 101a, whose subject refers to animals, and Example 101b, whose subject refers to inanimate objects are both observed to have this exceptional pattern of partial agreement. Both are nouns that are morphologically realised with plurality. They are count nouns and not in any sense collective nouns (see Chapter 7 for the diagnostic characteristics of collective nouns); yet, they are seen to trigger singular agreement on the target.

In Chapters 6 and 7, we saw that if non-humanness is paired with plurality, the result is feminine singular agreement. Any referent that is not human if pluralised results in the referent being unindividuated and pushed lower down the animacy scale. Its grammatical gender, which is feminine, is uninterpretable. The same referent in singular and dual forms can be assigned interpretable gender feature, but with plurality the level of interpretability changes. To elaborate more on this point, consider the noun *kalb* ‘dog’ in the figure 8.9 in the singular form and in figure 8.10 in the dual form:

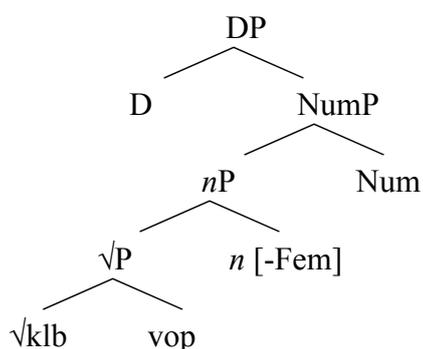


Figure 8.9: The structure of the singular noun *kalb* ‘a male dog’, which shows the interpretable gender feature assigned to *n*, based on the natural gender of the referent

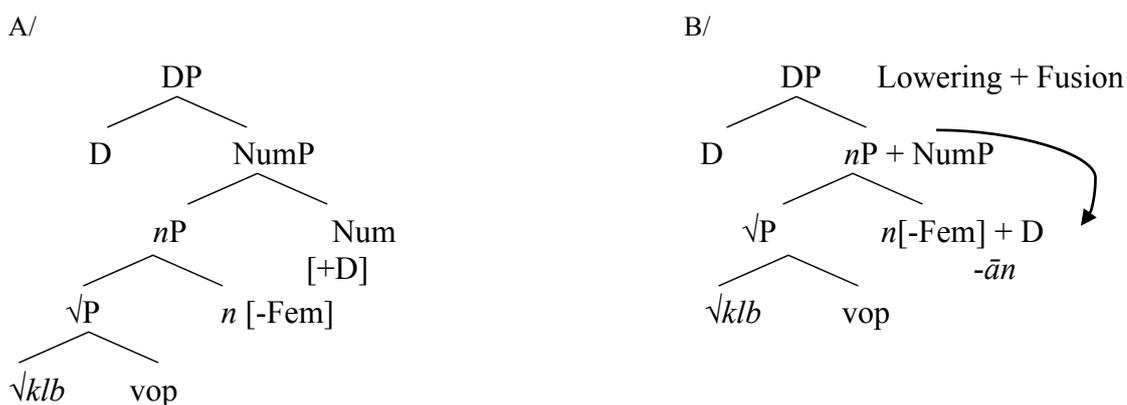


Figure 8.10: The structure of the dual noun *kalbān* ‘two dogs’, which shows the interpretable gender feature (masculine) assigned to *n*, based on the natural gender of the referent in real life

In Chapter 5 on animacy, we saw that it is difficult to determine a specific point at which animacy values are split up. Corpus data presented in Chapters 6 and 7 show that

natural gender and plurality contribute to the interpretability of grammatical gender. Animacy values are determined according to this interaction. In other words, observing corpus data shows that high-animacy nouns are assigned grammatical gender based on natural gender; thus, their grammatical gender is interpretable. In contrast, inanimate nouns are assigned grammatical gender arbitrarily. Their grammatical gender is therefore uninterpretable. A question that arises at this point is: What are highly animate nouns and what are inanimate nouns? In Chapter 5, we saw that specific values of animacy rely on the speaker's conceptualisation of the entity along with other surrounding contextual factors. However, I assumed in Chapter 6 that the grammar of the language is the best indication of the mutual relationship between animacy, gender and number that is formulated. I call it mutual because animacy scale affects both gender and number, and gender and number are taken as indicators of how high or low an entity is on the animacy scale. Figure 8.11 is an example of Agree in a sentence where the subject is a plural inanimate noun *kilāb* 'dogs'. Figure 8.11 shows a representation of the nominal features within the DP.

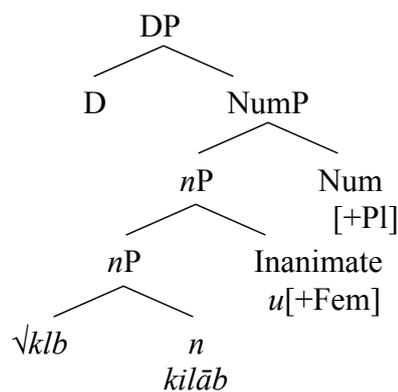


Figure 8.11: The structure of the plural noun *kilāb* 'dogs', which shows the uninterpretable feminine gender feature assigned to the higher *nP*, based on the interaction between plurality and inanimacy

In Figure 8.11 the plural form of dogs *kilāb* is formed in the irregular (broken) plural.

The Num head hosts the plural value of the noun [+Pl]. With regard to the grammatical

gender, as the noun is plural and non-human, it has to be assigned its gender on a higher node, the node that I argued for in Chapter 6 to be the location for nouns that are lower in animacy. *Kilāb* is thus assigned an uninterpretable feminine gender. When this DP enters into an Agree relationship with a Phi-probe, there are two gender values for this DP: the undefined gender n , and the uninterpretable feminine gender on a higher node $n_{u[+Fem]}$. At this point of the discussion and before launching into Agree relationships, a significant question is raised: Since there are two n nodes in the structure of the DP, which n does Agree establish a relationship with? In other words, which n serves as the agreement controller? This is an issue that is seen only with nouns whose grammatical gender is feminine and is the topic of the next section.

8.5 Two genders and one agreement value

It was established in Chapter 6 that the uninterpretable feminine gender in MSA is assigned on a higher n that hosts items that are inanimate and thus are not assigned their grammatical gender based on any inherent semantic properties. The point that needs to be investigated now that we are discussing agreement is which of these genders is the agreeing gender.

It is ungrammatical to have the noun *kilāb* ‘dogs’ with a masculine gender. The lower n in the structure presented in Figure 8.11 could be licensed either as an unspecified n that triggers masculine default agreement if the noun *kalb* ‘dog’ is unspecified for biological sex, or with an interpretable masculine gender $n_{i[-Fem]}$ if the noun refers to a male dog. However, in Figure 8.11, because the noun has [+Pl] feature on Num, it cannot be assigned an interpretable gender; nor can it be assigned unspecified grammatical gender. Since it is plural and non-human, then it should be assigned uninterpretable feminine gender located on the higher n . All inanimate plurals presented in the corpus data so far are seen to trigger feminine gender, such that only the gender of the higher n

is accessible to Agree. Having seen that this is empirically borne out in MSA, I present theoretical assumptions on which to build this analysis.

A structure with two gender-bearing heads has been assumed in other accounts cross-linguistically (de Belder, 2011; Kramer, 2009, 2015; Ott, 2011; Steriopolo and Wiltschko, 2010). A general consensus in mainstream syntactic theory is that only the highest gender is the agreeing gender, a consensus that can be summarised as follows:

1. *Minimalism* (Chomsky, 2000, 2001): Agree as a syntactic relationship probes down into its c-command domain searching for a goal with valued features. The first (highest in our case) goal it encounters is the agreeing goal.
2. *Post-syntactic approaches to agreement* (Bobaljik, 2008): the highest controller in a domain is the controller that is in charge of agreement.

These theoretical approaches to multiple agreement controllers both assume that it is the highest n whose gender is the agreeing gender. This hierarchical assumption holds well for the MSA corpus data presented throughout the discussion. It also accounts for the collective/singulative corpus data discussed in Section 8.6, and for agreement with coordinated DPs discussed in chapter 9.

For the case shown in Figure 8.11, the higher n is already assigned an uninterpretable gender value, and thus it is the n that serves as the valued goal for the probe when it probes down. Figure 8.12 represents the syntactic operation Agree for the following constructed example:

- (102) al-kilāb-u nabah-at
 the-dogs.3Pl.F-NOM barked.Prf-3S.F
 ‘the dogs barked’

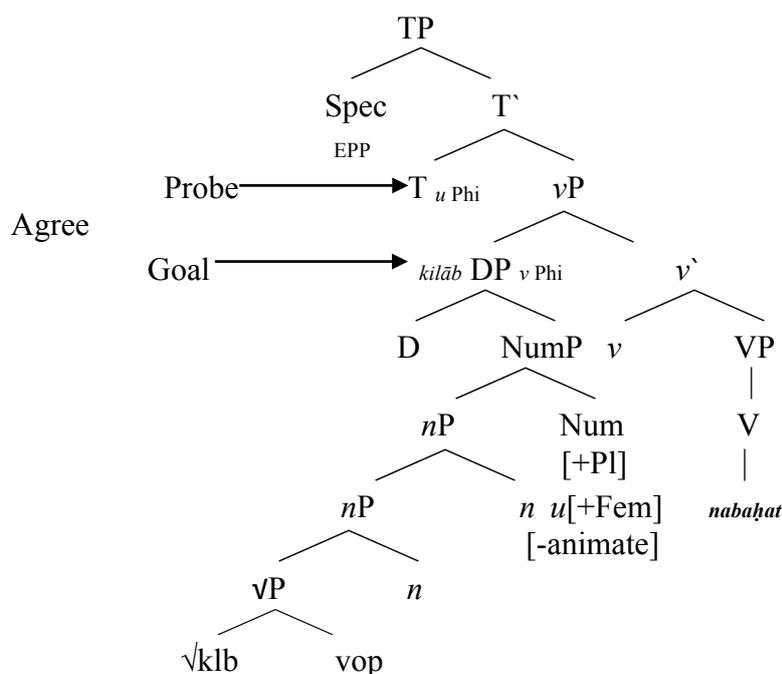


Figure 8.12: A sentence structure for the clause ‘the dogs barked’ in MSA

In Figure 8.12, the TP structure of the simple sentence *al-kilāb-u nabaḥ-at* ‘the dogs barked’ is shown. For the functional head T to enter into Agree with the maximal projection DP, the following conditions must be met (Chomsky, 2000):

1. T c-commands DP as per the c-command condition (p. 122).
2. There is no other maximal projection intervening between the T and the DP as per the intervention condition (p. 122).
3. Both T and DP are contained within the same phase as per the phase condition (p. 108).
4. Most important of all, the DP is an active goal for the syntactic operation Agree for having valued Phi-features. T in return has no valued Phi-features. This is the activity condition (p. 123).

The above conditions of Agree are met in Figure 8.12. T is lacking valued Phi-features and by virtue of this is the probe in this Agree relationship. It probes down in its local domain searching for an appropriate goal with a valued set of Phi-features. The first

valued goal the probe encounters is the DP. As a result of this Agree, T will adopt the valued Phi-features of the DP. In return, and since the DP is unvalued for case, the T will assign the DP its nominative case value.

With respect to the Phi-features of the DP *kilāb* ‘dogs’ in Figure 8.12, since there are two genders within the same DP, the probe can agree with only one of them. With this particular example, and with all inanimate, collective and singulative nouns in MSA, the hierarchical approach applies. According to the hierarchical approach, the probe agrees with the higher *n* as it is already valued and specified for gender.

The next step after Agree has taken place is movement. The DP moves from [Spec, vP] to [Spec, TP] to satisfy the EPP. This analysis bears a relationship to previous pre-Minimalist approaches to agreement where agreement does not happen until movement has taken place, as in the spec-head approaches to agreement (Aoun et al., 1994) presented in Chapter 2. According to Agree, however, agreement is a prerequisite for the DP movement to [Spec, TP]. In other words, Agree has to take place first for the DP to be able to move higher to satisfy EPP.

Following the syntactic operation of Agree and movement, and prior to Spell Out, two morphological operations take place for realising feature. As the noun *kilāb* is an irregular plural in which no suffixes need to form a bundle with gender, Spell Out takes place by forming the plural form of *kalb* ‘dog’ on the root phrase to become *kilāb* ‘dogs’.

8.6 Agreement with semantically plural syntactically singular nouns

Part of the ongoing discussion of the nominal features causing various agreement patterns is the group of nouns discussed in Section 7.4.2: nouns that are semantically plural in that they refer to a group of entities, but are seen to be syntactically singular in

that they trigger singular agreement. In Chapter 7, I chose two types of these nouns and called them collective nouns and group-denoting nouns. In this section, I explore how each of these two types of nouns behaves in relation to agreement.

8.6.1 Agreement with collective/singulative subject in MSA

In Chapter 7, I discussed the nature of nouns that refer to groups in MSA with certain semantic properties. I chose two types of these nouns for the analysis in my thesis: collective nouns and their corresponding singulative nouns *tamr* ‘dates’, *tamr-at* ‘date’; and the group-denoting nouns *qatī* ‘herd’ and *sirb* ‘flock’. Both types are semantically and syntactically plural. However, the former cannot be dualised or pluralised; although its singulative form can. The latter can be dualised, pluralised and modified with an embedded PP. This section presents an Agree analysis for these two types of nouns in MSA.

The analysis begins with collective nouns and then moves towards agreement with singulative nouns. Consider the following constructed example of minimal pairs:

- (103) a. al-samak-u ya-sbaḥ-u fi al-mā’-i
 the-fish.coll-NOM Impr.M.3-swim-S in the-water-GEN
 ‘the fish swim in the water’
- b. al-samak-at-u ta-sbaḥu fi al-mā’-i
 the-fish-3S.F-NOM Impr.F.3-swim.S in the-water-GEN
 ‘the fish swim in the water’
- c. al-samak-atān t-sbaḥ-ān fi al-mā’-i
 the-fish-3D.F-NOM Impr.F.3-swim.-D in the-water-GEN
 ‘the two fish swim in the water’
- d. al-samak-āt-u ta-sbaḥ-u fi al-mā’-i
 the-fish-3Pl.F-NOM Impr.F.S-swim.3 in the-water-GEN
 ‘the fish swim in the water’

Figure 8.13 is a general representation of the structure of the DP when the noun is collective (as shown on the bottom *n*), and singulative when derived out of the collective (the higher *n*).

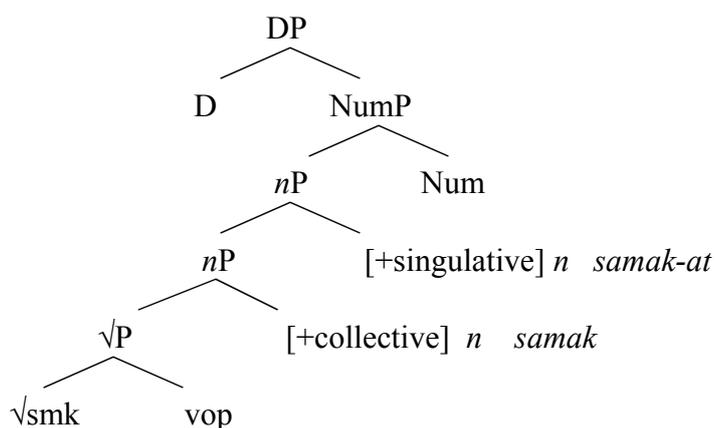


Figure 8.13: The structure of feature in the collective noun *samak* ‘fish’ and its singulative *samak-at* ‘a fish’

Figure 8.13 shows that the collective noun is derived from the root with the nominal licensing condition *n* with unspecified gender. If the noun is collective and not singulative, then only the lower nominal node would be occupied. Since no gender is identified with the collective noun, it is then seen to trigger masculine agreement as in corpus Example 104. Although the noun is inanimate, its gender is still not assigned on the higher nominal node usually hosting [-animate]. This is because it is neither semantically nor syntactically feminine and thus will not trigger feminine agreement. It is in this case assigned *n* with unspecified grammatical gender, which triggers masculine agreement by default.

- (104) al-samak-u ya-sbaḥ-u bi-itijāh-i al-nūr-i
 the-fish.Coll-NOM Impr.M.3-swim-S to-direction.3S-GEN the-light.3S-GEN
 ‘the fish swims in the direction of light’

If the noun were singulative *samak-at* ‘a fish’, the structure would be the same as above with the higher nominal node occupied by the *affixal tā* to host the morphology of the singulative, and to locate the uninterpretable feminine gender. Figure 8.14 presents the DP with both singulative and collective nodes, and elaborates on how Agree takes place.

nouns in agreement, represents further supporting evidence for the location of collectives on the lower n , and the singulative on the higher n .

In case of the singulative noun *samak-at* ‘a fish’, the probe searches down to the DP and locates the first node, which happens to be the higher n on which the singulative morphology *-at* is located, and the uninterpretable gender is assigned. It is this head that the probe needs to agree with.

After Agree has taken place, T assigns the DP its nominative case and thus the DP moves higher to [Spec, TP] to satisfy EPP.

In case of the dual and plural forms of the singulative as in Example 103*c* and *d*, the number value on Num node would be [+D] or [+PI] respectively. After Agree and movement, two post-syntactic morphological operations take place: Lowering and Fusion.

If this singulative is dualised or pluralised (as in 101*c* and *d* above), the number node undergoes Lowering and Fusion so that gender and number become exponed into a single morpheme. If the number head is empty, the singulative will be spelled out with the default singular.

8.6.2 Agreement with group-denoting nouns

The other type of collective nouns in MSA discussed in Chapter 7 is group-referring nouns such as *qaṭī* ‘herd’ and *sirb* ‘flock’. They are syntactically singular but semantically plural. The difference between this type and the collective type discussed above is that this type accepts number morphology. In other words, it can be dualised or pluralised. A basic representation of the features of this type is shown in Figure 8.15 using the noun *qaṭī* ‘herd’.

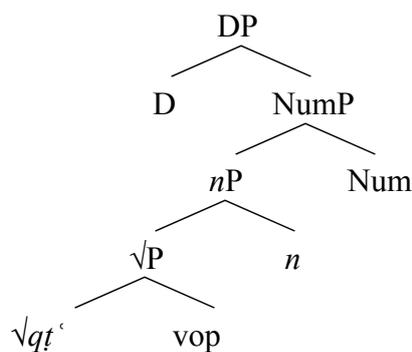


Figure 8.15: The DP structure of a group-referring noun *qaṭī* ‘herd’

The noun *qaṭī* ‘herd’ is seen to trigger masculine default agreement as seen in corpus Example 105 below. This is a motivation for the assumption that it is located on the lower *n*, closer to the root:

- (105) .. ḥawwal-ū al-bilād-a ʿila qaṭī waḥṣīy-in ya-ʾakul-u
 turned.Prf-3Pl.M the-country.3S-ACC to herd.3S wild.3S.M-Indf.GEN Impr.M.3-eat-S
 baʿḍu-hu baʿḍan
 each-3S.M other
 ‘..they turned the country into a wild herd that eats itself’

Unlike the collectives mentioned above, this type does not have a singulative, and thus would never be expected to be located on the higher *n* to receive uninterpretable feminine gender. The noun can be dualised regularly triggering masculine agreement as well, as seen in the following corpus example:

- (106) qaṭīʿ-ān min al-ʿibl-i kan-ā fī
 herds-3D.M.NOM from the-camels.3Pl.F-GEN were.Prf-3D.M in
 al-sūq-i
 the-market.3S- GEN
 ‘two herds of animals were in the market’

This example shows that the assumption that the root of the noun *qati* ‘herd’ is licensed under the unspecified *n* is borne out in MSA. When there is a dual number value on the number head, it only has masculine default at Spell Out. The plural of *qati* ‘herd’ is *qitʿ ān* ‘herds’ in the broken plural form and it demonstrates different agreement

behaviour than its singular and dual counterparts. Consider the following corpus example:

- (107) wa qit'ān-u al-fi'rān-i daḥm-at-u al-ḥaḡm-i
 and herds.3Pl.F-NOM the-mice.3Pl.F-GEN big-3S.F-NOM the-size.3S-GEN
 'and herds of mice that are big in size'

As seen in this example, the noun *qatīr* 'herd' behaves differently when pluralised. In the singular and dual forms, the noun shows full agreement in gender and number. In the plural, however, the noun triggers feminine singular agreement as seen in the adjectival agreement⁴⁴ above, and in verbal agreement in the following constructed example:

- (108) al- qit'ān-u 'akal-at al-maḥṣūl-a
 the-herds.3Pl.F-Nom ate.Prf-3S.F the-crop.3S-ACC
 'the herds ate the crop'

This behaviour does not falsify the assumption that the root is nominalised with no gender value; rather, it shows that this type of noun belongs to the inqorate gendered group. Regarding agreement with the noun *qit'ān* 'herds' in the plural, consider Figure 8.16.

⁴⁴ Only adjectival agreement was found in the two corpora used when searching for the noun *qit'ān* 'herds'. Adjectival agreement here shows singular feminine agreement as is expected for verbal agreement with plural inanimate nouns.

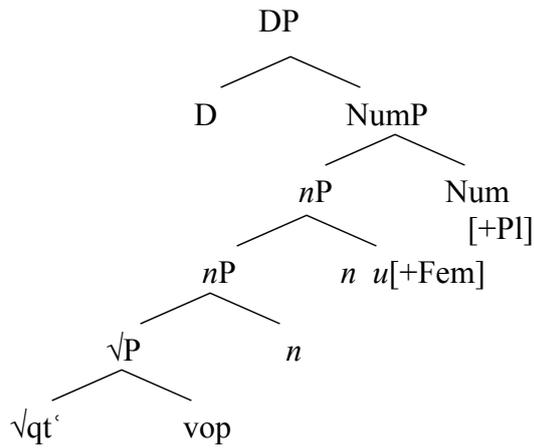


Figure 8.16: The structure of features within the DP of the plural noun *qit' ān* 'herds'

The noun is pluralised irregularly; that is, there is no clear morphological marker of number on the Num head. However, the Num head holds the interpretation of the number value of the whole DP. This irregular plurality necessitates the assignment of grammatical uninterpretable feminine feature on another nominal head. For the Phi-probe, there will be two syntactic heads to agree with. Consider Figure 8.17, which shows how Agree works.

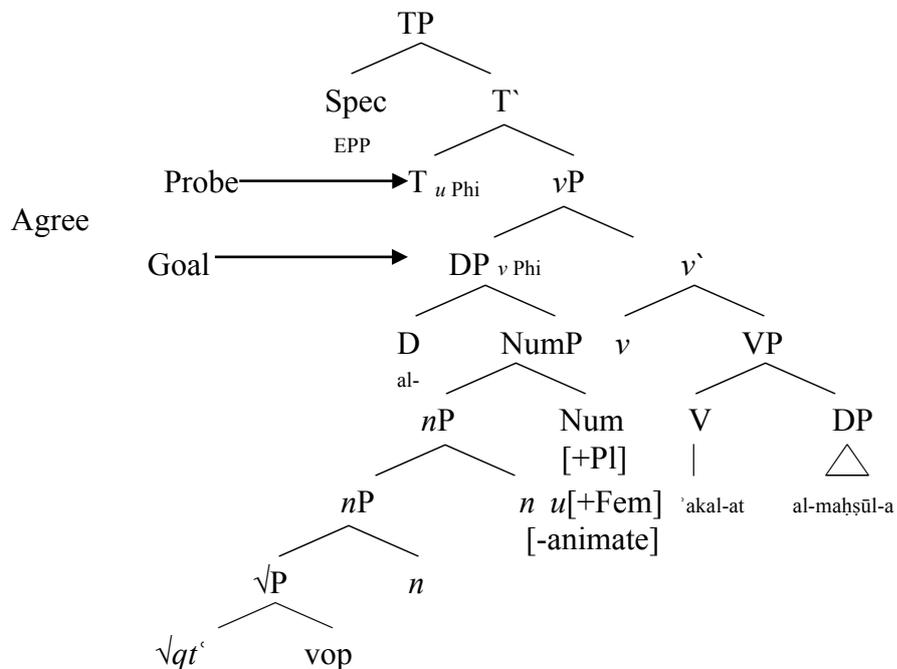


Figure 8.17: The analysis of Agree with the plural form of the group-denoting noun *qit' ān* 'herds'

Like in the above analyses of agreement, the T probes down into its c-command searching for a goal with valued Phi-features. According to the cyclic phase-based theory, the probe only agrees with the first node with valuable features. The lower node with unspecified gender feature is not accessible by the probe as the higher *n* with valued features is blocking. In this case, it is the uninterpretable feminine feature that becomes the agreeing gender. The subject DP then is assigned nominative case and moves to [Spec, TP] to satisfy the EPP.

At Spell Out, the plural inanimate nouns are spelled out with no need for post-syntactic morphological operations to take place as there is no plural suffix to fuse with gender.

In the discussion of group-denoting nouns, there were instances (e.g., Example 106) where the group-denoting noun is used as a quantifier for a PP that follows. This is the topic of discussion in the next section.

8.6.3 Agreement with group-denoting nouns acting as quantifiers

In the previous section, I showed that group-denoting nouns, unlike collective nouns, can be dualised and pluralised. With this property, group-denoting nouns can be used as quantifiers. In examples such as 106, repeated below as 109 for convenience, the noun *qaṭī' -ān* 'two herds' is used to quantify the number of camels. I briefly referred in Section 7.4.2 to this behaviour of group-denoting nouns. The interesting behaviour to be analysed is that when these group-denoting nouns act as quantifiers as in the following corpus example:

- (109) qaṭī' -ān min al-' ibl-i kan-ā fi
 herds-3D.M.NOM from the-camels.3Pl.F-GEN were.Prf-3D.M in
 al-sūq-i
 the-market.3S- GEN
 'two herds of animals were in the market'

This type of noun is significant to investigate within the discussion as a large number of the group-denoting nouns extracted from the two corpora were found to be quantifiers,

such as a *herd of, flock of, a group of...*, among others. The following are examples from the corpus:

- (110) a. *qaṭī'*-un min al-ḡi'āb-i 'at-a min
 herd.3S.M-NOM of the-wolves-GEN came. Prf-3S.M from
 jamī'-i anḡā'-i al-mintāqat-i
 all-GEN over-GEN the-area-GEN
 '..a herd of wolves came from all over the area'
- b. *kān*-a ṭammat-a sirb-un min al-ḡamām-i ya-ḡjur-u
 was.Prf-3S.M there-ACC flock-NOM of he-piegons-GEN Impr.M.3-abandon-S
 a'ṡaṡ-a-hu
 nests-ACC-his.3S.M
 'There was a flock of pigeons abandoning its nests'

The nouns *qaṭī'* 'herd' and *sirb* 'flock' in themselves, as mentioned above, are syntactically singular in that they trigger singular agreement. However, with examples where the noun is a quantifier, the agreement pattern is not always as expected. The two corpus Examples 110*a* and *b* are of the expected pattern where the noun is syntactically singular and is seen to trigger singular agreement on the verb, in exactly the same way they would behave when they are not quantifiers. However, the challenging behaviour of such nouns acting as quantifiers can be seen in the following corpus example:

- (111) *kān* sirb-un min al-yahūdiy-āt-i ya-rqus-na
 was.3S.M flock.3S-NOM of the-Jewish-3Pl.F-GEN Impr.3-dance-Pl.F
 'there was a flock of Jewish women dancing'

In this example the collective head noun is *sirb* 'flock'. In Example 110*b*, the verb appears in the singular masculine form agreeing with the head noun *sirb* in all its features. In Example 111, however, the same collective noun *sirb* is not used to refer to a group of birds. Rather, it is used to refer to a group of Jewish ladies dancing. It is clear that there is a literary effect of the use of the word 'flock' to refer to a group of human beings, which is the authors' imaging of the Jewish ladies dancing like a flock of birds in its unity and organised movement. With the literary factor applied here, the verb does not show full agreement with the head collective noun *sirb-u*, which is singular and masculine. Rather, it shows full agreement with the genitive noun 'the Jewish ladies',

which is feminine and plural. Now consider the following corpus example of the noun

qaṭī ‘herd’:

- (112) marr-a ḡata-marrat-in qaṭīⁱ-un min al-ḡanam-i
 passed.Prf-3S.M once herd.3S-Indf.NOM of the-lambs-GEN
 f-qāl-ū ma naf^{ak}-ak ’anta ’ayyuha al-ḡayawān
 and-said.Prf-3Pl.M what benefit-your you you.pro the-animal.3S
 ‘A herd of lambs passed once and said what is your benefit you animal?’

The verb itself tells much about the discourse information of this structure. The verb *qālū* ‘said’ is never used with ‘lambs’ unless the writer is using personification as a literary device to focus on the individual lambs and give them some human-like features. Since these group-denoting nouns, along with the phrase they quantify, all form an *nP* with the group-denoting noun being its head noun, the grammatical gender assigned to the *n* depends on interpretation. In Examples 111 and 112, in which the focus is on the animacy of the referent, the group-denoting nouns—besides being already semantically plurals—have been interpreted as being semantically human, and thus this encoding of humanness within *n* makes it assigned an interpretable gender. In 110, the human’s biological sex is known -female-, so the head *n* is assigned interpretable feminine gender *n i*[+Fem]. In 111, the biological sex of the referent is undefined but is understood as being human so the head is assigned unspecified human gender *n*, which would be expected to trigger default masculine plural agreement.

Having explored the semantic interpretation of the group-denoting nouns acting as quantifiers, the internal structure of these DPs, followed by an Agree analysis is presented in the following paragraph.

The two arrows in Figure 8.18 refer to two different *ns*: the higher *n* (*n*₁) is the nominalising head of the head noun—the group-denoting noun; the lower *n* (*n*₂) is the nominalising head of the embedded noun. As can be seen, there are two genders: the gender of the head noun (the quantifier) and the gender of the lower embedded noun.

The cyclic phase head approach to two genders assumed above cannot be applied here as n and PP are sisters. The analysis I propose here depends on the behaviour demonstrated in the MSA data presented for this type of noun. If the gender of the lower n is interpretable—that is, human or high animate—it overrides the unspecified gender of the higher n , and the overall gender of n' becomes interpretable as human.

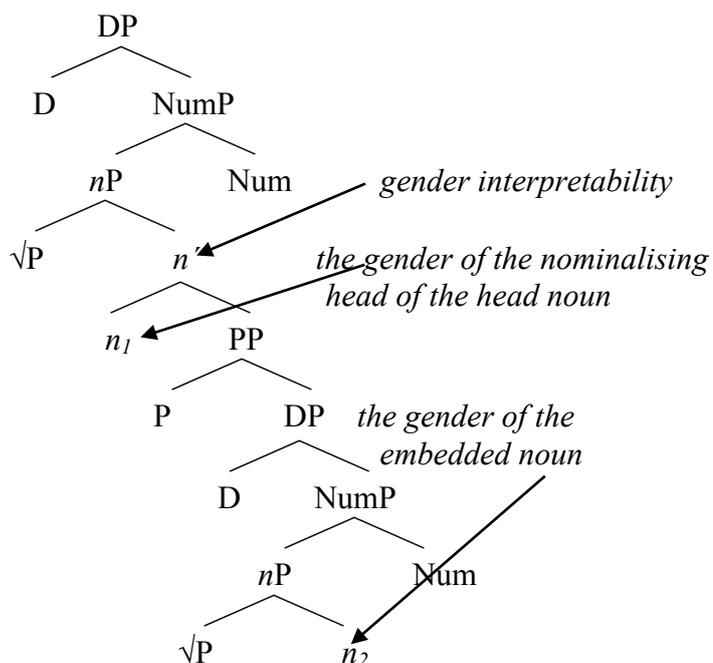


Figure 8.18: The structure of the group-denoting noun used as a quantifier

When T probes down for Agree, it encounters the DP as a goal with valued Phi-features. It agrees with the DP's Phi-features, which are interpretable feminine gender in Example 111 and interpretable unspecified gender in 112. Since both nouns are semantically plural, this plurality when combined with human interpretation results in syntactic plurality during Agree. At Vocabulary Insertion, the verb in 111 shows feminine plural agreement whereas that in 112 shows masculine (default) plural agreement.

A point to be added to the analysis of nouns with multiple contextual interpretation, that after the syntactic derivation has finished and just before Vocabulary Insertion, if two items are competing for insertion, only one of them is inserted as per the Pāṇinian

Principle mentioned above in Section 1.1.1. The basic idea of this principle is that when there are two rules competing to be applied in a linguistic context, the more specific rule (the one with contextual restrictions) applies before the less specific rule (the one with no contextual restrictions). In other words, these vocabulary items compete according to specificity (e.g., Embick and Marantz, 2008). This applies to the analysis of all nouns whose interpretation is determined by the contextual information as also seen with mixed-agreement nouns below.

8.7 Agreement with mixed-agreement nouns

This section is concerned with the patterns of agreement with nouns that show two or more such patterns. This is found in MSA in situations such as the following minimal pair examples:

- (113) a. al-nās-u ʾakal-ū al-taʾām-a
 the-people.3PI-NOM ate.Prf-3PI.M the-food.3S-ACC
 ‘the people ate the food’
- b. al-nās-u ʾakal-at al-taʾām-a
 the-people.3PI-NOM ate.Prf-3S.F the-food.3S-ACC
 ‘the people ate the food’

Before starting with the analysis of agreement with mixed-agreement nouns in MSA, I shall present a major difference in the literature in relation to the syntactic structure of a mixed-agreement DP. This difference is between the traditional approach to lexical categories (Harris, 1991), and the lexical decompositional approach in DM (Kramer, 2009, 2014, 2015, 2016b). According to the lexical approach, mixed-agreement nouns are analysed by attributing two lexical entries for the same noun. Decompositional approach, on the other hand, argues that mixed-agreement nouns are either licenced by having a *i*[+Fem], or *u*[-Fem] which corresponds to two different biological sexes.

Returning back to our MSA data, I shall argue below that the decompositional approach is very fit to the mixed-agreement nouns in MSA with their different interpretations.

Having discussed the interpretation of number and individuation in the previous chapter, it becomes straightforward at this point to argue that a noun such as *alnās* ‘people’ is a mixed-agreement noun as it varies in gender interpretability. In other words, it depends on the context in which the noun occurs as to whether it is assigned interpretable gender value or uninterpretable gender value.

In Figure 8.19, the noun *nās* is nominalised with no human indefinite gender value. Since the noun is semantically plural, and refers to a group of humans, we can say that it is plural. If the reading is distributed, then the plurality interpretation will be retained. At Spell Out, the noun will be seen to trigger plural masculine agreement. Figure 8.19 elaborates further.

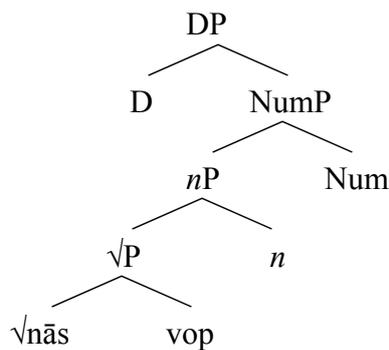


Figure 8.19: The DP structure of the noun *nās* ‘people’ when it triggers masculine plural agreement because of its interpretable gender referring to group of undetermined sexes

The syntactic relationship Agree takes place when T probes down in its local domain searching for a goal with valued Phi-features. This is the DP *al-nās* ‘people’. It is semantically plural and refers to a group of humans, which would trigger plural agreement. The root is nominalised with an undetermined gender *n*, which would trigger masculine agreement. The Phi-features of the DP are masculine gender and plural number.

In Example 113*b*, the same noun triggers feminine singular agreement of the verb. To analyse this agreement pattern, recall that grammatical feminine gender in MSA is of two main kinds:

a. *n i*[+Fem]

b. *n u*[+Fem]

Type *a* is only assigned to high animate referents who are biologically known to be female. If the noun is not referring to a female high animate, it can only be assigned the *b* type of feminine gender. Returning back to the noun *nās*, which triggers feminine agreement in 113*b*, it does not refer to a female human or creature. Therefore, it can only be assigned the *b* type of feminine gender. It is worth noting that having a singular feminine verb occurring with plural nouns like people is not uncommon in modern Arabic dialects. Corpus examples such as 114 can be an L1 interference into MSA:

- (114) *gālībiyat al-nās-i ta-‘tamid-u fī ḥayāti-ha ‘ala al-’amal-*
 most the-people.3Pl-GEN Impr.F.3-depend-S in life-3S.F on the-hope.3S-GEN
 ‘most of the people depend in their lives on hope’

It is not expected to find this type of agreement in MSA as the noun *nās* is a plural noun. The only possible explanation for singular feminine agreement is de-animating people. The feminine singular type of agreement in MSA occurs only with plural nouns that are inanimate. Having a plural human noun triggering this inanimate agreement can only mean that it is seen as being less animate and less individuated. The structure of *nās* ‘people’ when triggering feminine agreement is shown in Figure 8.20.

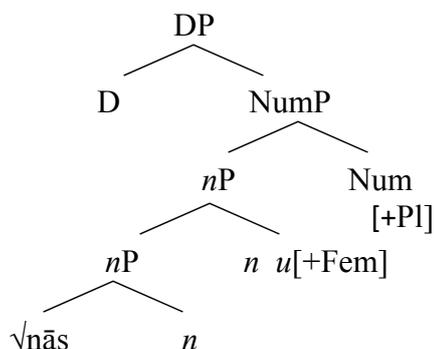


Figure 8.20: The DP structure of the noun *nās* ‘people’ when it triggers singular feminine agreement because of its uninterpretable gender feature

In relation to Agree, as seen with all the examples above, T probes down to obtain the valued features of DP. Since this DP has an inanimate interpretation, the only accessible grammatical gender for the probe would be the valued uninterpretable gender, which affects plurality and changes it to the default singular. T would adopt the values of singular number and feminine gender. At Vocabulary Insertion, only verbs that are singular and feminine can be inserted.

8.8 Conclusion

This chapter presented how the main three nominal features reviewed in the previous chapters—animacy, gender and number—interact in the process of agreement. I adopted an Agree-based approach to agreement (Chomsky, 2000, 2001) in which Agree is a syntactic operation that relates two elements in the syntactic derivation: one with valued Phi-features (goal) and the other with unvalued Phi-features (probe). There are four conditions that must be met within the structure for Agree to take place (Chomsky 2000):

1. the c-command condition
2. the intervention condition
3. the phase condition
4. the activity condition.

An Agree relationship takes place between the T and a DP in its local c-command domain, which serves as a good probe for not having valued Phi-features. It probes down within its c-command domain to locate the first goal with valued Phi-features with which to enter into Agree. With the Agree-based approach to agreement, movement of the DP to [Spec, TP] takes place after Agree. Contra pre-Minimalist approaches to agreement, which state that movement is required for agreement to take place, in the Agree-based approach, Agree is a prerequisite for DP movement.

I presented some corpus and constructed examples of sentences with count nouns and sentences with collective, singulative and group-denoting nouns. For these sentences, an analysis of the agreement features responsible for agreement was provided, along with an analysis of Agree.

I adopted a cyclic phase-based approach to account for instances where there are two gender values for the noun. According to this approach, the highest n is a head of a cyclic domain (Embick, 2010; Marantz, 2001; Marvin, 2002, 2013). According to this approach, phase heads can trigger Spell Out of other cyclic domains within their domain. This approach is different from the hierarchical approach in that the latter would allow the probe to agree with the first head it encounters when probing down. When the highest node is not valued with gender, it will carry on probing down and agree with the following head with valued feature. Within the cyclic phase head approach, however, the higher node can trigger Spell Out of the features of the lower node so that by the time Agree takes place they would have been already sent to PF and would not be accessible to any syntactic or post-syntactic operations. This approach assists in the analysis of coordinated DP sentences in the next chapter where agreement with higher gender when it is unspecified for gender is needed for some cases.

Chapter 9: Agreement with Conjoined Subjects in Modern Standard Arabic

This chapter examines the agreement patterns in MSA sentences with conjoined DPs as the subject. As in the previous chapter, the focus is on agreement with features of number and gender as well as the effect of other conditions, such as animacy and the concept of individuation. In this chapter I argue that sentences with conjoined DPs as subject have the same clause structure I adapted in the analysis of agreement with sentences with single DPs as subjects. The focus is primarily on partial agreement in SVO word order sentences. I begin by introducing the nature of coordination and how it is structured; then I move towards the literature of coordination agreement in Arabic. As mentioned previously, data in this chapter are mostly constructed because of the difficulties in extracting conjoined DPs from the two MSA source corpora used in this thesis.

9.1 The Nature of coordination

The topic of coordinated structures in the Arabic language—MSA or dialects—has gained much attention (Aoun et al., 1994, 1999; Aoun et al., 2010; Benmamoun, 1992; Crone, 2014; Munn, 1993, 1999; Sultan, 2007). It has also been a topic of various lines of argument cross-linguistically (McCloskey, 1986 for Irish; E. Kiss, 2012 for Hungarian; Johannessen, 1996 for Czech and German; and Doron, 2000 for Biblical Hebrew; and Citko, 2004 for Polish).

In analysing structures where the subject is a coordinate DP, we face the same crucial question about the nature of the initial DP. In other words, it is important to investigate whether this subject is base generated inside the *vP*, or left dislocated as a topic. In reviewing the cross-linguistic literature on the structure of coordination and how the

coordinate subject agrees with the verb, it was seen that some analyses establish an argument to consider the coordinate phrase to be a left-dislocated item binding a pronoun (E. Kiss, 2012 for Hungarian). Others (Crone, 2014 for MSA and LA), however, treat the coordinate phrase to be a normal subject that is base generated in the *vP* and undergoes movement to [Spec, TP].

Another common line of argument in the analysis of agreement with conjoined DPs is whether the process of agreement takes place in the syntax (Aoun et al., 1994, 1999 for Arabic; Doron, 2000 for Biblical Hebrew; Soltan, 2006, 2007 for MSA) or at the post-syntactic level (Benmamoun, 2000 for Arabic; Van Graenenbroeck and Van Koppen, 2002 for Dutch; Van Koppen, 2005 for Dutch; Bobaljik, 2008).

9.2 The Nature of Coordination in Subject–Verb–Object Word Order

In this section, I present some constructed examples of sentences with conjoined DPs to capture the most important patterns of behaviour of agreement in relation to animacy, number and gender in SVO word order.

(115) a. al-walad-u wa al-mu‘allim-u ḥaḍar-ā
 the-boy.3S.M-NOM and the-teacher.3S.M-NOM attended-Prf.3DM
 al-’iġtimā-a
 the-meeting- ACC
 ‘the boy and the teacher attended the meeting’

b. al-walad-ān wa al-mu‘allim-ān ḥaḍar-ū
 the-boy-3D.M.NOM and the-teacher-3D.M.NOM attended-3PIM
 al-’iġtimā‘-a
 the-meeting-ACC
 ‘the two boys and the two teachers attended the meeting’

c. al-walad-u wa al-mu‘allim-ān ḥaḍar-ū
 the-boy.3S.M-NOM and the-teacher-3D.M.NOM attended-3PIM
 al-’iġtimā‘-a
 the-meeting-ACC
 ‘the boy and the two teachers attended the meeting’

- d. al-walad-ān wa al-mu‘allim-u ḥaḍar-ū
 the-boy-3D.M.NOM and the-teacher.3S.M-NOM attended-3Pl.M
 al-’iḡtimā‘-a
 the-meeting-ACC
 ‘the two boys and the teacher attended the meeting’
- e. al-awlād-u wa al-mu‘allim-ūn ḥaḍar-u
 the-boys.3.Pl.M-NOM and the-teachers-3Pl.M.NOM attended-3Pl.M
 al-’iḡtimā‘-a
 the-meeting-ACC
 ‘the boys and the teachers attended the meeting’

Examples 115*a–e* all include conjuncts referring to humans. Examination of these examples shows that when the gender of both conjuncts match but there is a difference in number value, the number value triggered on the verb by agreement is seen to be the sum of the values of both conjuncts. To summarise the result of number agreement when both animacy and gender are held constant in SVO order, consider Table 8.1.

Table 8.1: Number agreement when both humanness and masculine gender are held constant in coordinated DP structures

Number		Agreement features on the verb
1st conjunct	2nd conjunct	
singular	singular	dual
dual	dual	plural
singular	dual	plural
dual	singular	plural
plural	plural	plural

Table 8.1 shows that when the sum of number values of both conjuncts is two, the resulting number on the verb is dual. Likewise, when the sum of number values of both conjuncts is three or more, the resulting number value on the verb is plural. This leads to postulation of the following hypothesis, which is further examined for its credibility against more examples with different feature values:

Hypothesis 1: In a structure with conjoined DPs as a subject, the number value that is triggered on the verb is the sum of the number values of each component conjunct.

The following set of constructed examples are sentences in SVO, with both animacy and gender being held constant for values of human and feminine respectively:

- (116) a. al-fatāt-u wa al-mu‘allim-at-u ḥaḍara-tā
 the-girl.3S.F-NOM and the-teacher-3S.F-NOM attended.Prf-3D.F
 al-’iġtimā‘-a
 the-meeting-ACC
 ‘the girl and the teacher attended the meeting’
- b. al-fatāt-ān wa al-mu‘allimt-ān ḥaḍar-na
 the-girls-3D.F-NOM and the-teachers-3D.F-NOM attended.Prf-3Pl.F
 al-’iġtimā‘-a
 the-meeting-ACC
 ‘the two girls and the two teachers attended the meeting’
- c. al-fatāt-u wa al-mu‘allima-tān ḥaḍar-na
 the-girl3S.F-NOM and the-teachers-3D.F-NOM attended.Prf-3Pl.F
 al-’iġtimā‘-a
 the-meeting-ACC
 ‘the girl and the two teachers attended the meeting’
- d. al-fatā-tān wa al-mu‘allimat-u ḥaḍar-na
 the-girls-3D.F-NOM and the-teacher.3S.F-NOM attended.Prf-3Pl.F
 al-’iġtimā‘-a
 the-meeting-ACC
 ‘the two girls and the teacher attended the meeting’
- e. al-fatay-āt-u wa al-mu‘allim-āt-u ḥaḍar-na
 the-girls-3Pl.F-NOM and the-teachers-3Pl.F-NOM attended.Prf-3Pl.F
 al-’iġtimā‘-a
 the-meeting-ACC
 ‘the girls and the teachers attended the meeting’

Examples 116a–e are sentences with conjoined DPs as a subject. The features that are held constant are animacy (human) and gender (feminine). The number value of each conjunct changes in each sentence, and accordingly the number value on the verb changes. Similar to Table 8.1, Table 8.2 indicates how the number value of the verb changes accordingly.

Table 8.2: Number agreement on the verb when both conjuncts are human feminine

Number		Agreement features on the verb
1st conjunct	2nd conjunct	
singular	singular	dual
dual	dual	plural
singular	dual	plural
dual	singular	plural
plural	plural	plural

The results of the number value triggered by agreement on the verb in each of the sentences in Example 116 are identical to those of Example 115. This provides further empirical support for Hypothesis 1. The following set of examples are sentences in which animacy value is kept constant (human), but with different genders. This is needed to test the hypothesis in terms of number value:

- (117) a. al-walad-u wa al-fatāt-u ḥaḍar-ā
the-boy.3S.M-NOM and the-girl.3S.F-NOM attended.Prf-3D.M
al-'iḡtimā'-a
the-meeting-ACC
'the boy and the girl attended the meeting'
- b. al-walad-ān wa al-fatā-tān ḥaḍar-ū
the-boy-3D.M-NOM and the-girl-3D.F-NOM attended.Prf-3Pl.M
al-'iḡtimā'-a
the-meeting-ACC
'the two boys and the two girls attended the meeting'
- c. al-walad-u wa al-fatā-tān ḥaḍar-ū
the-boy.3S.M-NOM and the-girl-3D.F-NOM attended.Prf-3Pl.M
al-'iḡtimā'-a
the-meeting-ACC
'the boy and the two girls attended the meeting'
- d. al-walad-ān wa al-fatāt-u ḥaḍar-ū
the-boy.3D.M-NOM and the-girl.3S.F-NOM attended.Prf-3Pl.M
al-'iḡtimā'-a
the-meeting-ACC
'the two boys and the girl attended the meeting'

e. al-walad-u wa al-fatay-āt-u ḥaḍar-ū
 the-boy.3S.M-NOM and the-girls-3Pl.F-NOM attended.Prf-3Pl.M
 al-’iğtimā’a
 the-meeting-ACC
 ‘the boy and the girls attended the meeting’

This set of examples demonstrates two important behaviours. First, the number value of the verb that is triggered by agreement is the sum of the number value of each one of the conjuncts separately, which also provides empirical support for Hypothesis 1. This also holds true even when the values of gender are not the same for both conjuncts. Second, and most importantly, is the gender value of the verb when the gender value of both conjuncts are not the same. When one conjunct is feminine and the other is masculine, the resulting verb is seen to demonstrate masculine gender. This leads to postulation of another hypothesis to be tested further with more data:

Hypothesis 2: When conjuncts in a coordination structure have different grammatical gender, the resulting value of gender of the verb is default masculine.⁴⁵

Table 8.3 shows how feature value changes when animacy is held constant.

Table 8.3: Number agreement on the verb when conjuncts are human with different genders

Gender		Agreement gender on the verb	Number		Agreement number on the verb
1st conjunct	2nd conjunct		1st conjunct	2nd conjunct	
masculine	feminine	masculine	singular	singular	dual
masculine	feminine	masculine	dual	dual	plural
masculine	feminine	masculine	singular	dual	plural
masculine	feminine	masculine	dual	singular	plural
masculine	feminine	masculine	plural	plural	plural

⁴⁵ This grammatical gender is similar to the one assigned to plural human nouns of mixed or undetermined biological sexes which are seen to trigger default masculine agreement.

In the following set of examples, I change the values of animacy, gender and number to test the gender and number values triggered by agreement on the verb:

- (118) a. al-qitt-at-u wa al-kalb-u 'akal-ā al-laḥm-a
 the-cat-3S.FNOM and the-dog.3S.M-NOM ate.Prf-3D.M the-meat-ACC
 'the cat and the dog ate the meat'
- b. al-qitt-at-u wa al-kalb-ān 'akal-ū al-laḥm-a
 the-cat-3S.F-NOM and the-dog-3D.M.NOM ate.Prf-3Pl.M the-meat-ACC
 'the cat and the two dogs ate the meat'
- c. al-qitta-tān wa al-kalb-ān 'akal-ū al-laḥm-a
 the-cats-3D.F.NOM and the-dogs-3D.M.NOM ate.Prf-3Pl.M the-meat-ACC
 'the two cats and the two dogs ate the meat'
- d. al-qitta-tān wa al-kilāb-u 'akal-ū al-laḥm-a
 the-cats-3D.F.NOM and the-dogs-3Pl.F.NOM ate.Prf-3Pl.M the-meat-ACC
 'the two cats and the two dogs ate the meat'
- e. al-qitt-at-u wa al-kalb-ān 'akal-ū al-laḥm-a
 the-cat-3S.F-NOM and the-dogs-3D.M.NOM ate.Prf-3Pl.M the-meat-ACC
 'the cat and the two dogs ate the meat'
- f. al-qittat-u wa al-kilāb-u 'akal-at al-laḥm-a
 the-cats.3Pl-NOM and the-dogs.3Pl.F-NOM ate.Prf-3S.F the-meat-ACC
 'the cats and the dogs ate the meat'

In Examples 118a–f, the only value that is held constant is animacy (animal). Both gender and number change throughout the examples in the set. This set of examples shows one more pattern of agreement behaviour. I offer Table 8.4 to demonstrate the nominal features on both conjuncts and their verbal counterparts.

Table 8.4: Number agreement on the verb when both conjuncts refer to animals

Sentence number	Feature values of the 1st conjunct		Feature values of the 2nd conjunct		Feature values of the verb	
	Number	Gender	Number	Gender	Number	Gender
118a	singular	feminine	singular	masculine	dual	masculine
118b	singular	feminine	dual	masculine	plural	masculine
118c	dual	feminine	dual	masculine	plural	Masculine
118d	dual	feminine	plural	feminine ⁴⁶	plural	masculine
118e	singular	feminine	plural	feminine	plural	masculine
118f	plural	feminine	plural	feminine	singular	feminine

To comment on Table 8.4, I begin with the values of number. Examples 118a–d are compatible with Hypothesis 1 in that the number value on the verb is the sum of the number values on both conjuncts.

Regarding the gender value on the verb, the Examples 118a–d are also compatible with Hypothesis 2 in that the gender value of the verb agrees with the gender of the two conjuncts if they are identical. If they are different, however, the resulting value of number on the verb is masculine default.

I intentionally left out Examples 118e and f for a separate line of discussion. In 118e, the first conjunct is singular feminine and the second conjunct is plural feminine. If we follow Hypothesis 1 in which the number of the verb is the sum of the number values on both conjuncts, the result is plural, which is true as per Table 8.4. If we consider gender values, when following Hypothesis 2 in which the gender of the verb is similar to those of both conjuncts when they are identical, and default masculine when the genders are different, we would expect the gender on the verb to be feminine since both conjuncts are feminine in gender. However, the gender triggered by agreement on the

⁴⁶ The nouns *kilāb* ‘dogs’ and *qittat* ‘cats’ are labelled in Table 8.4 as being feminine. As mentioned in Chapters 6 and 8, this gender is grammatical, not natural, and the combination of plurality and inanimacy results in uninterpretable grammatical feminine gender (*n u* [+fem]).

verb is masculine. One possibility for this deviation from the expected behaviour is related to the interpretability of the grammatical gender assigned to each nominal. While both are animals that are biologically differentiable when it comes to natural gender, the grammatical gender of each conjunct is different in terms of interpretability. Recall the discussion in Chapter 6 about the interpretability of grammatical gender. I argued that MSA has two genders depending on the context: masculine gender is the default for when there is mixed genders or when the gender of the referent is not determined or not important. This is a case we see in both animate and inanimate referents in both singular and dual forms. Feminine gender, in contrast, is used as the grammatical gender for whenever inanimate nouns are plurals. A question that arises here is why the singular form of an animal-denoting noun has an interpretable gender value, while the plural form of animal-denoting nouns has an uninterpretable grammatical gender. To answer this question, we need to recall the corpus data presented in Chapter 6 in which the subject is an animal referent. Nouns referring to sex-differentiable animals are assigned their grammatical gender based on the biological sex of the animal, and because *qitt-at* refers to a female cat—as there is another form that refers to a male cat *qitt*. Since there is a difference in interpretability between the two conjuncts, the gender of the DP is assigned unspecified *n*.

The last example to discuss is 118*f* in which both conjuncts are identical in number and in gender. Note that both conjuncts refer to plural inanimates whose grammatical gender is uninterpretable (feminine). The verb is thus seen to show feminine agreement.

Number, in contrast, is plural for both conjuncts, yet the verb is shown to have singular agreement. Again, this deviation in behaviour from the expected pattern is caused by the interaction between inanimacy and plurality, which results in the noun being interpreted as low individuated, thus triggering singular feminine agreement as shown chapter 8 in agreement. When it comes to coordination, the reason why the verb shows this trial

effect of features is that in Example 118*e* both conjuncts are identical in all features. I discuss the process of agreement with conjoined subject in more detail in Section 9.5.

As for the number value in Example 118*f*, it seems that there is only a difference in number value between the conjuncts on one side and the verb on the other. However, as shown in the analysis in Chapter 8, the location at which this uninterpretable gender is placed is the location that hosts inanimate uninterpretable feminine gender. Number undergoes Lowering to combine with this uninterpretable gender to produce a morpheme that appears overtly plural. However, since this plurality is combined with inanimacy it becomes interpreted as not very highly animated and thus triggers singular agreement.

If each of the conjuncts appears separately in a single-subject sentence, the verb would be seen to trigger singular agreement. Therefore, when both conjuncts appear together in a coordination structure, the verb would also show singular agreement. It is not showing different number; rather, it is showing full agreement.

At this point, the two hypotheses postulated above need revising as the sentences in Example 118 have shown unexpected patterns of behaviour that do not fit the hypotheses. The first hypothesis needs to be revised to account for cases of number differences as in Example 118*f*.

Hypothesis 1(revised): The number value of the verb of a sentence with a conjoined DP is the sum of the number values of both conjuncts, unless both conjuncts are inanimate plurals, in which case the verb shows feminine singular agreement.

Hypothesis 2 about gender values might need a revised version as well. Previously, I assumed that the verb shows identical gender value to those of the two conjuncts when they are identical. If they are not identical, however, the verb shows default masculine gender. Examples 118*d* and *e*, as discussed above, show a different pattern. Although

both conjuncts would trigger feminine agreement on the verb if found in single-subject sentences, if found together in a conjoined DP they would trigger masculine default gender. According to the assumption in Hypothesis 2, default masculine appears when the two genders are different in values. One way to solve this mystery is to argue that in Examples 118*d* and *e*, the difference in gender is not in the value but in the interpretability of the feature as discussed above. Therefore, the revised version of Hypothesis 2 would be:

Hypothesis 2 (revised): The verb in a coordination structure demonstrates masculine default agreement if the genders of each single conjunct are different in either value or interpretability. If both conjuncts, however, are identical in gender value and interpretability, the verb shows a gender identical in value and interpretability to that of both conjuncts.

The above detailed review of the nature of agreement with conjoined DPs in MSA was all about sentences in SVO word order. As known about simple sentences in SVO word order in MSA, the verb shows full agreement in gender and number. This also holds true for SVO word order sentences with conjoined DPs, with some differences attributed to conditions such as animacy, individuation and feature interpretability.

9.3 The structure of coordination

In the previous chapter, I introduced the MSA clause structure that I adopt in my analysis of agreement in MSA. I also viewed how, according to that structure, both SVO and VSO word orders are derived. In this section, I introduce how the subject is structured to include two nominal conjuncts in it.

It is clear that a phrase such as *the cat and the dog* contains two nominals and a conjunction between. A conjunction phrase: nominal conjunct 1 + and + nominal conjunct 2.

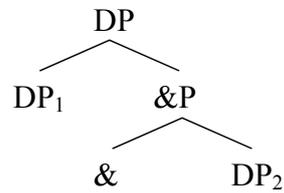


Figure 9.1: C-command structure of coordination

The syntactic structure of coordination shown in Figure 9.1 is in fact the most common and agreed-upon structure cross-linguistically (Kayne, 1994; Munn, 1993; Zoerner, 1995). To be valid, this structure needs to pass the following two tests: the binding test in which the first conjunct c-commands the second conjunct; and the constituency test.

A The binding test

The first conjunct in a coordination structure in MSA is able to bind a pronoun attached to the second conjunct. For the first conjunct to be able to do so, the bound pronoun should be in its c-commanding domain. Consider the following example:

- (119) kullu ṭālib-un wa ḥaqīb-at-u-hu
 every student.3S.F-indf.NOM and bag.3S-F-NOM-his
 ‘every student and his bag’

In this phrase the first conjunct is a quantified noun that binds a pronoun in the second conjunct. The first conjunct is not able to do so unless it c-commands the second conjunct to which the pronoun is attached (Büiring, 2005). Since the phrase in 119 is grammatical, this supports the structure in Figure 9.1.

B The constituency test:

Example 119 shows that the conjunction word and the second conjunct together form a constituent independent of the first conjunct. In Figure 9.1, the second conjunct and the conjunction word form a constituent that is c-commanded by the first conjunct.

Having assumed the structure in Figure 9.1, in which the first conjunct c-commands the second, more needs to be determined about the coordination phrase that serves as the subject. First, it is proposed by Munn (1987) and Kayne (1994) that the coordination phrase is labelled as &P or as a Boolean phrase. However, in this chapter, I follow Munn (1993) where the coordination phrase is labelled as a DP, mainly because of the location of the morphosyntactic features to be analysed in this thesis: gender and number.

Recall the basic structure of the DP proposed throughout the thesis, and how gender and number are located within this lexically decomposed structure to affect agreement. By assuming that the whole coordinate phrase is actually a DP, I assume the same structure proposed earlier for the simple DP is applied to the coordinate DP. A simple coordinate DP according to the decomposition approach in this thesis would appear like that in Figure 9.2.

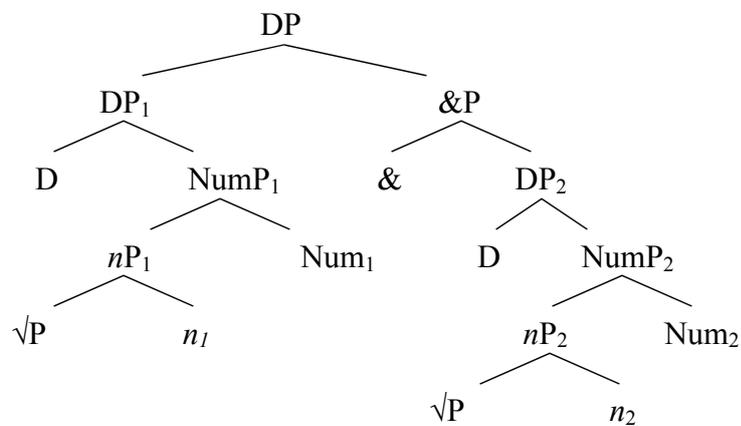


Figure 9.2: The structure of the coordinate phrase according to the lexical decomposition analysis (initial)

As shown in Figure 9.2, the coordinate DP contains &P, DP₁ and DP₂. As explained in Figure 9.1 above, the first conjunct DP₁ c-commanding the second conjunct DP₂ (Kayne, 1994; Munn, 1993; Zoerner, 1995).

The two hypotheses arrived at in the first section of this chapter say much about how the features of the whole coordinate phrase behave regarding agreement patterns. In SVO word order sentences, we saw that the number value of the verb is always the sum of the number values of the two conjuncts in the phrase. This means that syntactically, the coordinate phrase must have its own number value that picks up interpretation from both conjuncts before triggering the agreement number on the verb. This supports the idea that the coordinate phrase has a NumP head. This is why I follow Munn's (1993) later argument to label the coordinate phrase as a DP. Therefore, a revised version of the structure above would like that in Figure 9.3.

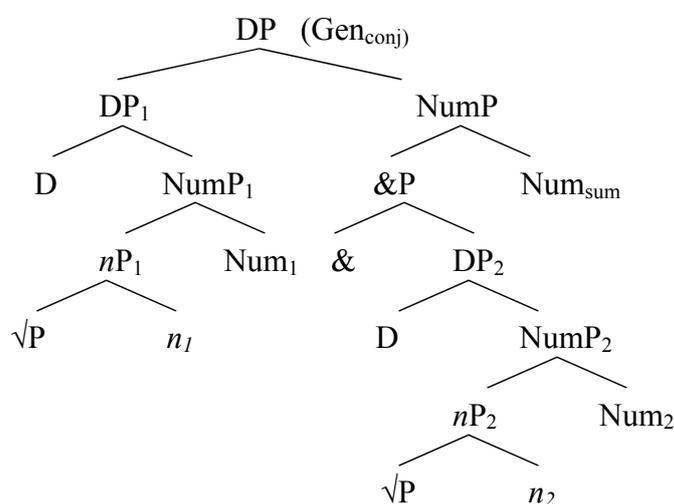


Figure 9.3: The structure of the coordinate phrase according to the lexical decomposition analysis (revised).

In the structure in Figure 9.3, labelling the coordinate phrase as a DP allows for assuming that as it is a DP, it can have a NumP on which there is a certain number value for the whole coordinate phrase. As I show below in the agreement analysis, in SVO the Num head carries a semantic number value (not realised morphologically on the coordinate phrase) that is the sum of the number values of both conjuncts together. In order to demonstrate this semantic property of the Num head in coordination structure, I argue that the Num head in MSA has an additive feature *sum* which is responsible for adding up the number values of each conjunct into one total value of number housed on

Num. My argument is based on Suerland's (2003, 2004) argument for the existence of an unpronounced number value whose interpretability is taken to be the interpretable value of number of the whole DP.

Regarding the location of gender as a feature, since it is a nominal intrinsic feature each conjunct has its own gender value located on the lower nominals n_1 and n_2 as seen in Figure 9.3. As seen in the revised version of hypothesis 1, if both genders are alike, the coordinate DP has the same gender as both conjuncts. If, however, both genders are different, then the coordinate DP has a default masculine gender. Thus, there is no motivation for proposing that the coordinate DP can have its own gender head.

However, I argue for a third gender value to be the gender value of the whole DP. This gender is not intrinsic on the coordinate DP as the latter has no individual n of its own; rather, it is an unpronounced gender value which results from the interaction of the grammatical gender and interpretation of both conjuncts' genders. I shall label this gender as the conjunction gender and will refer to it as Gen_{conj} .

9.4 An Agree-based Approach to Agreement with Conjoined Subjects

The structure presented in 9.3 above suggests that the first conjunct asymmetrically c-commands the second conjunct. Thus when an agreeing head probes down to find a goal, it searches for this goal within its local c-commanding domain. In the case of coordination structure in MSA, both the conjoined DP and the first conjunct DP1 are equally local to the agreeing head. This will result in either full agreement with the conjoined DP or partial agreement with only the gender of the first conjunct DP1. The choice between full and partial agreement depends mainly on the different word orders in MSA.

In Chapter 8, I proposed the agreement framework I adopt for MSA in which Agree is a syntactic operation that relates two elements in the derivation. One of these elements is

unvalued for features while the other is valued for the same features (Chomsky, 2000, 2001). Given the proposed clause structure in 9.3 above, sentences in the two orders in MSA—SVO and VSO—differ only regarding the position of the subject in relation to the verb. The structure in Figure 9.4 is a recap of the clause structure arrived at in Section 8.2 above.

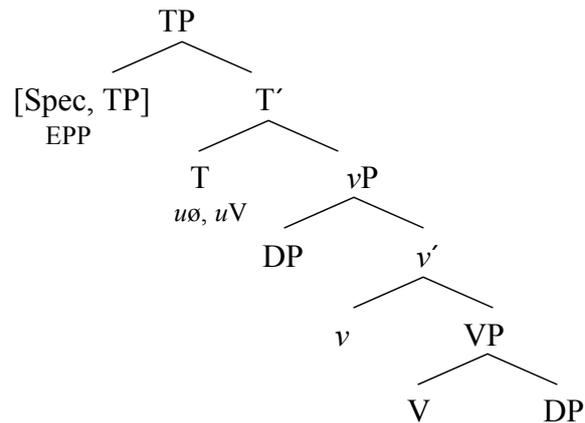


Figure 9.4: The basic clause structure in MSA from which both word orders are derived

As symbolised in Figure 9.4, [Spec, TP] has three unvalued features. The unvalued Phi-features found on the TP need to enter an Agree relationship with a DP whose features are valued in its c-commanding domain for these features to be valued on the TP.

Similar to sentences with single-subject DPs, the only two DPs that are present in the local domain of the probe are the subject coordinate DP and the object DP. The object DP is blocked by the subject DP, which asymmetrically c-commands it, leaving the probe with only the subject DP to target. The extra key point to be added to the analysis of coordinate structures is that the subject DP in a coordinate structure is in itself more complex, as it is one whole DP containing two internal conjunct DPs with the first c-commanding the second. Similar to the object DP that is blocked by the subject DP in single-subject sentences, the second conjunct is asymmetrically c-commanded by the first conjunct, as seen in the coordinate phrase structure in Section 9.3, and thus is

blocked from entering an Agree relationship with the probe. The probe then is left with only two DPs: the whole coordinate DP and the first conjunct DP₁.

The EPP in Chomsky's terms is a requirement that each clause has a subject in the [Spec, TP]. How full agreement in features between the subject and the verb is accomplished is discussed further in the analysis of feature agreement below.

If we assume that T has EPP present, which requires the DP to move higher to occupy the [Spec, TP] position, the verb then successive-cyclically moves to T to satisfy its unvalued features and establish an Agree relationship with the subject. Figure 9.4 is repeated as Figure 9.5 after adding the movement illustrations.

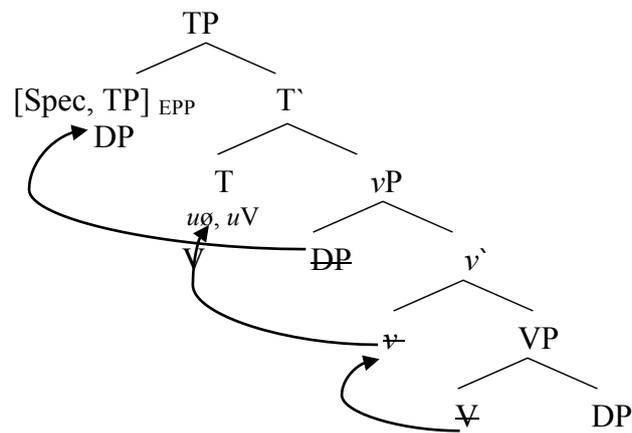


Figure 9.5: The subject DP moved to [Spec, IP] to satisfy the uD feature, creating an SVO order structure

Returning to the topic of this chapter—agreement with conjoined DPs—Figure 9.5 shows how SVO word order is derived, causing the full conjoined DP to move to [Spec, TP], resulting in full agreement between the verb and the subject as we saw in the sentences in sets 116, 117 and 118 at the beginning of this chapter. Consider Figure 9.6 in which agreement between the verb and the conjoined DP is achieved in an SVO word order sentence.

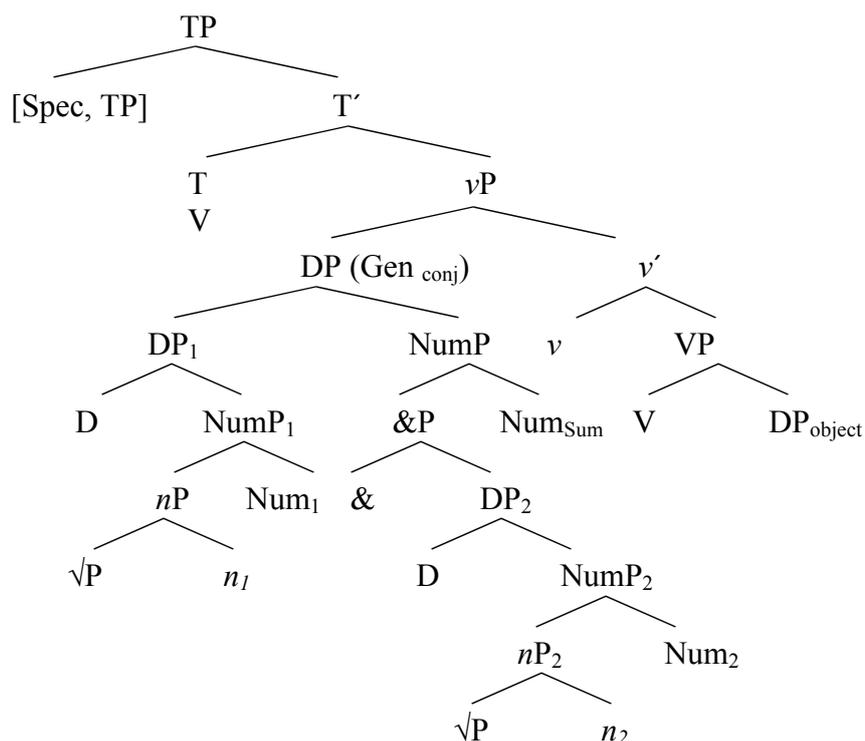


Figure 9.6: Coordinate subject in SVO word order with full SV agreement

In Figure 9.6, T probes down within its local c-commanding domain to search for a goal. Since the object DP is already blocked by the subject DP, the only possibility T encounters when it probes down is the subject DP, which in itself has two component DPs. As the second conjunct is blocked by the first, the probe has only two possibilities to choose from: either the full coordinate DP or the first conjunct DP_1 .

Full agreement is thus achieved between the verb and the full coordinate DP. The number head NumP proposed earlier to hold the number value of the whole coordinate DP is where the semantic sum of number values of both conjuncts is located. In SV agreement in SVO word order, the probe agrees with this number value, which explains why two dual conjuncts in a coordinate DP agree with a verb that shows plural agreement.

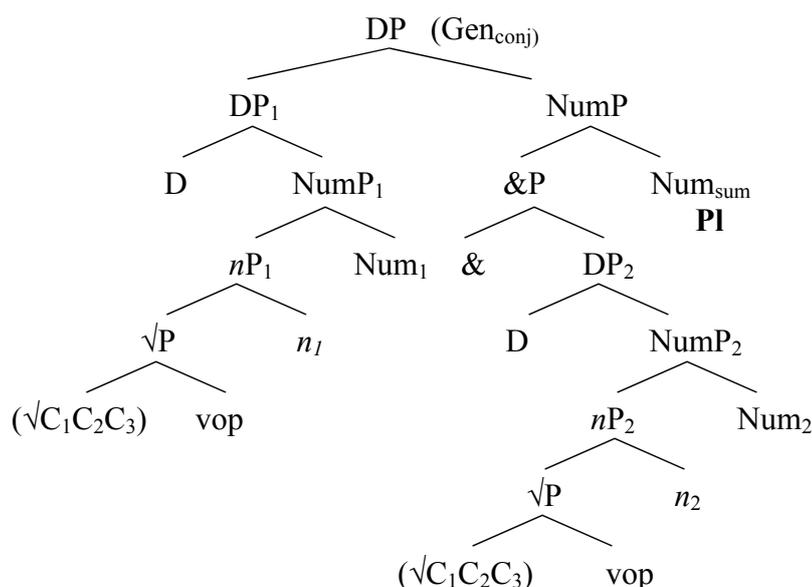


Figure 9.7: The semantic value of number on the number head of the whole coordinate DP

Figure 9.7 focuses on the coordinate DP_i that has moved to the [Spec, TP] creating SVO word order with full SV agreement. The number value on Num_{sum} is the sum of the number values on Num_1 of both the first conjunct DP_1 and the second conjunct DP_2 . As seen in the figure, both Num_1 and Num_2 have dual number values. Thus the sum of two duals is interpreted as plural, which is seen on Num_{sum} as supported by the set of examples from SVO above.

It is worth noting at this point that since I assumed the existence of a separate number head for the full coordinate DP structure, I have not assumed a separate head for gender. Gender values of both conjuncts are encoded in n . The coordinate DP transmits the value and create its own, which is interpreted as per the component values.

Above I explained how full agreement in SVO word order is derived in sentences with a coordinate DP as a subject. The question now is how—as according to the Agree definition I adopt from Chomsky (2000, 2001), and Baker (2008) both the full coordinate DP and the first conjunct DP_1 are local to the probe—the probe can easily

enter into an Agree relationship with either one of them. Figure 9.6 shows how the probe enters into an Agree relationship with the full coordinate, causing it to move to [Spec, TP]. What if the probe agrees with only the first conjunct? If the probe enters into an Agree relationship with only the first conjunct, then the first conjunct DP₁ has to move out of the coordinate phrase, violating the coordinate structure constraint (CSC) (Ross, 1967). As mentioned above, MSA is sensitive to this constraint. Such a movement will result in movement of part of the DP to [Spec, TP] while the original location of the subject, instead of being occupied by a copy, will be occupied by the remainder of the subject DP.

The verb can still agree with only the first conjunct. It cannot, however, cause it to move out of its coordinate phrase. Movement is only allowed for the whole coordinate phrase to create full agreement in SVO word order.

A possible solution for this problem is to argue that in cases where the verb agrees with the first conjunct, TP lacks EPP. In this case, the probe can still enter into an Agree relationship with only the first conjunct while it is located in situ, resulting in VSO word order.

This analysis of agreement with conjoined DPs in MSA has similarities with analyses of agreement with conjoined DPs in other languages. The most relevant here is the analysis of LA and MSA by Crone (2014). It is also similar to analyses of other Semitic languages such as Hebrew, in Doron's (2000) analysis of first conjunct agreement.

Doron (2000) for Biblical Hebrew and Crone (2014) for LA and MSA argue for the same clause structure I assumed here. The derivation of both SVO and VSO is determined by the T having or lacking EPP. There is, however, one theoretical difference between Doron's (2000) and Crone's (2014) analyses. Doron argues that when T has EPP, it probes down to target the full coordinate DP causing it to move up to [Spec, TP] for a full agreement relationship. When T lacks the D feature, however, it

targets only the first conjunct DP, which results in partial agreement. Doron's argument does not offer a satisfactory explanation for the optionality of agreement in VSO. As Doron argues, T does not target the full DP at all in VSO word order. For her, the ability to move up is a condition for targeting the goal. Since in VSO the movement is not required for the full coordinate DP, Doron argues that T only targets the first conjunct but never the full coordinate DP. Doron's analysis in this sense is left with the problem of full agreement in VSO in Biblical Hebrew, which is similar to the case found in the MSA data as mentioned here. Doron argues that for full agreement with conjoined DPs in VSO, the full DP can move higher to satisfy EPP, but then another movement is required for the verb to move to a position higher than the TP; that is, a position between C and TP.

Crone (2014) deviates slightly from Doron's argument in this sense and argues that T can target either the full coordinate DP or only the first conjunct DP₁ without causing either of them to move. Crone rests his argument on Preminger's (2011) notion of fallible operations. This notion explains that syntactic operations should be able to take place only when it is possible for them to do so. Applying this notion to the current problem, Crone argues that if EPP is present on T, causing it to move either the first conjunct DP₁ or the full coordinate DP to [Spec, TP], it can simply fail as a syntactic operation. Its failure is not in agreement but in causing the targets to move. It fails to cause the first conjunct DP₁ to move as per the CSC, and it fails to move the full coordinate DP as this movement would yield to another word order that is not the order desired. Crone's (2014) analysis seems plausible enough to account for the full DP not moving up. However, I assume, for the sake of simplicity and to be consistent with my analysis of agreement with single-subject sentences in Chapter 8, that EPP on T can be optionally present or absent. It is this optionality that makes different word orders. This condition is responsible for deriving SVO order and accordingly full SV agreement.

However, in VSO, EPP is absent. It is this absence that allows the subject DP to remain in situ [Spec, vP] and establish an agreement that is partial.

Having said that, I follow Crone (2014) in the assumption that the absence or presence of this D feature on T is not a requirement for agreement; rather, it is a requirement for subject movement. In LA, as Crone (2014) argues, both partial and full agreement are possible. This means that when T probes down to find a target, it can target either the full coordinate DP (resulting in full agreement in VSO) or the first conjunct DP₁ (resulting in partial agreement). In both cases the subject remains in situ. However, if T has the EPP, which is a prerequisite for subject movement, the agreed-with target has to move higher to [Spec, TP]. If movement has become a necessity in this case, it is only the full coordinate DP that can move higher, resulting in SVO word order with full SV agreement. The first conjunct is not a suitable target for T in this sense as trying to extract it from the coordinate phrase would violate the CSC, which results in the derivation crashing.

Crone's (2014) proposal implies that in VSO word order in LA, T does not possess EPP at all—a thing that allows optionality in choice between full agreement (agreeing with the full coordinate DP) or partial agreement (agreeing with only the first conjunct DP₁) in LA. In SVO word order, in contrast, EPP is present on T, which provides only one option for T to target: the full coordinate DP. This only results in SVO word order structure.

As I adopt a theoretical framework that is a mix of Minimalism and DM, I argue that features of gender and number are not realised in the structure until all the syntactic derivation is completed. It is at this point of the derivation that post-syntactic operations take place. SVO word order is derived straightforwardly. Morphological operations take place within the individual DPs for the number and gender suffixes to merge and fuse together. No morphological operations are needed for the full conjunction DP unless it

is a VSO word order where a morphological operation such as Impoverishment takes place. The NumP head of the coordinate DP undergoes Impoverishment, which means the DP loses whatever number value it might have had, so it retains its default singular number value before Spell Out. This also applies to the first conjunct DP₁ whose number head becomes impoverished. At Vocabulary Insertion, only verbs with singular agreement are allowed to be inserted to match the impoverished number value. This explains why the verb agrees in gender but not in number. As agreement with VSO word order is outside the scope of this thesis, this point of discussion is a key significant point of analysis that I leave for future research.

9.5 Conclusion

In this chapter, I presented various constructed examples of sentences in SVO word order with the focus being towards the three features of animacy, gender and number of both conjunct DPs and of the whole conjunct DP. Examples where some of these features are held constant while the others are changing provided a general understanding of the agreement patterns of coordination in MSA in SVO word orders. The findings from observing these sets of data can be summarised as follows:

1. In SVO word order, the number value of the whole DP phrase is realised on the NumP head, which I argue has an additive property. In other words, it adds up the number values of both conjunct DPs into one Num head. This generalisation, however, is subject to animacy interpretation. If both conjuncts are plural inanimate nouns, the resulting number is singular. This is because of the interaction between plurality and inanimacy, as seen with single-subject sentences in Chapter 8.
2. In SVO word order, the gender of the whole conjunct DP relies on the grammatical gender and interpretation of both conjunct DPs. If both

conjuncts DP are identical in gender value and interpretation then the resulting gender of the whole DP is the same gender.

3. If, however, the conjuncts are different in gender values or interpretation, then the resulting gender of the conjunct DP is a masculine default gender.

As in the agreement analysis, I assumed the same clause structure of MSA, following the Agree assumptions of Minimalism by Chomsky (2000, 2001) and the DM assumptions of feature assignment and Spell Out. I argued for a compositional approach for the structure of the DP, in which each conjunct DP has its own Num head that hosts its number value. The *n* of each DP hosts the value and interpretation of the individual conjunct DP.

As the first conjunct DP c-commands the second conjunct DP, when T probes down in its local domain it encounters two possible goal DPs with valued Phi-features. The second conjunct DP is not a possible goal for the probe in this case as it is blocked by the first conjunct. I also argued that EPP is optionally present on T. I adopt Doron's (2000) assumption for Hebrew that the presence of EPP on T is conditioned by the DPs ability to move higher to occupy [Spec, TP]. Since targeting the first conjunct DP would violate the CSC if moved to a higher position, the condition is not met on this particular DP. EPP is still present on T because of the full conjunct DP's ability to move higher. Therefore, Agree has only the full conjunct DP to target for agreement. After all the syntactic derivation has converged, post-syntactic morphological operations take place within the individual DP to form the number and gender suffixes.

Chapter 10: Conclusion and Limitations of the Current Study

The feature analysis presented in this thesis is expected to add to existing knowledge of agreement features in the literature on MSA syntax. To conclude thesis, I present a summary of the key points and findings highlighted throughout the course of the discussion. I conclude with suggestions for future research to enhance this field of analysis.

10.1 The Problem and Research Questions

This thesis is concerned with exploring the behaviour of SVO word order sentences in MSA where the SV agreement is expected to be full. The focus was on a specific group of SVO structures that deviate from this expected pattern of agreement. To understand this challenging behaviour, a closer investigation of the features responsible for agreement was made. These features are animacy, gender and number.

The MSA data show that plural inanimate subjects in SVO word order show partial agreement with the verb. In other words, subjects agree in gender and person but not in number. To the best of my knowledge, scant attention has been paid to this challenging behaviour of plural nouns in SVO word order.

The research questions postulated for study were:

1. What are the nominal features identified in the data to affect agreement in MSA?
2. How does morphological form and interpretation of features interact in conditioning the various agreement patterns in MSA?
3. How can these different values of features be located within the structure of the noun?

4. Is there any difference in how these features condition agreement patterns if the sentence contains one noun from when it contains two conjoined nouns?

Observing the MSA data extracted from two corpora, ICA and ArabiCorpus, showed that there are three basic features that affect the intriguing behaviour of agreement in MSA: animacy, gender and number. Other agreement features such as case and person have not shown any challenging behaviour or contribution to the partial agreement pattern seen in SVO word order. Therefore, they were not considered here.

Each of these three agreement features has shown an interaction between syntax, semantics (interpretation) and morphology. Therefore, the focus was on analysing the morphosyntax (form and behaviour) and semantics (interpretability) of each feature.

To present an adequate analysis of the form and interpretability of each feature, and the interaction of these three features, the structure of the nominal DP that hosts these features should have been analysed and the location of each of these features should have been spotted. For this purpose, I followed Ritter's (1991, 1993) main proposal for the DP structure of Hebrew in that the DP consists of an NP as well as a separate functional head for number that is located between the DP and the NP. Ritter argues that the value and interpretation of the nominal number is located on this syntactic node.

Further, I adopted a compositional analysis to break down the NP into a root and a nominalising head. In this step I used assumptions from the DM framework and made use of the root-and-pattern property of languages like Arabic. Therefore, the structure of the DP I proposed for the MSA's DP appears as in Figure 10.1.

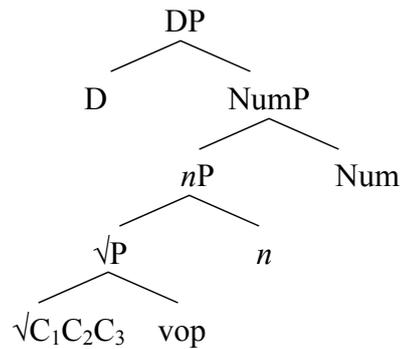


Figure 10.1: The decompositional structure of the DP in MSA in DM approach

According to this DP structure, gender features are related to the root and so are located on the *n* whereas number values are located on the Num. The following sections present a summary of each of the agreement features analysed in the thesis.

10.2 Features Affecting Agreement

10.2.1 Animacy

As shown in Chapter 5, this feature is central in various fields of linguistics. It is formed in the mind of the speaker through many different factors of the discourse. We saw how this feature has been viewed in the literature as either being of a scalar or hierarchical nature, or of a binary nature. I argued following de Swart and de Hoop (2018) that in light of various linguistic studies, animacy should be viewed as having values that are easily determined and referred to. For a syntactic phenomenon like agreement, animacy has to have a value such as [+animate] or [-animate]. This is needed to deal with it as a feature interacting with other features in the course of derivation.

I also argued that this binary value of animacy interacts with gender in MSA and conditions the grammatical gender assigned to the noun based on the biological sex of the referent. It is evident from the various corpus data covering so many levels of animacy that the grammatical gender assigned to the referent is interpretable as long as the referent's biological sex can be determined in the language, either with a different

vocabulary item or with a feminine morphological marker added to the noun. If the referent's biological sex is not determined it receives either the unspecified gender, which eventually triggers masculine default agreement, or the uninterpretable feminine gender.

10.2.2 Gender

I also argued that to link gender form and interpretation, the root when nominalised is assigned its grammatical gender in one the following forms:

- n for undetermined biological sex
- $n\ i[+Fem]$ for interpretable feminine gender (female animates)
- $n\ i[-Fem]$ for interpretable masculine gender (male animates)
- $n\ u[+Fem]$ for uninterpretable feminine gender (inanimates).

Based on the types of nominalising heads presented above, all the interpretable genders are hosted on the nominalising head that is closest to the root phrase \sqrt{P} . For the uninterpretable feminine gender, I argued that it is hosted on a higher nominalising head between the lower head that is close to the root, and just below the NumP. This assumption proves to be able to account for inanimate plurals that change gender between the singular and the plural. For these nouns, such as *kalb* 'dog', which is assigned interpretable masculine gender in the singular and located on the lower n , the plural is assigned an interpretable gender that is closer to the NumP. Arguing for this structure was useful for post-syntactic morphological operations to take place where the NumP head easily undergoes Lowering to the higher gender node (not affecting the main gender of the lower nominalising head), then undergoes Fusion by which the suffix exponed is a combination of number and gender.

Regarding the issue of having two genders within a DP, each located on a separate nominalising head, I argued for a hierarchical structure for agreement in which the probe agrees with the highest node it encounters.

10.2.3 Number

Number is one of the key features affecting agreement in SVO. It is number impoverishment as seen on the verb in SVO agreement with plural inanimates that is the focus of this thesis.

Number in MSA can be singular, dual or plural. Dual morphology is always regular and gender distinctive. Plural can be either regular and gender distinctive like dual, or of irregular form through undergoing certain vowel mechanics. Generally speaking, there is no notable difference in the meaning of plurals whether regular or irregular.

They can both be used with animate and inanimate referents. A good reference for the detailed semantics of plurality is Zabbal (2002), who analyses number in LA and MSA from a formal semantic perspective. The concern in this study was a special group of nouns that are semantically plural and syntactically singular. I focused on two types of these nouns and labelled them throughout the thesis as collective nouns and group-denoting nouns. For these nouns I argued that since they are semantically interpreted as referring to plural but behave as syntactic singulars, they are based closer to the root for their interpretation because they behave syntactically as singular and are not morphologically inflected for number; thus they are singular by default. Collective nouns can have singulatives of the same form by adding the singular feminine marker – *at*. Since they are inanimate and are inflected with this feminine marker, they are assigned uninterpretable feminine gender. They are, thus, located on the higher nominalising head for feminine inanimates. They can also be easily dualised and pluralised via post-syntactic morphological operations such as Lowering and Fusion. Group-denoting nouns, in contrast, do not have singulatives but can be dualised and

pluralised. They can also be head nouns of a quantifier phrase in which the interpretation of the embedded noun affects the interpretation of the whole noun.

For conjoined DP structures I argued, based on the MSA data presented in Chapter 9, that the conjunct DP has a separate NumP that has an additive property Num_{sum}. This additive property is responsible for interpreting the number value of the whole conjunct DP as the sum of the number value of the two conjunct DPs.

10.3 Agreement

The discussion of all the affecting features from a syntactic point of view and differentiating between interpretable and uninterpretable values was a key step before attempting to examine how agreement takes place.

For the analysis of agreement throughout the thesis, I adopted current Minimalist assumptions (Chomsky 2000, 2001) in which Agree is a syntactic operation that links two elements in the derivation. One element is called the probe and it has only unvalued Phi-features. The second element is called the goal and has the corresponding Phi-features but these are valued. The probe has to c-command the goal for an Agree relationship to be established.

For the derivation of SVO, I followed current Minimalist assumptions in that the subject DP has to remain in situ until all syntactic derivation has taken place. It is then that the EPP on TP requires that the DP subject moves higher to [Spec, TP]. This assumption contrasts with the pre-Minimalist spec-head assumption that movement to [Spec, TP] is a prerequisite for agreement.

To account for agreement with conjoined DPs, I argued for an Agree-based approach as well. In this analysis, both the first conjunct and the full conjunct DP are within the c-command domain of the probe. This leaves two possible goals for the probe to enter

into a relationship with. For this, I adopted Doron's (2000) and Crone's (2014) analysis to account for the data from coordinated subjects in SVO. The presence of EPP is optional on TP. Doron's argument for Hebrew states that its presence is conditioned by the ability of the DP to move higher to occupy the [Spec, TP]. For the first conjunct to move higher, this would violate the CSC. Therefore, the only DP capable of moving higher within the c-command domain is the full conjunct DP.

10.4 Limitations of the current study

The reason for choosing SVO word order as the focus of this thesis was that the literature almost overlooks the intriguing behaviour of partial agreement in this word order. It is commonly taken that SVO always triggers full agreement on the verb, and that partial agreement is only found with VSO order. Features responsible for such challenging behaviour are animacy and (un)interpretable gender. Previous accounts of agreement in MSA have overlooked such features, placing more focus on syntactic operations, and have treated features formally as one bundle in agreement processes. Since VSO word order always shows default singular agreement, it would be very difficult to detect the behaviour change of these features and how they affect the agreement pattern.

This thesis would have provided a more comprehensive account if it had not focused solely on this word order and had taken into account how agreement in VSO word order applies. However, I leave that area of study open for future work within a post-syntactic approach, where other accounts, such as those of Ackema and Neeleman (2003, 2012) become appealing to merge with the current DM analysis of features.

Another limitation of this thesis is the corpora used in gathering the data. I mentioned in Chapter 3 that extracting SVO sentences from the two source corpora was subject to the context occurrence of the key word. Certain nouns and verbs were used in the search. The results of each search, however, did not always match the intended word order or the SV combination.

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Appendix

Masculine	Feminine	Gloss
فأر	قرنب	mouse
ثور	بقرة	bull
حمار	أتان	donkey
جمل	ناقة	camel
حصان	فرس	horse
أسد	لبوة	lion
نمر	خنيمة	tiger
فيل	عيثوم	elephant
قرد	مي	monkey
غزال	غزالة	deer
بغل	بغلة/ سفواء	mule
أرنب	عكرشة	rabbit
فهد	كشماء	leopard
ضب	مكون	lizard
ثعلب	ثعلبية/عكرشة	fox

الخروف	نعجة	sheep
دب	جھبر	bear
خنزير	خنزيرة	pig
ديك	دجاجة	rooster
ذئب	ذئبة	wolf
غيلم	سلحفاة	turtle
ظبي	ظبية	antelope
قط	قطعة	cat
كلب	كلبة	dog
يعسوب	نحلة	bee

Table (A1): masculine/ feminine versions of nouns denoting big animals in Arabic.

Noun	Gloss	Feminine inflection	Gender	Example of adjectival agreement
كرسي	Chair	None	Masculine	الكرسي الكبير
دفتر	Notebook	None	Masculine	الدفتر القديم
قلم	Pen	None	Masculine	القلم الطويل
كتاب	Book	None	Masculine	الكتاب الجديد
شباك	Window	None	Masculine	الشباك الصغير
منديل	Napkin	None	Masculine	المنديل الأحمر
باب	Door	None	Masculine	الباب البعيد
ملف	File	None	Masculine	الملف الأخضر
صاروخ	Rocket	None	Masculine	الصاروخ الجديد
طائرة	Plane	ta marbuta (ة)	Feminine	الطائرة الواسعة
ساعة	hour	ta marbuta (ة)	Feminine	الساعة المائية
جهاز	Machine	None	Masculine	الجهاز المتطور
مقلمة	Pencil case	ta marbuta (ة)	Feminine	المقلمة الذهبية
غرفة	room	ta marbuta (ة)	Feminine	الغرفة المظلمة
ممر	Corridor	None	Masculine	الممر الضيق
دراجة	Bicycle	ta marbuta (ة)	Feminine	الدراجة الهوائية
عجلة	Wheel	ta marbuta (ة)	Feminine	العجلة القديمة
مقبض	Handle	None	Masculine	المقبض الكهربائي
حقيبة	Bag	ta marbuta (ة)	Feminine	الحقيبة المدرسية
كأس	Cup	None	Masculine	الكأس الفارغ
صحن	Plate	None	Masculine	الصحن الممتلئ
قارورة	Bottle	ta marbuta (ة)	Feminine	القارورة المكسورة
سجادة	Carpet	ta marbuta (ة)	Feminine	السجادة الفخمة
علبة	Container	ta marbuta (ة)	Feminine	العلبة النظيفة
كعكة	Cake	ta marbuta (ة)	Feminine	الكعكة اللذيذة
شطيرة	Sandwich	ta marbuta (ة)	Feminine	الشطيرة المحروقة
جبين	Cheese	None	Masculine	الجبين الأبيض

طماطم	Tomato	None	Masculine	الطماطم المفروم
خيار	Cucumber	None	Masculine	الخيار المقطع
منجيا	Mango	Alif mamduda (l)	Feminine	المنجا الناضجة
انبوبة	Tube	ta marbuta (ة)	Feminine	الأنبوبة الحديدية
خيطة	Thread	None	Masculine	الخيطة الرفيع
ابرة	Needle	ta marbuta (ة)	Feminine	الابرة الحادة
ملصق	Poster	None	Masculine	الملصق الجديد
جدار	Wall	None	Masculine	الجدار المصبوغ
اطار	Frame	None	Masculine	الاطار الذهبي
مدفع	Canon	None	Masculine	المدفع القوي
إفطار	Breakfast	None	Masculine	الإفطار الشهى
هروب	Escape	None	Masculine	الهروب الجماعي
جمال	Beauty	None	Masculine	الجمال اللامتناهي
صحة	Health	None	Feminine	الصحة الكاملة
بياض	Whiteness	None	Masculine	البياض الكامل
حمرة	Redness	ta marbuta (ة)	Feminine	الحمرة الواضحة
خشب	Wood	None	Masculine	الخشب القوي
حديد	Iron (material)	None	Masculine	الحديد الغير قابل للصدأ
مكواة	Iron (tool)	ta marbuta (ة)	Feminine	المكواة الفضية
شوكية	Fork	ta marbuta (ة)	Feminine	الشوكية اللامعة
علامة	Sign	ta marbuta (ة)	Feminine	العلامة الفارقة
قارب	Boat	None	Masculine	القارب الصغير
سفينة	Ship	ta marbuta (ة)	Feminine	السفينة الكبيرة
قطار	Train	None	Masculine	القطار السعيد
جرح	Wound	None	Masculine	الجرح العميق
ألم	Pain	None	Masculine	ألم شديد
قطعة	Piece	ta marbuta (ة)	Feminine	قطعة صغيرة

جناح	Wing	None	Masculine	جناح واسع
ضيافة	hospitality	ta marbuta (ة)	Feminine	الضيافة الممتازة

Table (A2): Examples of masculine/ feminine adjectival agreement with nouns denoting objects.

Region	Genre	Source corpus	Gender of agreement	Type of agreement	Corpus example	Gloss	Number	Noun
Kuwait	Literature	ICA	Feminine	Adjectival	أما من يد عربية بيضاء؟	Hand	Singular	يد
N/A	Literature	ICA	Feminine	Verbal	وكانما يد الله تبارك هذا التعاون المثمر	Hand	Singular	يد
Saudi Arabia	Social Sciences	ICA	Feminine	verbal	لكن يد التشدد امتدت إليها	Hand	Singular	يد
N/A	Literature	ICA	Feminine	adjectival	وجدنا يد التمثال اليمني مبتورة	Hand	Singular	يد
Egypt	Press	ICA	Feminine	Adjectival	يجب ألا تترك في يد واحدة	Hand	Singular	يد
N/A	Biography	ICA	Feminine	Demonstrative	هذه يد ابي بكر عند عروة بن المسعود	Hand	Singular	يد
N/A	Social Sciences	ICA	Feminine	Demonstrative	هذه يد مريضتي اللطيفة سالي	Hand	Singular	يد
Jordan	Newspaper	ArabiCorpus	Feminine	Adjectival	يدان نحيلتان	Hands	Dual	يدان
Jordan	Newspaper	ArabiCorpus	Feminine	Adjectival	يدان راعشتان	Hands	Dual	يدان
Jordan	Newspaper	ArabiCorpus	Feminine	Adjectival	يدان مرتبكتان تصنعان سيركا بهلوانياً	Hands	Dual	يدان
Jordan	Newspaper	ArabiCorpus	Feminine	Verbal	اليدان تتحركان باتجاه الأرض	Hands	Dual	يدان
Jordan	Newspaper	ArabiCorpus	Feminine	Adjectival	يدان كريمتان	Hands	Dual	يدان
N/A	Islamic Discourse	ArabiCorpus	Feminine	Adjectival	بل العجب أن يمسك بالمقود يدان مختلفتان متناقضتان	Hands	Dual	يدان
Jordan	Newspaper	ArabiCorpus	Feminine	Verbal	ترتجف اليدان عندها	Hands	Dual	يدان
London	Newspaper	ArabiCorpus	Feminine	Adjectival	الأيدي العاملة المؤهلة	Hands	Plural	أيدي
London	Newspaper	ArabiCorpus	Feminine	Adjectival	الأيدي العاملة الفلسطينية	Hands	Plural	أيدي
London	Newspaper	ArabiCorpus	Feminine	verbal	أيديهم تفوح برائحة الجنة	Hands	Plural	أيدي
Egypt	Newspaper	ArabiCorpus	Feminine	Adjectival	الأيدي الممدودة	Hands	Plural	أيدي
Jordan	Newspaper	ArabiCorpus	Feminine	Adjectival	الأيدي المرتجفة لا تبني أوطاناً	Hands	Plural	أيدي

Table (A3): the noun *yad* ('hand') is an example of cryptofeminine nouns. It has feminine gender in all three number variations.

Region	Genre	Source corpus	Gender of agreement	Type of agreement	Corpus example	Gloss	Number	Noun
Lebanon	Newspaper	ICA	Feminine	Adjectival	اطلاق ذراع اسرائيل العسكرية لتدمير لبنان	Arm	Singular	ذراع
Lebanon	Newspaper	ICA	Masculine	Adjectival	ذراع مختص باستملاك الأراضي	Arm	Singular	ذراع
N/A	Arts & culture	ICA	Masculine		ذراع طويل ملحق بجسم الجيتار الخشبي	Arm	Singular	ذراع
N/A	Arts & culture	ICA	Masculine	Adjectival	و رغم كونها ذراع أوروبا الممتد نحو افريقيا و الوطن العربي	Arm	Singular	ذراع
N/A	Books	ICA	Masculine	Adjectival	و شارك مع رفاقه الثائرون في تأسيس ذراع عسكري ضارب للجبهة الديموقراطية	Arm	Singular	ذراع
N/A	Bibliography	ICA	Masculine	Verbal	و يتكون ذراع الخشب من خشب أول للخارج و خشب ثاني للداخل	Arm	Singular	ذراع
N/A	Natural sciences	ICA	Masculine	Verbal	و ينتهي كل ذراع بأربعة أصابع	Arm	Singular	ذراع
N/A	Natural sciences	ICA	Feminine	Verbal	و تحمل كل ذراع على جانبها الداخلي صفيين من المصصات الجالسة للحمية	Arm	Singular	ذراع
London	Newspaper	ArabiCorpus	Adjectival	Adjectival	الذراع المالية	Arm	Singular	ذراع
London	Newspaper	ArabiCorpus	Feminine	Verbal	ذراعك حولي تحترق	Arm	Singular	ذراع
Jordan	Newspaper	ArabiCorpus	Feminine	Adjectival	و ذراعه الضاربة فيلق البدر	Arm	Singular	ذراع
Jordan	Newspaper	ArabiCorpus	Feminine	Verbal	ذراعي تؤلمني	Arm	Singular	ذراع
Kuwait	Newspaper	ArabiCorpus	Feminine	Adjectival	الذراع اليسرى	Arm	Singular	ذراع
Egypt	Newspaper	ArabiCorpus	Feminine	Adjectival	ذراعاها الممصوصتان مثنيتان الى فوق	Arms	Dual	ذراعان
London	Newspaper	ArabiCorpus	Feminine	Adjectival	ذراعاك المقسوختان أعلاه	Arms	Dual	ذراعان
London	Newspaper	ArabiCorpus	Feminine	Verbal	ذراعان تستقبلان	Arms	Dual	ذراعان
London	Newspaper	ArabiCorpus	Feminine	Verbal	ذراعي لا تكفيان لتطويق خصرك	Arms	Dual	ذراعان
N/A	Humanities	ICA	Feminine	Adjectival	كان له ذراعان قصيرتان و قويتان	Arms	Dual	ذراعان
N/A	Humanities	ICA	Masculine	Adjectival	و له ذراعان جانبيان أقل ارتفاعاً من الكتيب	Arms	Dual	ذراعان
N/A	Religious Discourse	ArabiCorpus	Feminine	Adjectival	الذراعان مكشوفتان	Arms	Dual	ذراعان
Lebanon	Strategic sciences	ICA	Feminine	Verbal	تمتد أذرع الطائفية	Arms	Plural	أذرع
N/A	Arts & cultures	ICA	Feminine	Adjectival	كانها أذرع ممتدة الى الله	Arms	Plural	أذرع
Bahrain	Strategic science	ICA	Feminine	Verbal	و تتداخل ثلاثة أذرع في العملية الواحدة	Arms	Plural	أذرع
Syria	Newspaper	ArabiCorpus	Feminine	Adjectival	أذرع الفساد قصيرة	Arms	Plural	أذرع

Kuwait	Newspaper	ArabiCorpus	Feminine	Adjectival	لقد أتونا بأذرع مفتوحة	Arms	Plural	أذرع
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Table (A4): the noun *thira* ('arm') is a mixed-agreement noun in Arabic. It has two genders in the singular and dual forms, but only one gender (feminine) in the plural form.

Region	Genre	Source corpus	Gender of agreement	Type of agreement	Corpus example	Gloss	Number	Noun
N/A	Applied sciences	ICA	Feminine	Adjectival	عندما يكبر النبات في العمر تخرج منه ساق طويلة	Leg	Singular	ساق
N/A	Applied science	ICA	Masculine	Adjectival	لها ساق أجوف و يتفرع منه سيقان صغيرة	Leg	Singular	ساق
N/A	Literature	ICA	Masculine	Demonstrative	و لكنني أحن الى هذا الساق و هذه العنق	Leg	Singular	ساق
N/A	Literature	ICA	Masculine	Demonstrative	انه كان يوجد على هذا الساق بين البطة و الركبة أثر لا يمحي و لا يزول	Leg	Singular	ساق
Egypt	Books	ICA	Masculine	Demonstrative	ثم تتشعب من هذا الساق أغصان دفاق	Leg	Singular	ساق
London	Newspaper	ArabiCorpus	Masculine	Demonstrative	هذه الساق لحيوان رمادي يسافر	Leg	Singular	ساق
Jordan	Newspaper	ArabiCorpus	Feminine	Demonstrative	دون أن تعترف أن هذه الساق السميكة التي صعدت عليها هي "أوسلو" النجسة	Leg	Singular	ساق
Syria	Newspaper	ArabiCorpus	Feminine	Demonstrative	الفريق استغرق أربع سنوات لتطوير هذه الساق	Leg	Singular	ساق
London	Newspaper	ArabiCorpus	Feminine	Demonstrative	ما نفع هذه الساق الميتة في جسد القسيمة الحي	Leg	Singular	ساق
N/A	Bibliography	ICA	Feminine	Demonstrative	فكان يصلي واقفا على رجله اليمنى حتى جفت هذه الساق و انكسرت	Leg	Singular	ساق
London	Newspaper	ArabiCorpus	Feminine	Adjectival	بساقين مستعجلتين	Legs	Dual	ساقان
N/A	Religious discourse	ArabiCorpus	Feminine	Demonstrative	انما يريد أن هذه الساقين تغبرت في سبيل الله	Legs	Dual	ساقان
Jordan	Newspaper	ArabiCorpus	Feminine	Adjectival	الساقان طويلتان رقيقتان	Legs	Dual	ساقان
London	Newspaper	ArabiCorpus	Feminine	Verbal	تخور الساقان الهائلتان	Legs	Dual	ساقان
N/A	Religious discourse	ArabiCorpus	Feminine	Adjectival	تكون الساقان طويلتين بالنسبة لبقية الجسد	Legs	Dual	ساقان
London	Newspaper	ICA	Masculine	Adjectival	الساقان ملتفان فيما استند المرفق على الطاولة	Legs	Dual	ساقان
N/A	Religious discourse	ICA	Masculine / Feminine	Demonstrative / Adjectival	هذان هما الساقان الحديديتان اللتان راهما بنوخذ نصر الملك في الحلم	Legs	Dual	ساقان
Outside the Arab world	Literature	ICA	Feminine	Demonstrative	غير أن هاتين الساقين حملتا كثيراً من الذخيرة و البنادق	Legs	Dual	ساقان

N/A	Applied sciences	ICA	Feminine	Adjectival	فمعظم أنواع الصبار لها سيقان سمكية لحمية مغطاة بقشرة شمعية	Legs	Plural	سيقان
N/A	Applied science	ICA	Feminine	Adjectival	ينفزع منه سيقان صغيرة	Legs	Plural	سيقان
Syria	Newspaper	ArabiCorpus	Feminine	Adjectival	السيقان الطويلة تقي أصحابها من أراض القلب	Legs	Plural	سيقان
London	Newspaper	ArabiCorpus	Feminine	Adjectival	السيقان المحطمة و الزهور المسودة	Legs	Plural	سيقان
N/A	Applied science	ICA	Feminine	Demonstrative	تحتوي هذه السيقان على براعم جانبية	Legs	Plural	سيقان
N/A	Literature	ICA	Feminine	Demonstrative	و كانت هذه السيقان الخشبية موجودة بجوار النار	Legs	Plural	سيقان

Table (A5): the noun *saq* ('leg') is a mixed-agreement noun in Arabic. It has two genders in the singular and dual forms, but only one gender (feminine) in the plural.

Region	Genre	Source corpus	Gender of agreement	Type of agreement	Corpus example	Gloss	Number	Noun
London	Newspaper	ArabiCorpus	Masculine	Adjectival	رأسي الصغير مليء بالأحلام و الآمال الكبيرة	Head	Singular	رأس
London	Newspaper	ArabiCorpus	Masculine	Relative pronoun	رأسي الذي ما زال يرن بقلباتك الأخيرة	Head	Singular	رأس
Jordan	Newspaper	ArabiCorpus	Masculine	Verbal	رأسي لا يحتمل نقاشات سياسية عقيمة	Head	Singular	رأس
N/A	Religious discourse	ArabiCorpus	Masculine	Adjectival	رأسي ساجد أرضاً	Head	Singular	رأس
N/A	Religious discourse	ArabiCorpus	Masculine	Adjectival	رأسي يميل تتاقلاً	Head	Singular	رأس
London	Newspaper	ArabiCorpus	Masculine	Verbal	رأسي يؤلمني	Head	Singular	رأس
London	Newspaper	ArabiCorpus	Masculine	Verbal	رأسي يصد عني	Head	Singular	رأس
London	Newspaper	ArabiCorpus	Feminine	Verbal	رأسي تميل	Head	Singular	رأس
N/A	Newspaper	ArabiCorpus	Masculine	Verbal	و فجأة أحسست برأسي يدور	Head	Singular	رأس
Egypt	Religious discourse	ICA	Masculine	Verbal	كان رأسي قد ارتطم بالعمود	Head	Singular	رأس
N/A	Literature	ICA	Masculine	Verbal	سيؤلمني رأسي	Head	Singular	رأس
Egypt	Literature	ICA	Feminine	Verbal	و كانت رأسي تبرق بعشرات الأسألة	Head	Singular	رأس
N/A	Literature	ICA	Feminine	Demonstrative	لأنه لم يكن هناك حيوان معروف له مثل هذه الرأس الصغيرة و العنق و الجسد الطويل	Head	Singular	رأس
N/A	Natural sciences	ICA	Feminine	Demonstrative	سنتكون هذه الرأس في مقبل أيامها منيعاً للعلم والعرفان	Head	Singular	رأس

N/A	Books	ICA	Feminine	Demonstrative	أردت أن أعرف ما تحت هذه الرأس الصغيرة	Head	Singular	رأس
Egypt	Literature	ICA	Feminine	Demonstrative	هذه الرأس الكبيرة يصعب أن تفكر تفكيراً نظيفاً	Head	Singular	رأس
Jordon	Literature	ICA	Feminine	Demonstrative	فلقد شغلت هذه الرأس القرعاء الألماني في وحدته	Head	Singular	رأس
N/A	Newspaper	ArabiCorpus	Feminine	Verbal	ألبيست هذه الرأس قد تشكلت عبر مناهج مدرسية وجامعية و عبر خطاب اعلامي وثقافي	Head	Singular	رأس
N/A	Literature	ICA	Feminine	Demonstrative	سوف اكسر هذه الرأس	Head	Singular	رأس
N/A	Arts & culture	ICA	Masculine	Demonstrative	و يقع هذا الرأس في أقصى الشمال الغربي للجزيرة	Head	Singular	رأس
N/A	Natural science	ICA	Masculine	Demonstrative	و استطاع أن يحمل هذا الرأس لأنه يقع عمودياً عليه	Head	Singular	رأس
N/A	literature	ICA	Masculine	Demonstrative	هل هذا الرأس رأسي يا ماهر	Head	Singular	رأس
Egypt	Social sciences	ICA	Masculine	Adjectival	أصبح لنا بعد التقدم رأسان مصدعان لكل حبة اسيرين	Heads	Dual	رأسان
N/A	Social sciences	ICA	Masculine	Adjectival	فتكون من كليهما بهذه الكيفية رأسان ممتدان بعد رشيد و دمياط	Heads	Dual	رأسان
N/A	Electronic articles	ICA	Masculine	Adjectival	رأسان مفرومان بصل أخضر	Heads	Dual	رأسان
N/A	Literature	ICA	Masculine	Adjectival	دع هذا الصندوق هنا و فيه رأسان عزيزان	Heads	Dual	رأسان
N/A	Literature	ICA	Masculine	Adjectival	حتى نبت على كتفيه رأسان آخران	Heads	Dual	رأسان
N/A	Literature	ICA	Masculine	Verbal	رأسان عاديان يحملان ماضياً ثقيلاً	Heads	Dual	رأسان
Saudi Arabia	Social sciences	ICA	Masculine	Adjectival	يتكون خليجها من رأسين بارزين	Heads	Dual	رأسين
N/A	Literature	ICA	Masculine	Adjectival	و على وجهه رسم يشبه رأسين متقاربين	Heads	Dual	رأسين
N/A	Strategic sciences	ICA	Masculine	Adjectival	مع استخدام رأسين نوويين	Heads	Dual	رأسين
N/A	Applied sciences	ICA	Masculine	Adjectival	يحمل رأسين حربيين من أجل التغلب على الدروع التفاعلية	Heads	Dual	رأسين
N/A	Books	ICA	Masculine	Verbal	رأسين كانا يلتفتان الى النعش بنظرات الملهوف	Heads	Dual	رأسين
N/A	Literature	ICA	Masculine	Demonstrative	هذان الرأسان يرميان بالجمرات	Heads	Dual	رأسين
N/A	Literature	ICA	Masculine	Demonstrative	ضع هذين الرأسين في الصندوق	Heads	Dual	رأسان
Egypt	Literature	ICA	Masculine	Demonstrative	و كذلك عمل أحد هذين الرأسين في الازدراد و الالتهام لكل ما هو حوله من المال و الثراء	Heads	Dual	رأسان

Lebanon	Strategic sciences	ICA	Feminine	Adjectival	تعتقد أن لدى الكيان الصهيوني عدداً كبيراً من الرؤوس النووية	Heads	Plural	الرؤوس
Egypt	Arts & culture	ICA	Feminine	Verbal	و يلاحظ أن الرؤوس لم تكن تتميز بطابع معين	Heads	Plural	الرؤوس
N/A	Arts & culture	ICA	Feminine	Verbal	و امتدت الرؤوس و الأعناق	Heads	Plural	الرؤوس
N/A	Arts & culture	ICA	Feminine	Verbal	و كانت الرؤوس كلها نائمة	Heads	Plural	الرؤوس
Region	Genre	Source Corpus	Gender of agreement	Type of agreement	Corpus Example	Gloss	Number	Noun
N/A	Arts & culture	ICA	Feminine	Adjectival	فهو يعلم أن البلاد من الرؤوس الكبيرة التي نخر فيها الفساد الى العظم	Heads	Plural	الرؤوس
N/A	literature	ArabiCorpus	Feminine	Adjectival	و انظر بعينك الى هذه الرؤوس المعلقة	Heads	Plural	الرؤوس
London	Newspaper	ArabiCorpus	Feminine	Demonstrative	و أكد انه يمكن تركيب هذه الرؤوس بأحجامها الكبيرة و الملامح المتشابهة و الملموسة	Heads	Plural	الرؤوس
Saudi Arabia	Arts & culture	ICA	Feminine	Verbal	تقاربت هذه الرؤوس بأحجامها الكبيرة و الملامح المتشابهة و الملموسة	Heads	Plural	الرؤوس
Saudi Arabia	Literature	ICA	Feminine	Demonstrative	لكن هذه الرؤوس كانت في حالة يقظة مثل الناس	Heads	Plural	الرؤوس
N/A	Literature	ICA	Feminine	Demonstrative	و يظهر أمامها جنديان أشوريان يحملان هذه الرؤوس	Heads	Plural	الرؤوس
Note: Occurrence of feminine demonstrative with the dual form هاتان الرأسان and هاتين الرأسين gave 0 results in ArabiCorpus and 0 results in ICA.								

Table (A6): the noun *ra's* ('head') is a mixed-agreement noun only in the singular form as it has two different genders. In the dual form, it is masculine, and in the plural forms it is feminine.

Region	Genre	Source Corpus	Gender of agreement	Type of agreement	Corpus Example	Gloss	Number	Noun
N/A	Literature	ICA	Feminine	Adjectival	واتضح من خلال ذلك وجود كبد مشتركة للتوأم	Liver	Singular	كبد
Egypt	Newspaper	ICA	Feminine	Adjectival	وفي تقييم لتربة الزرع في الصين انهم يزرعون كبد كاملة من حديثي الوفاة مما يحسن النتائج	Liver	Singular	كبد
N/A	Religious discourse	ICA	Feminine	Adjectival	وفي كل كبد رطبة أجر	Liver	Singular	كبد
N/A	Arts & culture	ICA	Masculine	Adjectival	يعد كبد الحمل أشهر نموذج للأحشاء المأكولة	Liver	Singular	كبد
N/A	Arts & culture	ICA	Masculine	Verbal	يوكل كبد الحمل المشهور بمقلي الحمل في نيوزلندا	Liver	Singular	كبد
N/A	Applied sciences	ICA	Masculine	Pronominal	يقوي الكبد وينشطه	Liver	Singular	كبد
N/A	Applied sciences	ICA	Masculine	Demonstrative	ثم يأتي بعد ذلك استعمال النبات لحماية هذا الكبد	Liver	Singular	كبد
N/A	Applied sciences	ICA	Masculine	Demonstrative	يحتمل أن يموت لأسباب أخرى قبل شروع هذا الكبد في مهمته التدميرية	Liver	Singular	كبد
Syria	Newspaper	ArabiCorpus	Masculine	Demonstrative	وهذا الكبد الذي يبلغ حجمه حجم ظفر الإبهام	Liver	Singular	كبد
Egypt	Literature	ICA	Feminine	Demonstrative	ويفرج عن هذه الكبد المقروحة	Liver	Singular	كبد
N/A	Books	ICA	Feminine	Demonstrative	ان المصيبة كلها من هذه الكبد	Liver	Singular	كبد
Morocco	Newspaper	ArabiCorpus	Feminine	Demonstrative	يجب عدم أكل هذه الكبد الملوثة حتى ولو طبخت	Liver	Singular	كبد
London	Newspaper	ArabiCorpus	Masculine	Adjectival	كبدان مطعونان بالنهاية	Livers	Dual	كبدان
N/A	Books	ICA	Feminine	Verbal	تنتفتت أكباد الوالدين ليكاء أطفالهم	Livers	Plural	أكباد
N/A	Religious discourse	ICA	Feminine	Adjectival	ونقل ابن هاني في هذه المسألة أن الامام أحمد قال: يضعها في أكباد جائعة	Livers	Plural	أكباد
Syria	Newspaper	ArabiCorpus	Feminine	Verbal	أكبادها تمشي على الأرض	Livers	Plural	أكباد
N/A	Religious discourse	ArabiCorpus	Feminine	Verbal	أكبادنا تحترق في جدة	Livers	Plural	أكباد
N/A	Religious discourse	ArabiCorpus	Feminine	Verbal	أفطر وأكباد أعدائك تنفطر	Livers	Plural	أكباد
N/A	Religious discourse	ArabiCorpus	Feminine	Adjectival	قارن حالك مع من يذهب الى الأكباد الجائعة في أفريقيا لينفق في سبيل الله	Livers	Plural	أكباد
Egypt	Newspaper	ArabiCorpus	Feminine	Adjectival	الحكومة سمحت باستيراد الأكباد البقرية من الولايات المتحدة	Livers	Plural	أكباد

N/A	Religious discourse	ArabiCorpus	Feminine	Pronominal	الحرب تطحن أكباداً وتطحنها	Livers	Plural	أكباد
N/A	Religious discourse	ArabiCorpus	Feminine	Adjectival	الأقدام حافية والأبدان عارية و الأكباد ضامنة	Livers	Plural	أكباد
Syria	Books	ICA	Feminine	Adjectival	كبود مقطوعة	Livers	Plural	كبود

Table (A7): the noun *kabid* ('liver') is a mixed-agreement noun only in the singular form as it has two different genders. In the dual form, it is masculine, and in the plural forms it is feminine.

Region	Genre	Source Corpus	Gender of agreement	Type of agreement	Corpus Example	Gloss	Number	Noun
Morocco	Newspaper	ICA	Masculine	Adjectival	حيث ترغب الكثير من النساء في الحصول على بطن مثالي من خلال ممارسة حركات تقوية عضلات البطن	Belly	Singular	بطن
N/A	Natural sciences	ICA	Masculine	Adjectival	صدر رأسي و بطن أصغر بكثير يكونان جسم الينكونيد	Belly	Singular	بطن
N/A	Literature	ICA	Masculine	Verbal	و بدأ بطن الكرة ينضغط	Belly	Singular	بطن
N/A	Literature	ICA	Masculine	Verbal	و حين انتصف النهار كان بطن زيزي قد امتلأ تماماً	Belly	Singular	بطن
N/A	Literature	ICA	Masculine	Verbal	كان رابع يستغرب أن بطن أمه يزداد حجماً يوماً بعد يوم	Belly	Singular	بطن
Egypt	Newspaper	ArabiCorpus	Masculine	Verbal	و البطن تحمل و تنجب لنا	Belly	Singular	بطن
N/A	Religious discourse	ArabiCorpus	Masculine	Verbal	و صرت أبكي كل ليلة و انا اتحسس بطني هل يكبر أم لا	Belly	Singular	بطن
N/A	Religious discourse	ArabiCorpus	Masculine	Adjectival	سحبت الأم الغطاء على بطنها المكشوف	Belly	Singular	بطن
N/A	Religious discourse	ArabiCorpus	Feminine	Adjectival	بيد أن رسول الله حليفهم يربط على بطنه الشريفة حجرين من شدة الجوع	Belly	Singular	بطن
N/A	Humanities	ICA	Masculine	Demonstrative	هذا البطن من أكبر بطون البربر	Belly	Singular	بطن
N/A	Religious discourse	ICA	Masculine	Demonstrative	ان الأئمة من قريش غرسوا في هذا البطن من هاشم	Belly	Singular	بطن
N/A	Literature	ICA	Masculine	Demonstrative	و أمنت أن يقتلك داء هذا البطن	Belly	Singular	بطن
N/A	Religious discourse	ArabiCorpus	Feminine	Demonstrative	و انما يختلفون ببطونهم و أحكام هذه البطن على العقل و العاطفة	Belly	Singular	بطن
N/A	Humanities	ICA	Masculine	Adjectival	و هم بطنان عظيمان	Bellies	Dual	بطنان

N/A	Humanities	ICA	Masculine	Adjectival	و تنقسم قبيلة البيقو الى بطنين كبيرتين	Bellies	Dual	بطنان
N/A	Literature	ArabiCorpus	Masculine	Demonstrative	و لا شهد هذان البطنان من أيام الفجار الا يوم نخلة مع أبي براء عامر	Bellies	Dual	بطنان
N/A	Literature	ArabiCorpus	Masculine	Demonstrative	و كان هذان البطنان خرجا سيارة من اليمن	Bellies	Dual	بطنان
N/A	Bibliography	ICA	Feminine	Demonstrative	ثم هاجرت بعض هذه البطون منه الى الشام	Bellies	Plural	البطون
N/A	Bibliography	ICA	Feminine	Demonstrative	فاندمجوا في هذه البطون دون أن يشكوا بطوناً مستقلة بهم	Bellies	Plural	البطون
N/A	Bibliography	ICA	Feminine	Adjectival	نشأ عمرو بن العاص في بطن من البطون القرشية المشهورة	Bellies	Plural	البطون
N/A	Humanities	ICA	Feminine	Adjectival	لم يتوصل الى سلسلة نسبها أو انتمائها لأي من البطون المذكورة	Bellies	Plural	البطون
N/A	Humanities	ICA	Feminine	Adjectival	قبيلة العوازم هي احدى البطون العامرية الهوازنية و متواجدة في موطنها القديم نجد	Bellies	Plural	البطون
N/A	Humanities	ICA	Feminine	Adjectival	و كان من أثره هجرة الكثير من البطون الأزدية	Bellies	Plural	البطون
N/A	Humanities	ICA	Feminine	Demonstrative	لكل من هذه البطون منصب أو أكثر	Bellies	Plural	البطون
N/A	Humanities	ICA	Feminine	Adjectival	و قد انضوت البطون العامرية في نجد تحت سمي سبيع	Bellies	Plural	البطون
Syria	Newspaper	ArabiCorpus	Feminine	Adjectival	اكتفت الوزارة ببناء هزيل و ممرات ضيقة يصعب على أصحاب البطون المملوءة دخولها	Bellies	Plural	البطون
Note: Occurrence of feminine demonstrative with the dual form هاتان البطنان and هاتين البطنين showed 0 results in ArabiCorpus and 0 results in ICA.								

Table (A8): the noun *batn* ('belly') is a mixed-agreement noun in Arabic. It has two genders in the singular and dual forms, but only one gender (feminine) in the plural.

Region	Genre	Source Corpus	Gender of agreement	Type of agreement	Corpus Example	Gloss	Number	Noun
Egypt	Newspaper	ICA	Masculine	Adjectival	لأن الرداء الرسمي لمضيفات الشركة كان له عنق مرتفع يغطي الصليب	Neck	Singular	عنق
Morocco	Newspaper	ICA	Masculine	Adjectival	هناك حالات لنساء يستعن بمنديل من أجل شد عنق الرحم المتدلي منهن	Neck	Singular	عنق
N/A	Natural Sciences	ICA	Masculine	Verbal	و هو صاحب القول بأن عنق الزرافة قد طال	Neck	Singular	عنق
Egypt	Newspaper	ArabiCorpus	Masculine	Adjectival	مثل الروح التي أشعر بخروجها من هذا العنق المبتور	Neck	Singular	عنق
N/A	Natural science	ICA	Masculine	Demonstrative	لا نتمالك أن نذكر أن هذا العنق قد طال و امتد	Neck	Singular	عنق
N/A	Literature	ICA	Masculine	Demonstrative	و رأسها المرفوع فوق هذا العنق الأسطع	Neck	Singular	عنق
Egypt	Social science	ICA	Feminine	Demonstrative	و حول هذه العنق من أعناق الدولة التي تسمى الدردنيل	Neck	Singular	عنق
N/A	Literature	ICA	Feminine	Demonstrative	الزرافة تقضم أوراق الشجر الأعلى لأنها وحدها التي تمتلك تلك العنق	Neck	Singular	عنق
Google Search			Masculine	Adjectival	عنقان طويلان	Necks	Dual	عنقان
Google Search			Masculine	Verbal	بل فيهما عنقان يشبهان السواقي	Necks	Dual	عنقان
London	Newspaper	ArabiCorpus	Feminine	Verbal	رأيت الأعناق تشرئب الى هذا الجانب أو ذاك	Necks	Plural	أعناق
N/A	Religious discourse	ArabiCorpus	Feminine	Verbal	و الأعناق قد مالت و الألوان و قد حالت	Necks	Plural	أعناق
N/A	Newspaper	ArabiCorpus	Feminine	Adjectival	و الأعناق الممدودة في جسارة و هي تحلق في كل مكان حولنا	Necks	Plural	أعناق
Jordan	Applied science	ICA	Feminine	Demonstrative	و ذلك بحرق قواعد هذه الأعناق أو وضعها في ماء دافئ	Necks	Plural	أعناق
N/A	Literature	ICA	Feminine	Demonstrative	فالمهم هو أن يدفع السكين عن هذه الأعناق النحيفة الناعمة	Necks	Plural	أعناق
N/A	Humanities	ICA	Feminine	Demonstrative	فإن أقل لفحة تصيب هذه الأعناق تبج أصواتها	Necks	Plural	أعناق
Note: No Occurrence of dual forms were found in ICA or in ArabiCorpus. Google search showed some occurrences of dual masculine gender.								

Table (A9): the noun *unug* ('neck') is a mixed-agreement noun in Arabic. It has two genders in the singular and dual forms, but only one gender (feminine) in the plural.

Region	Genre	Source Corpus	Gender of agreement	Type of agreement	Corpus Example	Gloss	Number	Noun
N/A	Literature	ICA	Feminine	Demonstrative	و لا يمكن التخلص من هذه القدم التي تسحق أعناق الضعفاء الا اذا حدثت معجزة	Foot	Singular	قدم
N/A	Literature	ICA	Feminine	Adjectival	هذه القدم العمياء تزداد قوة بضعف العرب	Foot	Singular	قدم
Saudi Arabia	Literature	ICA	Feminine	Verbal	هذه القدم شبت عن الطوق و الطريقة	Foot	Singular	قدم
Syria	Newspaper	ArabiCorpus	Feminine	Demonstrative	هذه القدم الأقوى تبقياها في الشارع	Foot	Singular	قدم
N/A	Religious discourse	ArabiCorpus	Feminine	Demonstrative	و أين مشت هذه القدم؟	Foot	Singular	قدم
Egypt	Biography	ICA	Feminine	Demonstrative	هاتان القدمان تضريان أرض الربع	Feet	Dual	قدمان
N/A	Literature	ICA	Feminine	Adjectival	فتاة لا تزيد عن كونها كتلة من الملابس البالية بنتاً منها قدمان عاريتان صغيرتان	Feet	Dual	قدمان
N/A	Religious discourse	ICA	Feminine	Adjectival	لم تطأ أرض الناس قدمان طاهرتان سوى قدمي المسيح	Feet	Dual	قدمان
N/A	Religious discourse	ICA	Feminine	Adjectival	قدمان لانقتان بجلال الله و عظمته	Feet	Dual	قدمان
Outside the Arab World	Literature	ICA	Feminine	Adjectival	عنده قدمان كبيرتان	Feet	Dual	قدمان
N/A	Arts & culture	ICA	Feminine	Verbal	تعثرت أقدام البيدي	Feet	Plural	أقدام
Yemen	Miscellaneous	ICA	Feminine	Verbal	وطأت فيه أقدام جنود الاحتلال الأجنبي	Feet	Plural	أقدام
N/A	Natural sciences	ICA	Feminine	Demonstrative	و تعد هذه الأقدام حساسة جداً	Feet	Plural	أقدام
N/A	Literature	ICA	Feminine	Demonstrative	و قد رأيت هذه الأقدام عند الباب الخارجي	Feet	Plural	أقدام

Table (A10): the noun *qadam* ('foot') is an example of cryptofeminine nouns. It has feminine gender in all three number variations.

Region	Genre	Source Corpus	Gender of agreement	Type of agreement	Corpus Example	Gloss	Number	Noun
Egypt	Newspaper	ICA	Feminine	Adjectival	ظلوا بصار عون العطش لمدة يومين كاملين تحت شمس حارقة	Sun	Singular	شمس
Egypt	Newspaper	ICA	Feminine	Verbal	مثلما تحررت روحه من جسده النحيل عندما أذنت شمس رحلته بالغروب	Sun	Singular	شمس
London	Newspaper	ArabiCorpus	Feminine	Verbal	كالشمس تحسر كل العيون	Sun	Singular	شمس
Egypt	Biography	ICA	Feminine	Demonstrative	كانه تلك الشمس التي أقبلت في ذلك اليوم من أيام الربيع	Sun	Singular	شمس
London	Newspaper	ArabiCorpus	Feminine	Adjectival	شمس هارية في جوف شجرة	Sun	Singular	شمس
N/A	Electronic articles	ICA	Feminine	Adjectival	عينك يا بغداد شمسان نائمتان في أهادي؟	Suns	Dual	شمسان
N/A	Literature	ICA	Feminine	Verbal	شمسان من شفق و من غسق ترشان الطيوب على خفاف الجيد	Suns	Dual	شمسان
N/A	Religion	ICA	Feminine	Adjectival	هل نشأت من التقاء شمسين متعارضتين؟	Suns	Dual	شمسين
Tunisia	Literature	ICA	Feminine	Adjectival	و يمسح أصابعه على الشفتين الشمسين الطالعتين في صباح يوم صحو	Suns	Dual	شمسين
N/A	Biography	ICA	Feminine	Demonstrative	و هذه الشموس التي يدور حول كل منها أسراب من السيارات	Suns	Plural	شموس
N/A	Biography	ICA	Feminine	Verbal	و لكنه يعطي الناظرين كل ما تعطيه الشموس من ضوء النهار	Suns	Plural	شموس
N/A	Biography	ICA	Feminine	Pronominal	و حيث اشراقات الشموس و هي تنير الكون و تبعث فيه نبضه الواج	Suns	Plural	شموس
London	Newspaper	ArabiCorpus	Feminine	Adjectival	الشموس الغارية	Suns	Plural	شموس
N/A	Literature	ArabiCorpus	Feminine	Verbal	أرأيت الشموس في أفلاكها كيف تعلق بنجم ثاقب؟	Suns	Plural	شموس

Table (A11): the noun *shams* ('sun') is an example of cryptofeminine nouns. It has feminine gender in all three number variations.

Region	Genre	Source Corpus	Gender of agreement	Type of agreement	Corpus Example	Gloss	Number	Noun
N/A	Literature	ICA	Feminine	Adjectival	و يرى الأرض الممتدة حوله حتى يبدو في أقصى فرحته و نشاطه	Earth	Singular	أرض
Jordan	Strategic Sciences	ICA	Feminine	Adjectival	منبهاً الى ضرورة حصر التناقض مع العدو الحقيقي الجاثم على الأرض العربية و الاسلامية	Earth	Singular	أرض
N/A	Strategic Sciences	ICA	Feminine	Demonstrative	و المتمثلة في تلك الأراضي الاقطاعية	Earth	Singular	أرض
N/A	Literature	ICA	Feminine	Adjectival	كذلك الأرض المحيطة	Earth	Singular	أرض
London	Newspaper	ArabiCorpus	Feminine	Pronominal	هذه الأرض التي كانت تفوح بالأريج في الفجر	Earth	Singular	أرض
N/A	Humanities	ICA	Feminine	Adjectival	هذه التجربة قمت بها بنفسي بمقابلتي بين محاصيلات أرضين متساويتين	Earths	Dual	أرضين
N/A	Electronic articles	ICA	Feminine	Pronominal	و قيل أنها الأرض التي تمطر بين أرضين ممطرتين	Earths	Dual	أرضين
Egypt	Humanities	ICA	Feminine	Demonstrative	و ليس يفصل البحر بينها و بين هاتين الأرضين الا فاصل ضيق	Earths	Dual	أرضين
Kuwait	Strategic sciences	ICA	Feminine	Adjectival	هؤلاء يعتبرون الأراضي الفلسطينية أراضي يهودية	Earths	Plural	أراضي
N/A	Applied sciences	ICA	Feminine	Adjectival	اذ أن حوالي 80% من أراضيها تشكل أراضي منبسطة أو سهول متموجة	Earths	Plural	أراضي
N/A	Applied sciences	ICA	Feminine	Adjectival	ان أراضي القطر العربي كلسية غضارية	Earths	Plural	أراضي
Syria	Newspaper	ArabiCorpus	Feminine	Demonstrative	هذه الأراضي هي مصدر رزقنا و رزق أولادنا	Earths	Plural	أراضي
London	Newspaper	ArabiCorpus	Feminine	Demonstrative	تلك الأراضي التي كان الشاه يعد بتسليمها	Earths	Plural	أراضي

Table (A12): the noun *ardh* ('earth') is an example of cryptofeminine nouns. It has feminine gender in all three number variations.

Region	Genre	Source Corpus	Gender of agreement	Type of agreement	Corpus Example	Gloss	Number	Noun
London	Newspaper	ArabiCorpus	Feminine	Adjectival	النار الممسوكة بالقبضات	Fire	Singular	نار
London	Newspaper	ArabiCorpus	Feminine	Verbal	النار توقظ الغاية	Fire	Singular	نار
London	Newspaper	ArabiCorpus	Feminine	Adjectival	نار هرمة في النحاس	Fire	Singular	نار
N/A	Biography	ICA	Feminine	Pronominal	و العبقرية كلها لا يقر لها قرار مع اضطرار تلك النار	Fire	Singular	نار
N/A	Humanities	ICA	Feminine	Pronominal	بردت تلك النار التي كانت تتأجج في قلوب الأسيان المسلمين و المسيحيين	Fire	Singular	نار
N/A	Biography	ICA	Feminine	Verbal	صاحب التنتين في حرب هما ناران تشتعلان	Fires	Dual	ناران
N/A	Literature	ICA	Feminine	Verbal	و أما في الخارج فكنت ترى هؤلاء الملوك بين ناران تتواعدان	Fires	Dual	نارين
N/A	Books	ICA	Feminine	Adjectival	فيكون صاحبه متحيراً بين نارين محترقتين	Fires	Dual	نارين
N/A	Religious discourse	ArabiCorpus	Feminine	Adjectival	فهذه النيران المستعرة بخرجها سبحانه و تعالى من قلب الجليل	Fires	Plural	نيران
Egypt	Newspaper	ArabiCorpus	Feminine	Demonstrative	و يبدو أن أحدا لم يتمكن من اطفاء هذه النيران	Fires	Plural	نيران
N/A	Literature	ICA	Feminine	Adjectival	اشعلوا بعض النيران المتفرقة من حولكم فهي تطرد الحيوانات الخبيثة	Fires	Plural	نيران
Egypt	Startegic science	ICA	Feminine	Verbal	توقفت النيران في لبنان	Fires	Plural	نيران

Table (A13): The noun *nar* ('fire') is an example of cryptofeminine nouns. It has feminine gender in all three number variations.

Region	Genre	Source Corpus	Gender of agreement	Type of agreement	Corpus Example	Gloss	Number	Noun
N/A	Literature	ICA	Feminine	Adjectival	بينما تلك الدار الصغيرة التي بنتها تشبه اللعبة حقا	Home	Singular	دار
N/A	Literature	ICA	Feminine	Verbal	امتألت الدار بالفرحة و كان عرساً يدور فيها	Home	Singular	دار
		ArabiCorpus	Feminine	Demonstrative	اعلم أن تلك الدار التي عرفت همومها و عمومها تقابلها دار أخرى	Home	Singular	دار
Egypt	Bibliography	ICA	Masculine	Demonstrative	من ذلك اليوم استقر الحزن العميق في هذا الدار	Home	Singular	دار
N/A	Religious discourse	ICA	Masculine	Demonstrative	هذا الدار صار مقبرة تضم الغرباء	Home	Singular	دار
N/A	Religious discourse	ICA	Masculine	Demonstrative	باسمه اشترى هذا الدار المملوء خراباً	Home	Singular	دار
N/A	Electronic articles	ICA	Masculine	Demonstrative	يعتبر هذا الدار من أهم المآثر في زبيد	Home	Singular	دار
Egypt	Humanities	ICA	Feminine	Demonstrative	حتى يظنوا أن هذه الدار ماهي إلا داره	Home	Singular	دار
London	Newspaper	ArabiCorpus	Feminine	Demonstrative	و تعود جذور تلك الدار الى أكثر من 200 عام	Home	Singular	دار
London	Newspaper	ArabiCorpus	Masculine	Demonstrative	ما يوحي مقبرة ذلك الدار على جذب الانتباه	Home	Singular	دار
N/A	Religious discourse	ICA	Masculine	Adjectival	داران أخريان	Home s	Dual	داران
N/A	Humanities	ICA	Masculine	Adjectival	داران خاصان لنسخ الكتب و زخرفتها	Home s	Dual	داران
Egypt	Literature	ICA	Feminine	Adjectival	و لأنهما داران موضوعتان على رسم واحد	Home s	Dual	داران
Egypt	Literature	ICA	Feminine	Verbal	و هل داران على رسم واحد تكونان شيئاً واحداً	Home s	Dual	داران
Iraq	Newspaper	ICA	Masculine	Adjectival	ثم أضاف الى مدرستي الفقه و الطب دارين أخريين: دار للقرآن و دار للسنة	Home s	Dual	دارين
Egypt	Literature	ICA	Feminine	Pronominal	و أن تغلق الدور التي تخصصت في نشر أبوابها	Home s	Plural	دور
N/A	Religious discourse	ArabiCorpus	Feminine	Demonstrative	و كم سمعت كلمات التهكم من أصحاب تلك الدور على أولئك القراء	Home s	Plural	دور
London	Newspaper	ArabiCorpus	Feminine	Demonstrative	و يقصد المدارس تلك الدور المنظمة التي يأوي اليها طلاب العلم	Home s	Plural	دور
Egypt	Newspaper	ArabiCorpus	Feminine	Demonstrative	و هكذا تتسول تلك الدور لرعاية الأطفال و تنمية مواهبهم و قدراتهم	Home s	Plural	دور

Egypt	Newspaper	ICA	Feminine	Demonstrative	و تطوير هذه الدور لرعاية الأطفال و تنمية مواهبهم و قدراتهم	Home s	Plural	دور
Morocco	Newspaper	ICA	Feminine	Adjectival	بعد أن علت جدران هذه الدور القديمة العديد من الشروخ و التشققات نتيجة التسربات المائية	Home s	Plural	دور
N/A	Humanities	ICA	Feminine	Verbal	و قد جمعت هذه الدور بين خصوصيات الطابع المعماري المحلي	Home s	Plural	دور

Table (14): the noun *dar* ('home') is a mixed-agreement noun in Arabic. It has two genders in the singular and dual forms, but only one gender (feminine) in the plural.