

# The Structure and Distribution of Determiner Phrases in Arabic: Standard Arabic and Saudi Dialects

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## Abstract

This thesis investigates the syntactic structure of determiner phrases (DP) and their distribution in pre- and postverbal subject positions in Standard Arabic (SA) and Saudi dialects (SUD). It argues that indefinite DPs cannot occupy preverbal subject positions unless they are licensed by modification. Working within the theory of syntactic visibility conditions (visibility of the specifier and/or the determiner) put forth by [Giusti \(2002\)](#) and [Landau \(2007\)](#), I propose that adjectives, diminutives or construct states (CS) together with nunation can license indefinite DPs in preverbal subject positions. The syntactic derivation of the licensed indefinite DP depends on its complexity. In other words, in the case of simple DPs (e.g., a noun followed by an adjective), the correct linear word order is achieved by the syntactic N-to-D movement which takes place in the syntax proper. By contrast, if the DP is complex as in diminutives or CSs, the narrow syntax may not be able to derive the correct linear order. Therefore, I propose a novel analysis that accounts for the mismatches between the spell out of the syntax and the phonological form. I argue that the derivation of diminutives and CSs is a shared process between the narrow syntax and the phonological component (PF). I show that movement operations after-syntax (*Lowering* and *Local-dislocation*) proposed by [Embick and Noyer \(1999, 2001, 2007\)](#), in the sense of Distributed Morphology (DM), can account for the mismatch. The last theoretical chapter of the thesis investigates the linguistic status of nunation. I argue that nunation is an indefinite marker that performs half of determination with a full lexical item satisfying the other half. As far as the subject position is concerned, the current thesis includes two experimental studies that investigate processing of syntactic subjects in different word orders (SVO/VSO) by two groups: Native speakers (NSs) and Heritage speakers (HSs) of Arabic whose dominant language is English. The first study aims to answer two questions: *a) which word order is more preferred by NSs, SVO or VSO?* and *b) which word order requires more processing?* The second study aims to answer the same questions but with different participants, HSs. It also aims to check whether or not the dominant language grammar affected the heritage language grammar. Results showed that VSO is more preferred than SVO by both groups. As far as processing is concerned, NSs significantly processed subjects in VSO faster than SVO; they showed no significant difference when processing postverbal subjects in definite and indefinite VSO. By contrast, HSs processed subjects in SVO faster than VSO; however, the difference was not significant. The slow processing of VSO shown by HSs might be attributed to the effect of the dominant language which has a different word order from the heritage language.

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## *Dedication*

*This thesis is dedicated to my parents,*

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## List of Abbreviations

ACC	Accusative
AdjP	Adjectival phrase
AdvP	Adverbial phrase
AgenP	Agentive phrase
AgrP	Agreement phrase
AnexP	Annexation phrase
BP	Bare plural
CardP	Cardinal phrase
ClassP	Class phrase
CP	Complementizer phrase
CS	Construct state
DAT	Dative
DEF	Definite
DIM	Diminutive
DimP	Diminutive phrase
DL	Dual
D-linked	Discourse linked
DM	Distributed Morphology
DP	Determiner phrase
EPP	Extended Projection Principle
FM	Feminine
FocP	Focus phrase
GEN	Genitive
GenP	Genitive phrase
HMC	Head Movement Constraints
KP	Case phrase
LF	Logical form
LOD	Left-displaced object
MP	Minimalist Program
MS	Masculine
HS	Heritage speaker
NOM	Nominative
NP	Noun phrase
NS	Native speaker
NumP	Number phrase
NUN	Nunation
OP	Operator
PF	Phonological component
PL	Plural
PossP	Possessive phrase
PS	Past
QCS	Quasi construct state
RT	Reaction time
SA	Standard Arabic
SG	Singular
Spec	Specifier
SUD	Saudi dialects
SVO	Subject Verb Object
TP	Tense phrase
VI	Vocabulary item
VP	Verb phrase
VSO	Verb Subject Object
XP	Maximal projection

## Adopted Phonetic Transcriptions

Transcript	Arabic sound
ʔ	ء
b	ب
t	ت
θ	ث
dʒ	ج
ħ	ح
x	خ
d	د
ð	ذ
r	ر
z	ز
s	س
ʃ	ش
ʕ	ص
ɖ	ض
ɸ	ط
ʒ	ظ
ʕ	ع
y	غ
f	ف
q	ق
k	ك
l	ل
m	م

h	هـ
w	و
j	ي
u	ـُ الضمة
a	ـَ الفتحة
i	ـِ الكسرة
ã	ـا (اللمد الطبيعي)
õ	ـو (اللمد الطبيعي)
ẽ	ـي (اللمد الطبيعي)

\* I should point out that the phonetic symbols used in the borrowed examples might differ from the symbols I used in this thesis; however, they will remain source-wise.

# Chapter 1

## Introduction

### 1 Context

This thesis investigates the syntactic structure and distribution of determiner phrases (DP) in Standard Arabic (SA) and Saudi dialects (SUD). It analyses the structure of DPs in isolation and in the context of clauses. Studying the internal structure of DPs in isolation provides us with information about their internal linguistic properties. However, it tells us nothing about their linguistic behaviour in a more general environment. Consider the Arabic DPs in (1).

- (1) a. *ʔar-radʒul-u*  
the-man-*NOM*  
'the man'
- b. *radʒul-u-n*  
man-*NOM-NUN*  
'a man'

Following the standard theory of DP (Abney, 1987; Bernstein, 2008), a DP consists of a determiner and its complement, the noun phrase (NP). Both structures in Arabic shown in (1) meet the minimum requirements to stand as proper DPs. These requirements are: a determiner (the definite article, *ʔal* or the indefinite article, *nunation* (NUN)) and an NP. The difference between (1a) and (1b) lies only in  $\pm$ definiteness.

However, the two DPs exhibit different syntactic distributions when they are employed in different clauses specifically when they occupy subject positions. To show the difference, I begin with the distribution of definite DPs. The examples in (2) from Standard Arabic and (3) from Saudi dialects illustrate that definite DPs can be freely distributed in preverbal subject positions (i.e., Subject-Verb-Object (SVO)) or in postverbal subject positions (i.e., Verb-Subject-Object

(VSO)).

- (2) a. *ʔar-radʒul-u daxala ʔal-maktab-a*  
 the-man-*NOM* entered the-office-*ACC*  
 ‘The man entered the office.’ (SVO)
- b. *daxala ʔar-radʒul-u ʔal-maktab-a*  
 entered the-man-*NOM* the-office-*ACC*  
 ‘The man entered the office.’ (VSO)
- (3) a. *ʔal-walad kesar ʔal-findʒāl*  
 the-boy broke the-cup  
 ‘The boy broke the cup.’ (SVO)
- b. *kesar ʔal-walad ʔal-findʒāl*  
 broke the-boy the-cup  
 ‘The boy broke the cup.’ (VSO)

By contrast, Arabic indefinite DPs show an asymmetric distribution when occupying subject positions depending on the type of the word order they appear in. The idea is that, in SA and in SUD (Southern region and Najdi (central) dialects) indefinite DPs can occupy postverbal subject positions in VSO clauses, as seen in (4).

- (4) a. *daxala radʒul-u-n ʔal-maktab-a*  
 entered man-*NOM-NUN* the-office-*ACC*  
 ‘A man entered the office.’ (SA)
- b. *kesar waladi-n ʔal-findʒāl*  
 broke boy-*NUN* the-cup  
 ‘A boy broke the cup.’ (SUD)

Indefinite DPs can also occupy object positions without any restrictions despite the different word orders they appear in; see (5a&b) for VSO/SVO respectively.

- (5) a. *qābala ʔal-mudēr-u radʒul-a-n fi ʔal-maktab-i*  
 met the-manager-*NOM* man-*ACC-NUN* in the-office-*GEN*  
 ‘The manager met a man in the office.’ (VSO)
- b. *ʔal-mudēr-u qābala radʒul-a-n fi ʔal-maktab-i*  
 the-manager-*NOM* met man-*ACC-NUN* in the-office-*GEN*  
 ‘The manager met a man in the office.’ (SVO)

It can be noticed that the word *radʒula-n* ‘a man’ occupies the object position in both examples in (5) despite the fact that it appears in different word orders.

However, the examples in (6), which are the SVO version of the examples in (4), show that indefinite DPs cannot appear as preverbal subjects in SVO clauses in SA and SUD.<sup>1</sup>

- (6) a. \**radʒul-u-n daxala ʔal-maktab-a*  
 man-*NOM-NUN* entered the-office-*ACC*  
 Intended: ‘A man entered the office.’ (SA)
- b. \**waladi-n kesar ʔal-findʒāl*  
 boy-*NUN* broke the-cup  
 Intended: ‘A boy broke the cup.’ (SUD)

The ungrammaticality of the examples in (6) is precisely due to the fact that the indefinite DPs *radʒulu-n* ‘a man’ and *waladi-n* ‘a boy’ are occupying the preverbal subject positions.

The restrictions on the distribution of indefinite DPs is not only limited to Arabic, but also attested crosslinguistically. There are languages that allow indefinite DPs in postverbal subject positions, but, by contrast, they put restrictions on these DPs in preverbal subject positions. A similar case to Arabic is found in languages that use two different word orders SVO/VSO such as Italian and Spanish. [Suñer \(1982\)](#) shows that Spanish indefinite bare nouns show asymmetric distribution when they appear in different word orders. The idea is that, Spanish bare plural nouns can appear in postverbal subject positions, but they are not permitted to appear in preverbal subject positions; see the examples in (7) below.

- (7) a. *Vivían abogados allí*  
 lived lawyers there  
 ‘Lawyers lived there.’ (Spanish)
- b. \**Abogados vivían allí*  
 lawyers lived there  
 ‘\*Lawyers lived there.’ ([Suñer, 1982](#), p.210-211)

<sup>1</sup>Throughout this thesis, the technical terms *structures*, *clauses* or *orders* will be used interchangeably with the abbreviations SVO/VSO.

Similarly, [Delfitto and Schroten \(1991\)](#) point out that Spanish bare plurals can appear as postverbal subjects of intransitive verbs (8a) and as objects of transitive verbs (8b), but they cannot appear as preverbal subjects (8c).

- (8) a. Han llegado estudiantes  
have arrived students
- b. Yo he visto estudiantes en el edificio  
I have seen students in the building.
- c. \*Estudiantes han ocupado el edificio  
Students have occupied the building
- ([Delfitto and Schroten, 1991](#), p.155-156)

In the same way, Italian shows restrictions on bare plural nouns and mass nouns. For example, the structures in (9) show that mass nouns must be placed postverbally in order to spell out grammatical sentences.

- (9) a. \*Acqua viene giù dalle colline  
water comes down from-the hills  
'\*Water comes down from the hills.' (Italian)
- b. Viene giù acqua dalle colline  
comes down water from-the hills  
'Water comes down from the hills.' ([Longobardi, 1994](#), p.616)

What follows from the Arabic, Italian and Spanish examples, introduced above, is that the indefinite DPs require a special treatment in order to be eligible to occupy preverbal subject positions. [Chierchia \(1998\)](#), [Delfitto and Schroten \(1991\)](#) and [Longobardi \(2000\)](#) point out that bare plurals can occupy postverbal subject positions and object positions despite the fact they have no overt determiner. [Delfitto and Schroten \(1991\)](#) and [Longobardi \(2000\)](#) propose that the empty determiner is lexically governed by verbs, thus bare plurals are eligible in the said positions. By contrast, they argue that bare plurals cannot occupy preverbal subject positions since in that position, they are not governed.

## 2 The puzzles

The central puzzle addressed in this thesis is that when indefinite DPs are modified they become licensed in preverbal subject positions. Focusing on Arabic, I propose three kinds of licensing elements that modify indefinite DPs to help them appear in preverbal subject positions. I begin with licensing by adjectives. The idea is that, when the indefinite DPs of the ill-formed structures in (6) are modified, the structures become well-formed as illustrated in (10).

- (10) a. *radʒul-u-n      ʔawēl-u-n      daxala ʔal-maktab-a*  
*man-NOM-NUN tall-NOM-NUN entered the-office-ACC*  
 ‘A tall man entered the office.’ (SA)
- b. *waladi-n malgõfi-n      kesar ʔal-findzāl*  
*boy-NUN naughty-NUN broke the-cup*  
 ‘A naughty boy broke the cup.’ (SUD)

Interestingly, when indefinite DPs are modified by the adjectives *ʔawēlu-n* ‘tall’ and *malgõfi-n* ‘naughty’, they become eligible to occupy the preverbal subject positions in SVO order, which in turn results in the grammaticality of the examples in (10) in SA and SUD.

The second licensing element I am reviewing is the diminutive. Diminutives, as a kind of modification, can license indefinite DPs in preverbal subject positions in SA and SUD; see (11a) and (11b) respectively.

- (11) a. *rudʒeil-u-n                      daxala ʔal-maktab-a*  
*man-DIM-NOM-NUN entered the-office-ACC*  
 ‘A small man entered the office.’ (SA)
- b. *wlaidi-n              kesar ʔal-findzāl*  
*boy-DIM-NUN broke the-cup*  
 ‘A small boy broke the cup.’ (SUD)

We notice that when the indefinite preverbal subject DPs *radʒulu-n* and *waladi-n* are diminutivized, they are allowed to appear in preverbal subject positions.

The third type of modification that can license indefinite DPs in preverbal subject positions is the indefinite construct state (CS). Indefinite DPs that are members of CSs' constituents are able to occupy preverbal subject positions as illustrated by the example (12a) for SA and (12b) for SUD.

- (12) a. radʒul-u ʔammn-i-n daxala ʔal-maktab-a  
 man-*NOM* security-*GEN-NUN* entered the-office-*ACC*  
 'A security man/policeman entered the office.' (SA)
- b. walad mdarrisi-n kesar ʔal-findʒāl  
 boy teacher-*NUN* broke the-cup  
 'A teacher's son broke the cup.' (SUD)

It can be observed that the indefinite CSs license the indefinite DPs so that they can appear in preverbal subject positions.

What follows from the examples (10-12) is that the role of modifiers goes beyond its simple function of modification. Rather, there appear to be cases where modifiers extend the distributions of DPs and help occupy otherwise restricted environments, as we have seen above.

The phenomena of licensing by modification is not limited to Arabic. For instance, what happens in SA and SUD is similar to what happens in French (Mathieu, 2012b), Spanish (Suñer, 1982; Contreras, 1986) and Italian (Delfitto and Schrotten, 1991). First consider French.

- (13) a. \*J'ai lu de romans l'été dernier  
 I.have read DE novels the-summer last  
 Intended: 'I read (some) novels last summer.'
- b. J'ai lu de bons romans l'été dernier  
 I.have read DE good novels the-summer last  
 'I read good novels last summer.'
- c. \*De romans ont été publiés l'été dernier  
 DE novels have been published the-summer last  
 Intended: '(Some) novels were published last summer.'
- d. De bons romans ont été publiés l'été dernier  
 DE good novels have been published the-summer last

'Good novels were published last summer.' (Mathieu, 2012b, p.2-5)

The *de* nominals (so called by Mathieu) *romans* 'novels' in examples (13a&c) lack a prenominal modifier. This results in ill-formedness of both structures (13a) and (13c). The expression *de romans* occupies two different syntactic positions. It occupies an object position in (13a) and a subject position in (13c). It can be noticed that when the noun *romans* is prenominally modified by *bons* 'good', it results in grammatical structures, as seen in (13b) and (13d).

Independently, it has been shown that Spanish bare plurals can occupy preverbal subject positions if they are modified. Suñer (1982) argues that bare DPs cannot appear as preverbal subjects unless they are modified (e.g., by an adjective) as shown in (14).

- (14) a. \*Abogados vivían allí  
           lawyers    lived there  
           '\*Lawyers lived there.'
- b. Unos abogados (buenos) vivían allí  
           some lawyers (good) lived there  
           'Some (good) lawyers lived there.' (Suñer, 1982, p.210)

The grammaticality of (14b) is a result of the modification of the indefinite preverbal subject by the adjective *buenos* 'good'.

A similar case is found in Italian. Having investigated the distribution of mass nouns in Italian, Delfitto and Schroten (1991) argue that mass bare singular nouns occupying preverbal subject positions require an adjectival modifier to spell out correctly as represented in (15).

- (15) a. \*Acqua scende dalle colline  
           'Water comes down from the hills'
- b. Acqua fresca e limpida scende dalle colline  
           water fresh and limpid comes-down from-the hills  
           'Fresh and limpid water comes down from the hills.'

(Delfitto and Schroten, 1991, p.181)

The sentence (15a) is ruled out since it was initiated by an indefinite mass noun. Its well-formed version (15b) is a result of adding the adjectival modifiers *fresca* ‘fresh’ and *limpida* ‘limpid’.

The data from different languages show that the role of modification goes beyond its basic role of modifying, but positively contributes to the distribution of indefinite DPs. We notice that indefinite DPs in the discussed languages cannot appear in preverbal subject positions. However, when they are modified they appear in the said positions.

The puzzle I mentioned earlier raises some theoretical questions which I intend to address in this thesis. These questions appear in (16).

- (16) (i) How can indefinite DPs be licensed in otherwise non-licit positions?  
(ii) What are the syntactic requirements that help indefinite DPs appear in preverbal subject positions?

The main hypothesis I propose is articulated in (17).

Main hypothesis:

- (17) Modification coupled with nunation can license indefinite DPs to appear in preverbal subject positions, with modifiers and nunation each contributing to half of a determiner.

Prior to the investigation of the role of modification in licensing indefinite DPs in preverbal subject positions, I should first prove that preverbal subjects do exist in Arabic. The idea is that, there are a few studies that claim that Arabic has only one subject position (i.e., the postverbal subject position). The preverbal position in these views is a topic position (Al-Balushi, 2011; Al-Horais, 2009; Soltan, 2006). In this thesis, I will show that preverbal subjects are strongly present in Arabic; this issue will be discussed in §2.

In support of the theoretical claim that unmodified indefinite DPs have a restricted distribution in preverbal subject positions, the present thesis includes an experimental task that probes Arabic native speakers’ treatment of indefinite DPs in preverbal subject positions. It also investigates their preference and processing of preverbal and postverbal subjects in general.

The second puzzle addressed in this thesis is the derivation of CSs. The derivation of CS structures, as complex DPs, differs from the derivation of simple DPs. That is, Arabic simple

DPs are derived by means of N-to-D movement. However, CS structures cannot be derived using the same tool (i.e., N-to-D movement). The ultimate phonological form of the CS is much more complex than a derivation by N-to-D movement. The CS structure has been subjected to different analyses. There is no unified consensus, that I am aware of, on the derivation of the CS structure; is it derived in the lexicon, in the syntax or at the phonological component? I will provide an analysis that will account for the complex derivation of the CS structure.

A construct state structure consists of two nouns (a head noun and at least one genitive noun) and an article, *ʔal* in the case of definiteness (18a) or nunation in the case of indefiniteness (18b).

- (18) a. kitāb-u    **ʔal**-walad-i  
           book-*NOM* the-boy-*GEN*  
           ‘the boy’s book’
- b. kitāb-u    walad-i-**n**  
           book-*NOM* boy-*GEN-NUN*  
           ‘a boy’s book’

Two observations follow from the examples in (18): first, the (in)definite article is attached to the genitive noun, not to the head noun; second, the placement of the article (the definite article is placed before the noun whereas the indefinite article is placed after the noun). These observations need to be accounted for. The previous approaches that have investigated the CS structure assume that the  $D^0$  position is generated empty. They also assume that the Spec of the NP is occupied by another DP, called genitive DP. None of the studies, to the best of my knowledge, have analyzed the CS structure on the basis of its types and the relationships between its nominal constituents. More importantly, none of these studies explain the process of attaching the determiner to the genitive NP. The puzzle of the CS derivation poses two interesting questions, as stated in (19), leading me to propose the sub-hypothesis in (20).

- (19) (i) Does the derivation of CS structures differ from simple DPs and how?  
       (ii) How is the determiner (*ʔal* or *nunation*) attached to the genitive NP?

Sub-hypothesis I:

- (20) The derivation of CS structure is a shared process between the syntax proper and the phonological component. The former places the lexical constituents of the CS in the correct order whereas the latter, using movement operations after-syntax, attaches the determiner to the rightmost genitive NP.

Based on this hypothesis, I will provide an account that will answer the questions and solve the puzzle related to the CS derivation.

The third puzzle discussed in the current thesis is the role of nunation in building Arabic indefinite DPs. The linguistic status of nunation has been a controversial issue for decades. There is no general agreement among researchers on the status of nunation whether its presence is to provide indefinite determination or whether it is present merely for phonological reasons. I assume that the status of nunation remains unclear because of two issues. First, nunation cannot act as a full indefinite determiner. This is clear because nunation is not strong enough to provide full determination to indefinite DPs in order to appear as subjects in preverbal positions. Therefore, modification is required to aid nunation to license indefinite DPs in the said subject positions. By contrast, the second issue with nunation is that it cannot be missing from indefinite DPs even in the presence of modification; see the examples (21) for illustration.

- (21) a. \*radʒul-u-n daxala ʔal-maktab-a  
 man-*NOM-NUN* entered the-office-*ACC*  
 Intended: ‘A man entered the office.’ \*(+ nunation/ - modification)
- b. \*radʒul-u- ʔawēl-u-n daxala ʔal-maktab-a  
 man-*NOM*- tall-*NOM-NUN* entered the-office-*ACC*  
 Intended: ‘A tall man entered the office.’ \*(-nunation/ + modification)
- c. radʒul-u-n ʔawēl-u-n daxala ʔal-maktab-a  
 man-*NOM-NUN* tall-*NOM-NUN* entered the-office-*ACC*  
 ‘A tall man entered the office.’ √(+ nunation/ + modification)

What follows from these examples is that the role of nunation in building indefinite DPs cannot be ignored. Consequently, I want to answer the questions in (22) that lead me to propose the sub-hypothesis in (23).

- (22) (i) What is the linguistic purpose of nunation, is it a phonological linker or a syntactic head?
- (ii) How does nunation contribute to the building of Arabic indefinite DPs?

Sub-hypothesis II:

- (23) Since nunation cannot provide full determination in the same way as the English indefinite article *a* for example, I argue that nunation is a weak determiner that needs some sort of augmentation in certain syntactic positions.

I will show that the syntactic and semantic role of nunation cannot be ignored in building Arabic indefinite DPs.

The theoretical assumption for the derivation of SVO order versus VSO order, that will be proposed in this thesis, claims that: **a**) the derivation of SVO order requires the subject to move from [Spec: VP] to [Spec: TP]; by contrast, VSO order does not require such a movement and **b**) non-modified indefinite DPs have a restricted distribution in preverbal subject positions (i.e., in SVO order). Building on these two claims, the experimental part of this thesis comes to support this assumption by investigating the preference (preferred distribution, SVO or VSO) and processing of SVO order and VSO order by two different groups, native speakers of Arabic (NS) and heritage speakers of Arabic (HS) whose dominant language is English.

Assuming that the derivation of SVO order differs from VSO order in the number of syntactic movements, the first experiment administered on NSs addresses the following questions:

- (24) (i) Which word order (VSO or SVO) do NSs prefer when performing a sentence reordering writing task?
- (ii) Will NSs employ indefinite DPs in preverbal subject positions?
- (iii) When performing an online self-paced reading task, will NSs show a significant difference in reaction time (RT) when processing subject words in VSO compared to SVO order?

Experimental hypothesis I:

- (25) NSs may process VSO structures faster than SVO structures since the former requires no movement of the subject whereas the latter requires the subject to move from [Spec: VP] to [Spec: TP]. They may not use indefinite DPs in preverbal subject positions.

The second experiment was administered on HSs. It addresses the questions in (26).

- (26) (i) Do HSs of Arabic, whose dominant language is English, prefer VSO or SVO order when using their native language?
- (ii) If a certain preference is found, is it affected by input received at home (parents' native language) or by the structure of the dominant language?
- (iii) When performing an online self-paced reading task, is there a significant difference in RT when processing subject words in SVO versus VSO order?
- (iv) Does L2 grammar affect HSs' L1 processing?

*Experimental hypothesis II:*

- (27) HSs may show a tendency toward using the SVO order (the dominant language order) when performing the sentence reordering writing task. When performing an online self-paced reading task, HSs may show difficulties in processing VSO order since this order is not attested in their dominant language.

The performance of the NSs and the HSs on the sentence reordering writing task and on the self-paced reading task are analysed and discussed in §6.

### 3 The general proposal

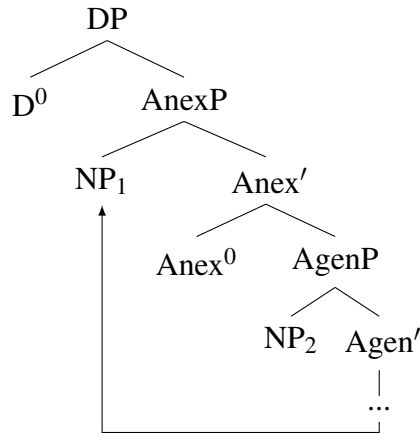
I argue that Arabic indefinite DPs can occupy preverbal subject positions if two elements are present: modification and nunation. Adopting the syntactic visibility theory put forth by [Giusti \(2002\)](#), I propose that the head visibility (i.e., the presence of nunation) and the specifier visibility (i.e., the presence of a modifier) are required to work conjointly in order to license indefinite preverbal subject DPs in SA and SUD; see [\(28\)](#) for the syntactic representation of visibility conditions.

- (28)
- $$\begin{array}{c}
 \text{XP} \\
 \swarrow \quad \searrow \\
 \varepsilon \quad \text{X}' \\
 \quad \swarrow \quad \searrow \\
 \quad \delta \quad \text{NP}
 \end{array}$$

Syntactic visibility conditions require  $\varepsilon$  and  $\delta$  to be visible to the NP in order to form an intact DP that can occupy an argumental position, the preverbal subject position in our case.

Considering the derivation of the CS structure, I propose that the derivation of CSs should take place in the syntax proper and at PF. In other words, phrasal movement raises the head noun (NP<sub>1</sub>) of the CS to the Spec position of a higher phrase, which I call *Annexation Phrase* (AnexP). I also show that there are different types of CSs such as agentive, possessive and adjectival CSs. The type of the CS projects a phrase which is dominated by the AnexP. The schematic (29) illustrates my proposal of the CS structure which is an example of the agentive CS.

(29)



The proposed phrasal movement spells out (30) according to its syntactic hierarchy.

(30) \*D NP<sub>1</sub> NP<sub>2</sub>

It seems that the syntax proper fails to attach D to NP<sub>2</sub>. Therefore, I propose that the movement operations after-syntax (a PF movement) in the sense of Embick and Noyer (2001, 2007), specifically the *Lowering* movement, can deploy D and attach it to the genitive NP resulting in the correct form, NP<sub>1</sub> NP<sub>2</sub>-D.

In a similar way, I propose that the formation of Arabic indefinite diminutives is achieved by two processes in the syntax proper and one process at PF. For the syntactic part, the diminutivized noun is derived by inserting the diminutive morpheme into the target stem using the readjustment rule and the process of infixation. The derivation starts from the root until the full form is coined. For the PF part, the *Lowering* movement deploys nunation from D<sup>0</sup> position to the left

of the diminutivized noun; this movement will spell out the correct phonological form of the diminutivized DP.

As far as the status of nunation is concerned, I propose that nunation is an indefinite article that denotes indefiniteness. It also has a syntactic role; it provides the syntactic determination with the help of lexical elements. I argue against the studies that claim that the presence of nunation is attributed to phonological reasons. I will show that the idea that nunation neither has a syntactic role nor a semantic one is not on the right track.

With regard to the experimental part of this thesis, I propose that, because the derivation of SVO order requires more syntactic movements than the derivation of VSO order, SVO order may require more processing time than VSO order. I also propose that NSs will not use unmodified indefinite DPs in preverbal subject positions when performing the sentence reordering writing task since these nouns cannot occupy preverbal subject positions. As far as HSs are concerned, I propose that their dominant language (English) grammar may affect the heritage language (Arabic) grammar.

## 4 Theoretical assumptions

The current thesis takes the Minimalist Program (MP) (Chomsky, 1993, 1995, and subsequent work) and Distributed Morphology (DM) (Embick and Noyer, 2001, 2007; Halle and Marantz, 1993a; Marantz, 1997) as theoretical assumptions. In general, the concept of MP is adopted in this study. For example, movement operations (covert movements) that are triggered by weak feature-checking should be postponed until logical form (LF) respecting the *the principle of Procrastinate* (Chomsky, 1995). By contrast, movement operations (overt movements) triggered by strong feature-checking should take place in the syntax proper. For instance, Chomsky assumes that verbs in English-like languages do not move in the overt syntax due to weak V-feature of T;

therefore, they move at LF for economy condition reasons. By contrast, he argues that English subject NPs raise to [Spec: TP] because the NP-feature of T is strong. Chomsky's proposal of economy conditions can be extended to Arabic, a VSO/SVO language. Arabic allows both overt/covert movements of the subject NPs to [Spec: AgrP/TP]. These movements depend on the strong/weak NP-feature of T.

In the same way, the study takes advantage of the MP's preferred overt movement (the phrasal movement) as long as the anti-locality constraint put forth by Abels (2003) is maintained. Anti-locality constraint dictates that a complement of a certain head cannot move to its specifier.

I should point out that some of the MP concepts that seem to take an extreme position are not adopted in this study such as Chomsky's (2001b) argument that head movement should take place at PF instead of the syntax. Likewise, the Agree-based concept is not adopted in this study, thus feature-valuation is not assumed. Instead, feature-checking is assumed to take place by means of syntactic over/covert movements. Having adopted the feature-checking movement, this study uses the head movement as a pivotal tool in the discussion of the agreement system.

Following the DM model (Embick and Noyer, 2001, 2007; Halle and Marantz, 1993a; Marantz, 1997), this study assumes no lexicon. Instead, the derivation of lexical elements is performed by the syntactic component.<sup>2</sup> Therefore, lexical items (LIs) in the sense of MP are replaced by roots in the DM model. The terminal nodes in the view of DM are morphemes which are made of bundles of features. These features are phonological and grammatical on one hand, and syntactic-semantic on the other one. DM subdivides morphemes into two types: abstract morphemes (i.e., realized as functional elements) and roots (developed into larger units). DM also takes advantage of the phonological component in the case that the syntax proper fails to derive the proper structures.

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<sup>2</sup>I would like to point out that, for the purpose of clarity, I will be using phonologically realized morphemes (stems) in all Tree-examples instead of listing the features/roots of those morphemes. The concept remains DM-wise.

Subsequently, the current thesis adopts a number of theories that work within MP or DM. These theories are case-specific. I sequentially list them according to the chapters they appear in. I begin with the DP hypothesis proposed by [Abney \(1987\)](#). This hypothesis is a crucial theoretical framework for the derivation of DPs.

The complementizer phrase (CP)-layer specialization hypothesis proposed by [Goodall \(2002\)](#) is adopted in the study. He argues that preverbal DPs are subjects that are located within the domain of TP. By contrast, he argues that topic phrases or focus phrases are located within the CP-layer. This hypothesis helps establishing the difference between subjecthood versus topichood.

Following [Giusti \(2002\)](#) and [Mathieu \(2012b\)](#), I propose that the syntactic visibility conditions must be satisfied in order to license indefinite DPs in preverbal subject positions. These conditions require that the  $D^0$  position be filled by a determiner (nunation) and the specifier of the NP [Spec: NP] be filled by a modifier. Once satisfied, the indefinite DP becomes licensed to appear as preverbal subjects.

Following [Embick and Noyer \(1999, 2001, 2007\)](#) who argue for movement operations at PF, I argue that nunation and the diminutivized noun are merged at PF by morphological merger. The PF merger unites the elements that the syntax proper fails to join them. The process of merging nunation with diminutive nouns is performed by the *Lowering* movement that deploys nunation from the  $D^0$  position to the head of the  $D^0$  complement. Before I end this section, I want to point out that the study uses another PF movement proposed by [Embick and Noyer \(2007\)](#) in the sense of DM; it is the *Local-dislocation* movement. This movement is used to derive the correct phonological form of the definite CS.

## 5 Outline of the thesis

This thesis consists of four theoretically based chapters and one experimental chapter. The outline of the thesis proceeds as follows.

*Chapter Two. Stabilizing Subjecthood and Topichood:* The chapter aims to establish the difference between preverbal subject DPs and topic DPs. I will show that preverbal subjects and topics are radically distinct elements. I will begin the argument by a comprehensive review of the Arabic agreement system. I want to dispel the notion that claims that SVO structures always show full agreement (Subject-verb agreement) whereas VSO structures show defective agreement (Verb-subject agreement). I will provide examples from SA and from different Arabic dialects that show defective agreement in SVO structures and full agreement in VSO structures. I should point out that the asymmetry in the Arabic agreement system is the departing point for the argument that preverbal DPs are topics, not preverbal subjects (Al-Balushi, 2011, 2012; Soltan, 2007a). I will show that Arabic agreement system is symmetric. Thereafter, I will argue that preverbal DPs that are located within the domain of TP are subjects. They are originally base-generated in [Spec: VP], the thematic subject position. As a result of an XP movement, they land in the [Spec: TP]. By contrast, topic DPs are located within the domain of CP. Having established the difference between subjecthood and topichood, I proceed to chapter three.

*Chapter Three. Distribution and Licensing of DPs:* Arabic DPs show different syntactic distributions depending on the type of the structure they appear in (SVO or VSO) and on the semantic type of the DP (definite or indefinite). In other words, definite DPs are freely distributed in pre- and postverbal subject positions. By contrast, indefinite DPs do not behave in the same way as definite DPs. That is to say, indefinite DPs can occupy the postverbal subject positions in the VSO order. However, they cannot occupy the preverbal subject positions in the SVO order

unless they are licensed by modification. Three types of modification, *adjectives*, *diminutives* and *CSs* will be discussed in that chapter. I will show how modification and nunation working in tandem license indefinite DPs to occupy preverbal subject positions.

Chapter Four. Construct State: The derivation of CS remains an interesting linguistic puzzle in Semitic. Studies that have investigated CS have not reached a unified consensus on how CS is derived; is it derived lexically, syntactically or post-syntactically? Additionally, these studies mostly concentrate on the derivation of the definite CS; few, if any, studies have investigated the indefinite CS. I tackle the puzzle of CS within the framework of MP and DM. I want to argue that the CS derivation is a shared process between the syntax proper and the PF component. The idea is that, movement operations required to derive the correct linear order of the CS constituents should take place in the syntax proper. In the event the syntax proper fails to derive the correct linear order, movement operations after syntax will complete the derivation.

Chapter Five. Nunation: In that chapter, I want to provide an account of the linguistic property of nunation. I will argue that nunation has an important syntactic and semantic role in the derivation of indefinite Arabic DPs. Syntactically, nunation comes to fill the  $D^0$  position of the indefinite DPs; semantically, it denotes indefiniteness. I will show that nunation is a weak determiner since it cannot independently license indefinite DPs in certain environments. I will also argue that nunation is a phrasal enclitic that seals off indefinite DPs. The importance of discussing nunation stems from its relatedness to the structure of indefinite DPs which is directly connected to the theme of this thesis.

Chapter Six. Experimental Studies: That chapter forms the experimental part of the current thesis. It intends to explore the preference and processing of two different clause structures in Arabic, namely VSO and SVO by two different groups. The first group are native speakers of Arabic; they are from Saudi Arabia. The second group are heritage speakers of Arabic whose

dominant language is English. They are Canadian citizens living in Ottawa, Canada. The chapter is divided into two parts. The first part includes the primary study which investigates the NSs' preference and processing of VSO/SVO orders. The second part includes the preliminary study which addresses the same questions, but the participants are HSs.

*Chapter Seven. Conclusions:* That chapter concludes the thesis by summarizing the proposed analyses. It also points out some issues that need further investigation.



- b. \*kasara- $\tilde{o}$     ?al-mudarris- $\tilde{on}$     ?al-bāb-a  
 broke-*MS-PL* the-teacher-*MS-NOM.PL* the-door-*ACC*  
 Intended: ‘The teachers broke the door.’ (Full agreement in VSO)

The sentence in (1a) is well-formed. The verb is singular whereas the subject is plural. The sentence in (1b) is ill-formed because the verb is plural and the subject is plural as well. Conversely, full agreement (Subject-Verb agreement) is permitted in SVO orders (2a) but defective agreement is not (2b).

- (2) a. ?al-mudarris- $\tilde{on}$     kasar- $\tilde{o}$     ?al-bāb-a  
 the-teacher-*MS-NOM.PL* broke-*MS-PL* the-door-*ACC*  
 ‘The teachers broke the door.’ (Full agreement in SVO)
- b. \*?al-mudarris- $\tilde{on}$     kasara    ?al-bāb-a  
 the-teacher-*MS-NOM.PL* broke-*MS-SG* the-door-*ACC*  
 Intended: ‘The teachers broke the door.’ (Defective agreement in SVO)

In sentence (2a), the subject agrees in number, gender and person with the verb thus the sentence is correct. By contrast, when the verb loses the number agreement, it results in the ill-formedness of the sentence in (2b).

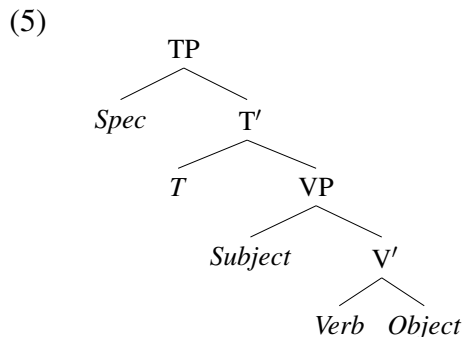
Based on the asymmetric behaviour of the agreement patterns with regard to word order, a controversial generalization has been formulated. A few studies (e.g., Al-Balushi, 2011, 2012; Al-Horais, 2009; Soltan, 2006, 2007a) argue that preverbal DPs in SVO orders are topics; they are not subjects. In other words, these studies argue that the subject of the structure in (2a) is not the preverbal DP *?al-mudarris- $\tilde{on}$*  ‘the teachers’; the subject is *null pro* that is identified by the agreement morpheme  $\tilde{o}$  attached to the verb *kasar* ‘broke’. Consequently, they argue that the preverbal DP *?al-mudarris- $\tilde{on}$*  is a topic. I should point out that the topic view<sup>2</sup> departs from the idea that SVO order strictly requires full agreement be present between preverbal DPs and the verbs.

<sup>2</sup>Throughout this thesis, I will use the term ‘the topic view’ to refer to the studies that claim that preverbal DPs are topics.



## 2 Subject positions in Arabic

The sentence word order, in Arabic, is determined by the subject position. If the subject appears preverbally, it gives an SVO order. By contrast, if the subject is placed postverbally, it gives a VSO order. The subjects in preverbal or postverbal positions are the result of syntactic movements. In other words, in the case of SVO order, the subject moves to a position higher than the verb position. In the case of VSO order, the verb moves to a position higher than the subject position. As far as these syntactic positions are concerned, different proposals have been suggested to account for the derivation of the subjects in Arabic. The following subsections briefly present these proposals. The first subsection discusses the VSO order derivation; there are four different proposals. The second subsection discusses the SVO order derivation; there are two proposals. The cornerstone of these discussions is the movement of the syntactic subjects from their canonical (original) position, the specifier of the verb phrase (henceforth [Spec: VP]) to a higher Spec position. Verbs might need to move from Verb-to-Tense (V-to-T) for tense and agreement feature checking. Before any syntactic movement takes place, the following (canonical) structure is proposed for Arabic:



The schematic in (5) shows that the specifier of the VP hosts the subject as an external argument whereas the complement of the VP hosts the object as an internal argument. The verb is generated in  $V^0$  position. Any word order that differs from the canonical distribution is assumed to have

undergone syntactic movements. Based on this assumption, I want to argue that the two different word orders, VSO and SVO found in Arabic are derived by different syntactic movements. I will present my argument in the following subsections.

## 2.1 Subjects in VSO order

Several proposals have been suggested to account for the distribution of subjects in VSO orders in Arabic. Syntactic movements, agreement and the canonical position of subjects and verbs form the fundamental argument of these proposals.

### 2.1.1 Two-subject position approaches

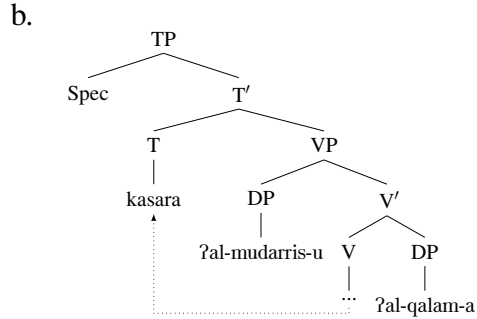
Al-Shorafat (2012), Benmamoun (1992, 2000a,b), Fassi Fehri (1989, 1993) and Koopman and Sportiche (1991) argue that the Arabic clause structure can offer two syntactic positions to host the subject. These positions are the *thematic subject position* [Spec: VP] and the *grammatical subject position* [Spec: TP].<sup>3</sup> They argue that when the subject occupies [Spec: VP], it results in VSO order; V-to-T movement is required however; see (6) below.

- (6) [TP [T' kataba [VP ?al-walad-u [V' .... ?al-wadʒib-a]]]].  
 [TP [T' wrote [VP the-boy-NOM [V' .... the-homework-ACC]]]].

As far as VSO is concerned, Aoun et al. (2010) argue that the subject originates in [Spec: VP]; [Spec: TP] may be left empty as shown by (7b) which is the syntactic representation of (7a).

- (7) a. kasara            ?al-mudarris-u            ?al-qalam-a  
       broke-*MS-SG* the-teacher-*MS-SG-NOM* the-pen-*ACC*  
       ‘The teacher broke the pen.’

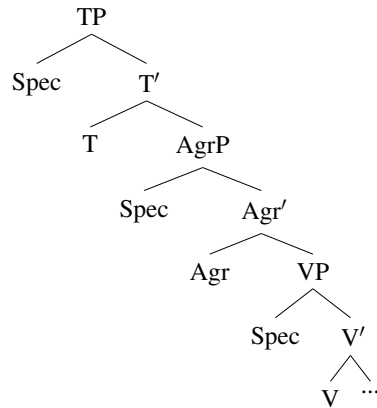
<sup>3</sup>Fassi Fehri (1993) argues that not all preverbal DPs are subjects, an idea which I agree with. I will elaborate on this issue in section (4).



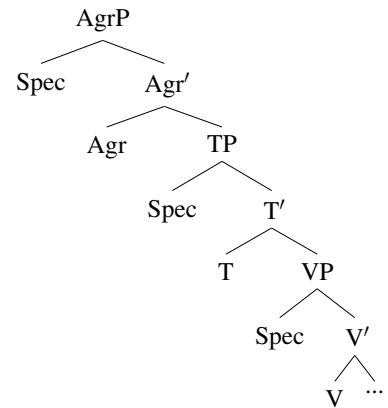
This proposal assumes no overt movement of the subject, which differs from English and French where the subject has to move from the thematic subject position [Spec: VP] to the grammatical subject position [Spec: TP] satisfying the Extended Projection Principle (EPP) (Landau, 2007). Instead, the subject remains in situ where it receives its nominative Case. In (7a), the linear word order, VSO, is achieved through the head movement of the verb from V-to-T resulting in the correct order as argued by Benmamoun (2000b, 2003), Emonds (1980) and Roberts (2001). Similarly, Fassi Fehri (1993) proposes that the subject in Arabic originates in [Spec: VP]. The VSO order is a result of raising V-to-T; however, the subject stays in situ.

Different word orders found in Arabic have been discussed by Ouhallah (1994). He argues that VSO languages including Arabic show functional projection hierarchies that are different from those found in SVO languages. In other words, Ouhalla suggests that in VSO languages, TP is higher than the agreement phrase (AgrP) (e.g., Arabic) whereas in SVO languages, following Chomsky (1991) and Belletti (1990), the AgrP is higher than the TP (e.g., French and English). He suggests (8a) and (8b) for the TP and AgrP hierarchy found in VSO, SVO respectively:

(8) a.



b.



Ouhalla argues that the structure proposed for SVO languages (8b) can account for the AgrP and TP hierarchy found in SVO languages such as French. The examples in (9) instantiate this argument:

- (9) a. Ils arrive -er -ont demain  
 they arrive -will -3P tomorrow  
 ‘They will arrive tomorrow.’

(French)

- b. \*Ils arrive -ont -er demain  
 they arrive -3P -will tomorrow

(Ouhallah, 1994, p.45)

It is clear that the tense morpheme *-er* ‘will’, precedes the agreement morpheme, *ont* ‘3P’, thus the functional heads hierarchy found in (9a) can be handled by the structure in (8b) since the word order it shows can fit into the proposed syntactic structure. By contrast, Arabic future tense in VSO has a different word order, which cannot fit into the functional hierarchy represented by (8b). Instead, Ouhalla proposed (8a) to account for the structure exemplified by (10a).

- (10) a. sa- ya- zuuru ?al-?awlaad-u xaala-hum  
 will 3SG visit the-boys-NOM uncle-their  
 ‘The boys will visit their uncle.’

- b. \*ya- sa- zuuru ?al-?awlaad-u xaala-hum  
 3SG will visit the-boys-NOM uncle-their

(Ouhallah, 1994, p.45)

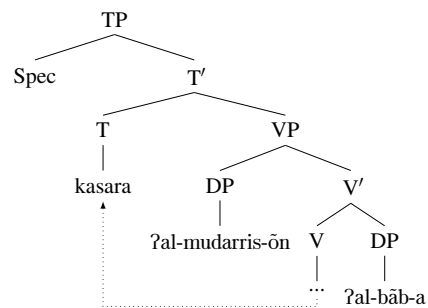
It can be noticed in (10a) that the tense morpheme *sa* ‘will’, precedes the agreement morpheme *ya* ‘<sub>3SG</sub>’. Because of the functional heads order, which is different from French and English, Ouhalla suggests (8a) and argues that it accounts for the Arabic VSO order. As far as the subject position in Arabic is concerned, Ouhalla argues that the proposed structure in (8a) provides two subject positions [Spec: VP] and [Spec: AgrP]. The former is the thematic subject position where the subject is first generated. The latter position [Spec: AgrP] is the structural (grammatical) subject position.<sup>4</sup> He also suggests that [Spec: TP] is a third option in the case of SVO order. Ouhalla’s proposal accounts for different word orders not only in Arabic but also for similar VSO languages.

### 2.1.2 One subject position approaches

The second kind of proposals puts Arabic among the languages which have only one subject position. This unique subject position is [Spec: VP] (Al-Balushi, 2011, 2012; Al-Horais, 2009; Soltan, 2006, 2007a). The [Spec: VP] can be occupied by a noun as illustrated by (11a) and schematized in (11b). In the absence of the lexical subject, the [Spec: VP] can be occupied by *null pro*, which is morphologically identified by the plural number morpheme attached to the main verb; see (12a&b).

- (11) a. *kasara*            *ʔal-mudarris-õn*            *ʔal-bāb-a*  
          broke-*MS-SG*   the-teacher-*MS-NOM.PL*   the-door-*ACC*  
          ‘The teachers broke the door.’

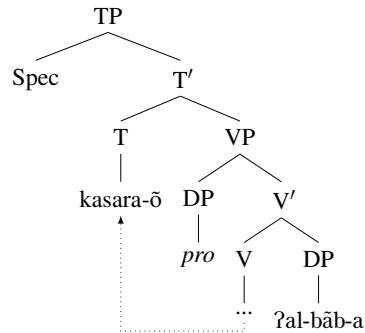
b.



<sup>4</sup>The terms *structural subject (position)* and *grammatical subject (position)* will be used interchangeably. Both terms refer to [Spec: TP].

- (12) a. kasara-ō      ?al-bāb-a  
 broke-*MS-PL* the-door-*ACC*  
 ‘They broke the door.’

b.



As shown in (12b), the thematic subject position, [Spec: VP] is occupied by a *null pro* subject that represents the lexical subject *?al-mudarris-ōn* ‘the teachers’. [Al-Balushi](#), [Al-Horais](#) and [Soltan](#) argue that there is only one subject position, namely, [Spec: VP]. They contend that there are no preverbal subjects in Arabic. Those DPs, which appear preverbally, are topics and not real subjects; the real subjects, according to their proposal, are the subjects that appear postverbally. Their view puts Arabic among VSO languages that do not have an SVO order as an alternative one. The core argument of their proposal springs from the asymmetric subject-verb agreement shown by the two different word orders, VSO and SVO.

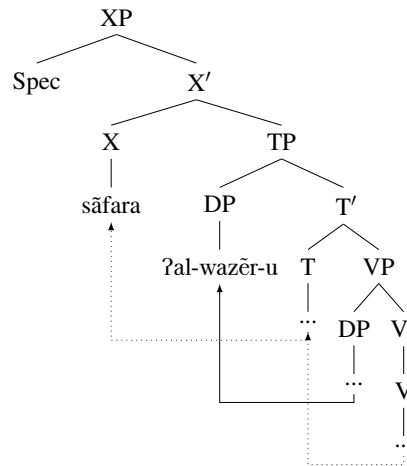
### 2.1.3 Beyond the TP subject position

The third kind of proposals for the subject position in VSO, put forth by [Aoun et al. \(1994\)](#) and [Aoun et al. \(2010\)](#), assumes that both the subject and the verb are outside of the VP domain. They introduced an alternative suggestion to their first proposal. They propose that the subject is generated in [Spec: VP] then it moves to the [Spec: TP].<sup>5</sup> The verb is base-generated in V then it cyclically moves to T, then it moves to the head of a higher projection, call it X. The position of X should be below CP as indicated by the example (13a&b).

<sup>5</sup>Henceforth, black arrows show phrasal movement; dotted arrows show head/N-to-D movement.

- (13) a. *sāfara*                    *ʔal-wazēr-u*  
 travelled-*MS-SG* the-minister-*MS-SG-NOM*  
 ‘The minister travelled.’

b.



They argue that the subject movement, [Spec: VP] to [Spec: TP], is required for nominative Case checking. Additionally, the verb moves cyclically from V-to-T-to-X in order to achieve VSO order. They also argue that Arabic is different from French and English since the verb can move further beyond TP. Minimalistically, this proposal seems costly and not economic. We should use syntactic movements as a last resort. If there is no need for a syntactic movement, do not move (Chomsky, 1995). Looking at (13b), the verb *sāfara* ‘travelled’ moves cyclically from its base-generated position V-to-T-to-X; X is the head of the new projection. Moreover, the subject *ʔal-wazēr-u* ‘the minister’ moves from [Spec: VP] to [Spec: TP]. These movements are not justified for two reasons. First, if it is assumed that the noun moves in order to check for nominative Case, the assignment of the nominative Case can be achieved by moving the subject DP from [Spec:VP] to [Spec: AgrP] as suggested by Ouhallah (1994). Second, agreement checking can also be achieved by the same movement.

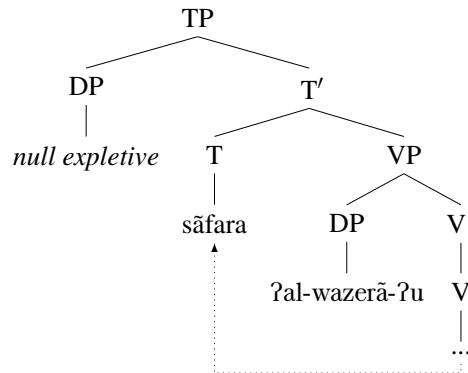
#### 2.1.4 Null expletive hypothesis (Mohammad’s (2000) view)

Different views have discussed defective agreement, in Arabic, between the postverbal subjects and the verbs preceding them. Some linguists argue that [Spec: TP] is left empty in the

case of VSO order. The subject remains in situ, precisely, in [Spec: VP]. The correct spelled out word order is a result of the verb moving from V-to-T; [Spec: TP] remains empty (Fassi Fehri, 1989, 1993; Koopman and Sportiche, 1991, among others). Mohammad (2000) supports the same proposal as far as the V-to-T movement is concerned. Nevertheless, he suggests a different proposal for the status of [Spec: TP]. He argues that the VSO order has two subjects: (a) the main subject occupying the thematic subject position [Spec: VP], which he calls the ‘*real subject*’, and (b) the ‘*null expletive*’, which occupies the grammatical subject position [Spec: TP] as shown by the following example:

- (14) a. sāfara   ʔal-wazerā-ʔu  
 travelled the-ministers-*NOM*  
 ‘The ministers travelled.’

b.



His proposal is based on the notion that defective agreement exists between the subject and the preceding verb in VSO. Mohammad assumes that there is a singular element, which dictates agreement to the verb making the latter singular despite the postverbal subject being plural. I do not think this proposal is empirically well supported. We will see in this chapter how full agreement in VSO structures challenges this proposal.

## 2.2 Subjects in SVO order

The distribution of preverbal subjects is an intriguing topic among contemporary linguists. As far as SVO order is concerned, two different views are proposed in the literature. The first

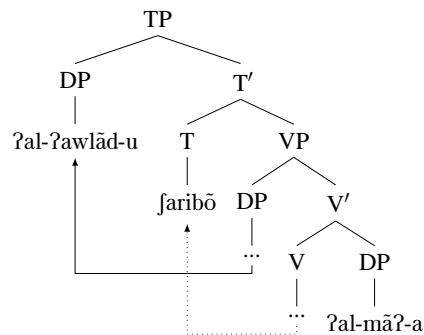
view, *structural subject view*, assumes that subjects occupying [Spec: TP] are initially generated in the thematic subject position [Spec: VP], then they move higher up into [Spec: TP]. The second view, *the topic view*, argues that DPs that occupy [Spec: TP] are not real subjects; instead they are topics. The two views will be discussed in details in the subsequent subsections.

### 2.2.1 Structural subject view

Many studies that investigated SVO order in Arabic (e.g., Belletti, 1990; Benmamoun, 2000b, 2008; Fassi Fehri, 1993; Koopman and Sportiche, 1991; Mohammad, 1988, 1999, 2000; Ouhallah, 1994; Ritter, 1991) assume that the preverbal DPs occupying [Spec: TP] are grammatical (structural) subjects. They are base-generated in [Spec: VP]. As the result of the XP movement, they move from [Spec: VP] to [Spec: TP] as can be seen in (15).

- (15) a.  $\text{ʔal-ʔawlād-u}$   $\text{ʔaribō}$   $\text{ʔal-māʔ-a}$   
 the-boys-*NOM* drank the-water-*ACC*  
 ‘The boys drank the water.’

b.



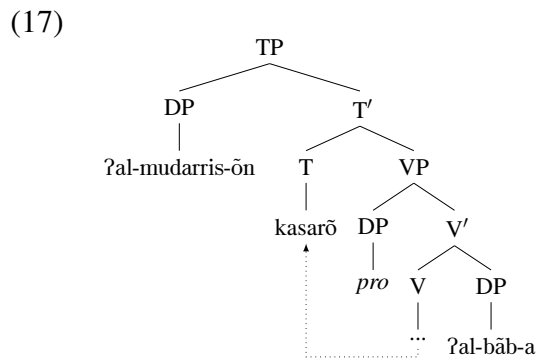
In the previous syntactic tree, the subject  $\text{ʔal-ʔawlād-u}$  ‘the boys’ moves from [Spec: VP], the thematic subject position, to [Spec: TP], the structural (grammatical) position; V-to-T movement of the verb takes place as well. This idea is acceptable by the vast majority of studies that have investigated word order in Arabic.

### 2.2.2 Topic view and null pro subject

Following the traditional Arab grammarians, this view that I term '*the topic view*', considers the preverbal DPs topics. This proposal, advanced by Al-Balushi (2011, 2012), Al-Horais (2009) and Soltan (2006, 2007a), claims that the DPs occupying [Spec: TP] in SVO structures are not subjects but topics as exemplified by (16).

- (16) *ʔal-mudarris-õn*      *kasar-õ*      *ʔal-bāb-a*  
 the-teacher-*MS-NOM.PL* broke-*MS-PL* the-door-*ACC*  
 'The teachers broke the door.'

According to Al-Balushi, Al-Horais and Soltan's view (henceforth, Al-Balushi and others), the preverbal DP *ʔal-mudarris-õn* 'the teachers', in (16) is considered a topic. Their claim follows from two different arguments, the traditional Arabic grammar (Sibawayh, 764-96)<sup>6</sup> on the one hand, and the subject-verb full agreement and the *null pro* theory on the other hand. The argument springs from the idea that the thematic subject position [Spec: VP] is occupied by *null pro* which co-indexes with the topic located in [Spec: TP]. The topic does not undergo an XP movement from [Spec: VP] to [Spec: TP]; instead, it is base-generated in [Spec: TP] as shown in (17).



This view assumes that the thematic subject position [Spec: VP] is occupied by *null pro*. The *null pro* is phonetically identified at the interface by the plural agreement morpheme, *-õ* which

<sup>6</sup>Sibawayh is an Arabian philologist who lived between 764 and 796. He classified the sentence structure in Arabic into two types:

1. Nominal sentences (sentences that are initiated by a noun) that is SVO in contemporary linguistics.
2. Verbal sentences (sentences that are initiated by a verb) that is VSO.

is attached to the verb. Al-Balushi and others' claim of the *null pro* stems from the following examples:

- (18) a. sa-jaʔkul      ʔal-ʕinab-a  
           will-eat-*MS-SG* the-grapes-*ACC*  
           ‘He/It<sub>MS</sub> will eat the grapes.’  
       b. sa-jaʔkulõn    ʔal-ʕinab-a  
           will-eat-*MS-PL* the-grapes-*ACC*  
           ‘They will eat the grapes.’

Looking at (18a&b), we notice that there is no lexical or pronominal subject.<sup>7</sup> All we have in both sentences are morphological agreement elements that tell us about the *syntactic* identity of the real subjects. In sentence (18a), the 3<sup>rd</sup> masculine singular morpheme, which is the inherent default feature,<sup>8</sup> indicates that the syntactic subject of the clause is a masculine singular mobile thing ( $\pm$  human). Similarly, in sentence (18b), the masculine plural morpheme tells us that the subject is a masculine plural mobile thing ( $\pm$  human). Notice that the agreement morphemes are not able to disambiguate the semantic interpretations of the real subjects. We cannot tell if the subject is human or non-human in these structures. The lack of lexical or pronominal subjects in (18) and the availability of agreement markers are behind the topic argument and the *null pro* proposal suggested by Al-Balushi and others.

I assume that Al-Balushi and others are in agreement on two proposals but differ on the third one. First, they agree on the idea that Arabic preverbal DPs are base-generated in [Spec: TP] as topics. Second, they claim that, in SVO structures, the presence of *pro* in the thematic subject position [Spec: VP] is directly related to rich agreement which the language exhibits. However, they differ on the analysis of *pro* itself.

<sup>7</sup>Some studies (e.g., Platzack, 2004) argue that the agreement morpheme in *jəħdur-õn* is a pronominal subject, but this argument may not be born out. I will explain this in section (3.1.4).

<sup>8</sup>I mean by the inherent default feature that it is always present in the verb. For example, if we look up the verb '*katab: wrote*' in an Arabic dictionary, we will not find the  $\sqrt{ktb}$ . Instead, we find the verb as *katab* which is the sum of:  $\sqrt{ktb} + 3SG + MS$ ; the insertion of the vowels between the consonants is required.

Al-Balushi (2011) argues that *pro* is merged in [Spec: v\*P] with two roles (semantic and phonetic). Semantically, it co-indexes with the topic DP in [Spec: TP] while remaining in its base-generated position. Phonetically, it raises to T<sup>0</sup> and agglutinates to the verb to form the agreement morpheme, which in turn becomes the subject pronoun. His proposal is a reconciliation of two views: for the semantic role and co-indexation, he follows Soltan (2006); for the phonetic role, he follows Platzack (2004). It can be inferred from the discussion above that Al-Balushi argues for a phonetically realized *pro* subject at the linear order. The preverbal DP located in [Spec: TP] is considered a topic. Al-Balushi builds his argument on the idea that verbs never agree with their subjects in VSO structures. He states the following:

- (19) *"Since SA verbs never agree with their objects and never agree with their subjects in terms of [Number], then the SA I<sup>0</sup> and v\*<sup>0</sup> are f-incomplete, hence f-defective, except in the SVO order where there is no overt subject."*

(Al-Balushi, 2011, p.158)

In section (3.1), I will provide evidence that counters Al-Balushi's conclusions. I will show that full agreement in VSO undermines this generalization.

With regard to *null pro*, Soltan (2006, 2007a) and Al-Horais (2009) propose a slightly different analysis from Al-Balushi. They argue that [Spec: VP] is occupied by *null pro* which co-indexes with the full DP located in the [Spec: TP]. Building on a previous work on *null subject* languages discussed by Holmberg (2005, 2009) and Olarrea (1996) on one hand, and the *agree-based* proposal suggested by Chomsky (2001a,b) on the other hand, they explain that the morpheme attached to the verb serves as a morphological agreement element that identifies the *null pro* subject; it is not a pronominal subject as proposed by Platzack (2004) and partially adopted by Al-Balushi (2011). They, Al-Horais and Soltan, argue that full agreement is a reflection of or an indication for the presence of *null pro*. Their argument was grounded on the idea that, in SVO structures, full agreement always holds between the subject and the verb. In section (3), I

will argue against this proposal specifically and against the topic view in general. I will show that preverbal DPs in SVO structures are grammatical subjects occupying [Spec: TP]; they are not topics. I agree with Al-Balushi and others that there are topic DPs in Arabic, like any other natural language. However, these DPs occupy a syntactic position which is different from the preverbal subject position; this issue will be elaborated on in the following section.

### **3 Agreement system**

Many studies have investigated the agreement system of Arabic. Most of these studies have argued that there are two types of agreement, namely full agreement and defective agreement. It is generally assumed that each type is linked to a certain word order. In other words, full agreement is always linked to SVO structures; defective agreement is always linked to VSO structures. Since the agreement system is crucial to the distribution and licensing of subject DPs in SA and in SUD, I argue that there are two problems with the above-mentioned assumption, a structural problem and theoretical problem.

For the structural issue, it does not account for full agreement in VSO structures and defective agreement in SVO structures in SA and in different dialects of Arabic. The second problematic issue of this assumption is theory-based. In other words, two theoretical arguments have been generated based on the full/defective agreement assumption. First, the *null expletive* theory suggested by [Mohammad \(2000\)](#) is built on the idea that VSO full agreement is not attested in SA. Second, the *null pro* theory put forth by Al-Balushi and others claims that the *null pro* subject is triggered by full agreement found in SVO structures. Consequently, they claim that there are no preverbal subject DPs in SA since the subjects in their view are *pro*. The preverbal DPs are topics; they are not subjects. Their claim is fundamentally based on falsely absorbed notions. These notions are:

- (20)
- Full agreement is only manifested in SVO structures.
  - Defective agreement is only manifested in VSO structures.
  - Preverbal DPs are topics; they are not grammatical subjects (claimed by Al-Balushi and others).
  - Indefinite DPs cannot be placed in preverbal subject positions. They only appear postverbally.

Prior to discussing licensing indefinite DPs in preverbal subject positions, I want to dispel common misconceptions about the pseudo-facts listed in (20). My argument will demonstrate the inaccuracy of the first two points in (20) by providing examples, from different dialects found in the Arab world and from SA, that show defective agreement in SVO structures and full agreement in VSO structures. This, in turn, will result in unwanted consequences for the advocates of the *null expletive* and *null pro*. For the last two items listed in (20), I will argue that preverbal DPs can be grammatical subjects occupying [Spec: TP] positions.

The discussion of agreement system proceeds as follows: section 3.1 introduces examples from different Arabic dialects and from SA that show full agreement in VSO structures. We will, subsequently, see how these examples are problematic for the theories of *null expletive* and *null pro*. Section 3.2 introduces examples from SUD and SA that show defective agreement in SVO structures. Thereafter, I discuss the theoretical consequences of these examples on the proposed agreement-based theories.

### 3.1 Full agreement in VSO

It is highly acknowledged in the literature, which discusses the agreement variations in Arabic, that subject-verb full agreement can be found in SVO sentences but not in VSO. However,

there are instances where we can find clauses that show full agreement in VSO sentences as well. I will start with examples from different Arabic dialects found across the Arab nations. Thereafter, more examples from SA will be provided.

### 3.1.1 VSO full agreement in SUD

First, I start with examples from SUD that show full agreement in the VSO order. The postverbal subjects fully agree with the verbs as shown by (set a) sentences (21-29a). Noticeably, when the verbs lose plural agreement, it leads to ill-formedness of the sentences as shown by (set b) sentences (21-28b).

- (21) a. waṣlaō           ʔaḍ-ḍifān  
arrived-*MS-PL* the-gust-*MS-PL*  
'The gusts arrived.'
- b. \*waṣl           ʔaḍ-ḍifān  
arrived-*MS-SG* the-gust-*MS-PL*
- (22) a. sāfarō           ʔaxwāni  
travelled-*MS-PL* brother-*MS-PL-my*  
'My brothers travelled.'
- b. \*sāfar           ʔaxwāni  
travelled-*MS-SG* brother-*MS-PL-my*
- (23) a. rqədō           ʔal-ʕwāl  
slept-*MS-PL* the-child-*MS-PL*  
'The children slept.'
- b. \*rqəd           ʔal-ʕwāl  
slept-*MS-SG* the-child-*MS-PL*
- (24) a. ḍrebō-k           ʔaredʒādʒēl  
beat-*MS-PL-you* the-man-*MS-PL*  
'The men beat you.'
- b. \*ḍarab-k           ʔaredʒādʒēl  
beat-*MS-SG-you* the-man-*MS-PL*

(25) a. ?iftəra-n      ?al-mdarrsāt      ?að-ðahab  
bought-*FM-PL* the-teacher-*FM-PL* the-gold  
'The (female) teachers bought the/some gold.'

b. \*?iftəra-t      ?al-mdarrsāt      ?að-ðahab  
bought-*FM-SG* the-teacher-*FM-PL* the-gold

(26) a. shaf-wa      al-mdars-een      aT-Taalib  
saw-*MS-PL* the-teacher-*MS-PL* the-student  
'The teachers saw the student.'

b. \*shaf      al-mdars-een      aT-Taalib  
saw-*MS-SG* the-teacher-*MS-PL* the-student

(AlShammiry, 2007, p.20)

(27) a. rqədō      ?al-yirrān  
slept-*MS-PL* the-child-*MS-PL*  
'The children slept.'

b. \*rqəd      ?al-yirrān  
slept-*MS-SG* the-child-*MS-PL*

(28) a. nāmō      ?al-ʕijāl  
slept-*MS-PL* the-child-*MS-PL*  
'The children slept.'

b. \*nām      ?al-ʕiāl  
slept-*MS-SG* the-child-*MS-PL*

(29) a. rakb-uu      ar-rajajil      al-khail  
rode-*MS-PL* the-man-*MS-PL* the-horse-*collective*  
'The men rode the horses.'

(VSO)

b. ar-rajajil      rakb-uu      al-khail  
the-man-*MS-PL* rode-*MS-PL* the-horse-*collective*  
'The men rode the horses.'

(SVO)

(Lewis, 2013, p.11)

The sentences in examples (21-29) (set a only) show that full agreement holds between the verbs and their postverbal subjects. It should be noticed that full agreement is not optional; it

is obligatory.<sup>9</sup> In other words, when the plural marker is absent from the verb, it results in the ungrammaticality of the (set b) sentences as shown by (21-28).<sup>10</sup>

### 3.1.2 VSO full agreement in other dialects of Arabic

The phenomenon of full agreement in VSO structures can be found in the dialects of different regions of the Arab world. [Aoun et al. \(2010\)](#) report that full agreement in VSO/SVO structures is attested in Moroccan (30a&b) and Lebanese (30c&d) Arabic.

- (30) a. nəʕs-u l-əwlad  
slept-*PL* the-children  
'The children slept.' (VS(O))
- b. l-əwlad nəʕs-u  
the-children slept-*PL*  
'The children slept.' (SV(O))
- c. neemo-o l-wleed  
slept-*PL* the-children  
'The children slept.' (VS(O))
- d. l-wleed neemo-o  
the-children slept-*PL*  
'The children slept.' (SV(O))

([Aoun et al., 2010](#), p.84)

The examples in (30) show similar agreement patterns to the examples that were introduced from the SUD dialects. Full agreement is manifested between the verbs and the subjects despite the fact that the word order is different. The example in (31) introduced by [Benmamoun \(2000a\)](#) shows full agreement in the VSO order in Moroccan Arabic.

- (31) a. kla-w le-wlad  
ate-3PL the-children

<sup>9</sup>These examples represent different dialects found in different regions in Saudi Arabia: ((Southeast dialect (21)-(24), (North dialect (25)-(26), (Yami dialect (27) and (Najid dialect (28)-(29)).

<sup>10</sup>The sentences in (29) show a different word order VSO/SVO respectively. Both are grammatical. I have introduced them because the VSO sentence shows full agreement.

‘The children ate.’

- b. le-wlad      kla-w  
the-children ate-3PL  
‘The children ate.’

(Benmamoun, 2000a, p.27)

Mahfoudhi (2002) argues that in Tunisian Arabic full agreement is not only attested in SVO structures, but also in VSO as shown by examples (32a&b). Similarly, Abdel-Ghafer and Jarbou (2015) show that full agreement in VSO is attested in Jordanian Arabic. They argue that verbs agree with their postverbal subjects by satisfying all  $\phi$  features (person, number and gender) as illustrated in (33a&b).

- (32) a. l-awlaad kla-uu      a-ttufaHa  
the-boys ate-3PL-MS the-apple  
‘The boys ate the apple.’
- b. kla-uu      l-awlaad a-ttufaHa  
ate-3PL-MS the-boys the-apple  
‘The boys ate the apple.’

(Mahfoudhi, 2002, p.11)

- (33) a. ?ij-uu      li-wlaad  
come-PT-3PL-MS the-boys  
‘The boys came.’
- a. ?ij-in      il-banaat  
come-PT-3PL-FM the-girls  
‘The girls came.’

(Abdel-Ghafer and Jarbou, 2015, p.173)

Full agreement in VSO is robustly found in different dialects of the Arab world. It is not limited to a certain geographical area. The previous generalizations stated about agreement system must be revisited. The examples provided above (21-33) pose challenges to the studies



In VSO structures, full agreement is not only held between verbs and plural subjects, structures with dual postverbal subjects show the same process. Consider the following examples:

- (36) ʔihmarrat-ā ʔeinā-ha  
 redded-*FM-DL* eye-*FM-NOM.DL*-his  
 ‘His eyes reddened.’
- (37) ʔiḡbarrat-ā qadam-ā ʔabd-i-n  
 got-dusty-*FM-DL* foot-*FM-NOM.DL* slave-*GEN-NUN*  
 ‘A slave’s feet got dusty.’

The verbs in both examples (36) and (37) fully agree with their postverbal subjects. In each example, the dual morpheme is post-attached to both the verb and the subject. This supplies us with strong evidence that full agreement is not limited to SVO but can be found in VSO.

As far as full agreement in VSO is concerned, some contemporary traditional Arab grammarians argue against the idea that full agreement is only manifested in SVO structures. [Al-Khaz’ali \(2008\)](#) argues against the view that limits full agreement to SVO. He asserts the existence of full agreement in VSO. In his research entitled (*loḡat ʔakalōn-i ʔal-barāyēθ: literally means: the language of the fleas bite me*<sup>11</sup>), Al-Khaz’ali provides examples from the classical poetry and documented pieces of Arabic literature; (see some quoted examples from his paper).

- (38) raʔei-na ʔal-ḡawāni ʔaf-feib-a  
 saw-*FM-PL* the-girl-*NOM.PL* the-gray-hair-*ACC*  
 ‘The girls saw the gray hair.’
- (39) jəlomōna-ni ʔahl-i  
 blame-*PL-me* relative-*PL-my*  
 ‘My relatives blame me.’<sup>12</sup>

<sup>11</sup>A famous sentence that shows full agreement in VSO, thus it became like a baseline for arguing against the notion that claims full agreement is only found in SVO. Taking a close look at this sentence, we notice that full agreement holds between the verb and the subject as illustrated below:

- (1) ʔakalōn-i ʔal-barāyēθ  
 ate-*PL-me* the-flea-*PL*  
 ‘The fleas bite me.’

<sup>12</sup>Examples (38) and (39) are basically poetical verses borrowed from different poems by [Al-Khaz’ali \(2008\)](#). However, I took only the parts that are under investigation.

(Al-Khaz'ali, 2008, p.5)

VSO structures in (38) and (39) show full agreement between the verbs and their postverbal subjects. These examples provide strong evidence for the existence of full agreement in VSO structures.

In the same vein, Hanaadi (2004) and Alshamsan (2005) argue for the well-formedness of the structures that show full agreement in VSO structures. They state that these structures are robustly found in SA. Hanaadi introduces the below examples from the Arabic literature and the poetry as well.

(40) ḏakar-na            ʔazwādʒ-u            ʔan-nabi-i  
 mentioned-*FM-PL* wife-*FM-PL.NOM* the-prophet-*GEN*  
 ‘The prophet’s wives mentioned ....’

(41) ʔaqbal-na    rajāt-u                    ʔaṣ-ṣabāḥ-i  
 came-*FM-PL* banner-*FM-PL.NOM* the-morning-*GEN*  
 ‘The morning banners came.’ (Figurative: to express optimism)

(Hanaadi, 2004, p.163)

Looking at (40) and (41), we notice that full agreement holds between the verbs and the postverbal subjects. In each example, the gender/plural morpheme is attached to the verb and to the subject noun.

Having introduced the examples above ((21)-(31) from different Arabic dialects) and ((34)-(41) from SA), I conclude that verb-subject full agreement is not limited to SVO structures but also obviously found in VSO ones. Now, let us proceed to the next section to see how these examples pose critical challenges to the *null expletive* and *null pro* theories.

### 3.1.4 Theoretical concerns

The previous discussion raises two theoretical issues which need to be reconsidered, namely the *null expletive* hypothesis on one hand, and the topic view and *null pro* on the other.

*First issue:* In Mohammad's (1990; 2000) explanations of the *null expletive* hypothesis, he concludes that (based on the notion that VSO only shows defective agreement) there is a *null expletive* subject occupying [Spec: TP]. It dictates singular agreement features to the verb that occupies T<sup>0</sup> under Spec-head configurations. This results in defective agreement between the verb and the thematic subject which occupies [Spec: VP]. It is obvious that the examples (21)-(41) cast a shadow over Mohammad's conclusions since full agreement is found in VSO structures. In other words, verbs that show full agreement in VSO structures do not agree with the *null expletive* subject; simply because this subject in Mohammad's view is singular. It is plausible to argue that there is only one subject which occupies the thematic position [Spec: VP]. The grammatical position [Spec: TP] is reserved as a landing site for moving subjects from [Spec: VP] to [Spec: TP] in the case of SVO structures.

Indeed, Mohammad admits that there are challenges to his proposal. These challenges are found in Palestinian Arabic. He introduces the examples in (42) and (43) that show full agreement in VSO structures.

- (42) a. le-wlaad ʔdʒu  
           the-boys came-*PL*  
           ‘The boys came.’ (SVO)
- b. ʔdʒu le-wlaad  
           came-*PL* the-boys  
           ‘The boys came.’ (VSO)
- (43) a. le-wlaad qaru ktaab  
           the-boys read-*PL* book  
           ‘The boys read a book.’ (SVO)

- b. qaru le-wlaad ktaab  
 read-*PL* the-boys book  
 ‘The boys read a book.’ (VSO)

(Mohammad, 2000, p.110)

Full agreement in VSO structures that is found in Jordanian, Lebanese, Moroccan and Saudi Arabic is available in Palestinian Arabic. The examples (42b) and (43b) show that full agreement is manifested in VSO structures in Palestinian Arabic as well. In his summary of the agreement facts and the *null expletive* in SA, Mohammad (2000) states the following generalization:

- (44) *"In VS configurations, the verb is always singular and it picks its gender from the left-most conjunct."*

(Mohammad, 2000, p.136)

Mohammad limits his generalization to SA since it is not applicable to the examples that he provided from Palestinian Arabic. I believe that there are two major problems with his generalization. First, examples (34)-(41) from SA show that, in VSO structures, the verbs are not marked as singular; instead, they are suffixed with the plural morpheme. Second, it is not always the case that the verb in VSO configurations selects its gender from the left-most conjunct (for the discussion of conjunct agreement, see Aoun et al., 1994; Benmamoun et al., 2009; Harbert and Bahloul, 2002; Larson, 2013; Munn, 1999; Soltan, 2007b). In (45) the verb completely lost agreement with its postverbal subject. The following examples from SA and from SUD show that the gender and/or number agreement is lost.

- (45) a. qāla ʔan-niswat-u  
 said-*SG-FM* the-woman-*FM.PL-NOM*  
 ‘The women said...’

- b. ʔidʒtamaʕat ʔal-wofōd-u  
 met-*SG-FM* the-delegation-*MS.PL-NOM*  
 ‘The delegations (have) met.’ (SA)

- (46) a. dʒəu            ʔal-banāt  
 came-*PL-MS* the-girl-*PL*  
 ‘The girls came.’
- b. ʕəjju            ʔan-niswān    min ʔal-ʔakil  
 refused-*PL-MS* the-woman-*PL* from the-food  
 ‘The women refused to take the food.’<sup>13</sup> (SUD)

Mohammad’s generalization stated in (44) does not account for the agreement mismatch between the verbs and their subjects in (45) and (46). In each example, the verb carries a gender marker which is different from the subject gender marker.

On a par with Mohammad, Ouhallah (1994) claims that postverbal subjects, *strictly speaking*, asserts Ouhallah, do not agree with their preceding verbs (p.70). He also argues that once the number agreement is missing between the verb and the postverbal subject in VSO structures, the gender and person agreement is only apparent or accidental.<sup>14</sup> Ouhalla’s explanation for the lack of agreement in VSO structures is based on the unavailability of Spec-Head agreement relation between T and the thematic subject in [Spec: VP] thus postverbal subjects do not agree with the verbs. However, Ouhalla admits that full agreement in VSO can be found in some dialects of Arabic. He introduced the following example:

- (47) herb-u        l-masjn  
 escaped-*3PL* the-prisoners  
 ‘The prisoners (have) escaped.’

Moroccan Arabic (Ouhallah, 1994, p.70)

Ouhalla states that example (47) is basically showing a Berber (Tamazight) language pattern.

<sup>13</sup>These examples are taken from the Southeast dialect.

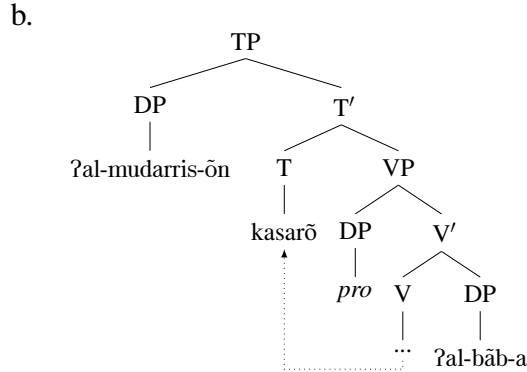
<sup>14</sup>I believe that Ouhalla means by ‘apparent or accidental’ that gender agreement is a secondary agreement feature which may not be as important to agreement system as number agreement (the default). Additionally, he assumes that third person agreement is an inherent feature of the  $AGR_S$  and the null expletive element. Consequently, he states “strictly speaking, postverbal subjects do not agree with their preceding verbs”; he quotes some traditional Arab grammarians’ opinions in which agreement is totally lost between the verb and the feminine postverbal subjects. I agree that agreement can be totally lost as we saw in (45). However, I differ with Ouhalla on his statement that postverbal subjects do not fully agree with their preceding verbs.

However, he did not provide any explanations whether this pattern is a possible variation of agreement system in Arabic or it is a result of the effect of the Berber pattern on the Arabic pattern found in the Berber-neighbouring Arabic dialects.

In brief, based on the examples (21)-(47) that show full agreement in VSO structures, two arguments are borne out. First, defective agreement that VSO sentences exhibit is not due to *null expletive* in [Spec: TP], hence the hypothesis that the *null expletive* dictates defective agreement to the verb situated in  $T^0$  is not valid. Second, Spec-head configurations cannot be applied at least to the examples introduced above since the *null expletive* may not exist. My conclusion on the lack of *null expletive* in VSO structures has been documented by Fassi Fehri (2009a). He argues that defective agreement in VSO structures cannot be taken as evidence for the presence of the *null expletive* (termed ‘*silent expletive*’ in his paper). Similarly, Alexiadou and Anagnostopoulou (1998) report that Arabic, among other VSO languages, does not include a null (‘*covert*’) expletive.

*Second issue:* Full agreement in VSO structures questions the validity of the topic view suggested by Al-Balushi (2011, 2012), Al-Horais (2009) and Soltan (2006, 2007a). This view treats the preverbal DPs in Arabic as topics and not subjects. They argue that, in Arabic, [Spec: TP] is a topic position and not a subject one. The subject, in their analysis, originates in [Spec: VP] as *null pro* which co-indexes with the lexical noun in the topic position, [Spec: TP] as illustrated by (16) and (17), repeated here as (48a&b).

- (48) a. ?al-mudarris-ōn      kasar-ō      ?al-bāb-a  
           the-teacher-*MS-NOM.PL* broke-*MS-PL* the-door-*ACC*  
           ‘The teachers broke the door.’



In (48), Al-Balushi and others argue that the specifier position of TP (a topic position in their view) is occupied by *?al-mudarris-ōn* and [Spec: VP] is occupied by *null pro*. We should remember that full agreement forms the cornerstone of their argument. In other words, the verb *kasarō* ‘broke’ is suffixed with the plural marker *-ō* which means all  $\phi$  features are present. Thus, Al-Balushi and others argue that the null subject *pro* is identified by full agreement in SVO structures. Their analysis of *null pro* in SVO structures meets the requirement of c-command conditions since *pro* co-indexes with its lexical noun located in a higher position, [Spec: TP] thus obeying the c-command condition. As long as VSO structures are showing defective agreement as illustrated by (49) which is the VSO version of (48a), the topic view and *null pro* analysis is not threatened.

- (49) *kasara*      *?al-mudarris-ōn*      *?al-bāb-a*  
 broke-*MS-SG* the-teacher-*MS-NOM.PL* the-door-*ACC*  
 ‘The teachers broke the door.’

However, the problem arises when VSO structures show full agreement. I believe that Al-Balushi and others are not aware of this type of agreement. As far as I know, there is no mention of VSO full agreement in their work. Not only this; they denied the existence of full agreement in VSO structures in SA. Based on full agreement in SVO structures, they propose *null pro* as the subject of the SVO clause. Since a clause structure only allows for one syntactic subject, they enforce the idea that preverbal DPs occupying [Spec: TP] are base-generated topics and they are not subjects.

Noticeably, full agreement in VSO structures introduced in (21)-(47) threatens Al-Balushi and others' proposals. We notice in these examples that the same dual/plural morpheme is attached to the verb in both structures VSO and SVO. Recall that Al-Balushi and others' arguments assume that there is a link between full agreement found in SVO structures and *null pro*. Now, the immediate challenging question is "What is the role of the identical dual/plural morpheme attached to the verb in VSO structures?" It's impossible for them to claim that there is a *null pro subject* in VSO structures simply because the lexical subject DPs are occupying [Spec: VP]. It is also impossible for *pro* to be in a higher position than its governor; this would violate the c-command condition. I should point out that Al-Balushi and others built their proposal on Sibawayh's view in which he argues that the preverbal DPs are topics and not subjects; the subject in his view is *pro* which binds to its governor, the topic. For Sibawayh, when dealing with structures such as (21)-(47) and the like, he claims that the morpheme attached to the verb (in VSO) is an agreement marker; it is not acting as a *pro* subject. On the contrary, in SVO, he considers it (the same morpheme) as a *pro* subject, a view which Al-Balushi and others build their arguments on with a slight modification. They use *null pro* instead. Obviously, there is no consistency in Sibawayh's analysis as he gave two different opinions about the same morpheme. Based on the investigation, I argue that the morpheme, that may cliticize with the verb either in VSO or SVO structures, is an agreement morpheme. Consequently, full agreement must be kept apart from *null pro*. It is implausible to claim the presence of *null pro* on the basis of full agreement. I also argue that there is only one syntactic subject which may occupy [Spec: VP] or [Spec: TP]. In other words, in the VSO order, the subject occupies [Spec: VP] and [Spec: TP] should remain empty. In the SVO order, the subject is generated in [Spec: VP] then it moves to [Spec: TP]. I admit that a *null pro subject* does exist in Arabic since it is a *Null Subject Language*. However, this *null pro* is only present in the absence of the lexical subject DP.



- b.  $\text{ʔal-ʕarab-u}$                        $\text{sa-jiwāḏḏihōn}$                        $\text{ʔal-furs-a}$   
 the-Arab-*MS-PL-NOM* will-confront-*MS-PL* the-Persian-*ACC*  
 ‘Arabs will confront Persians.’ (Distributive reading)

The sentence (50a) shows defective agreement in an SVO structure. The preverbal subject *ʔar-riḏḏālu* ‘the men’ in this sentence is pluralized (broken plural) whereas its verb carries a singular marker. Similarly, in sentence (51a) the subject *ʔal-ʕarab* ‘Arabs’ of the sentence is a collective noun, which denotes plurality, but its verb is marked for singularity. At the morphological level, collective nouns seem to behave like singular nouns; however, they are semantically plural (see Fassi Fehri, 2012, 2015; Mathieu, 2012a, 2014, for more details). It might be argued that these nouns may not semantically denote plurality. In order to show their plurality, we can test them against their quantified pronouns as follows:

- (52) a.  $\text{ʔar-riḏḏāl-u}$                        $\text{kulluhum}$                        $\text{ḏḏāō}$   
 the-man-*MS-PL-NOM* all.them-*MS-PL* came-*MS-PL*  
 ‘The men, all of them, came.’
- b.  $\text{ʔar-riḏḏāl-u}$                       \* $\text{kulluhu}$                        $\text{ḏḏāō}$   
 the-man-*MS-PL-NOM* all.him-*MS-SG* came-*MS-PL*
- (53) a.  $\text{ʔal-ʕarab-u}$                        $\text{kulluhum}$                        $\text{ʔaxtləfō}$   
 the-Arab-*MS-PL-NOM* all.them-*MS-PL* disagreed-*MS-PL*  
 ‘Arabs, all of them, disagreed.’
- b. \* $\text{ʔal-ʕarab-u}$                        $\text{kulluhu}$                        $\text{ʔaxtləfō}$   
 the-Arab-*MS-PL-NOM* all.him-*MS-SG* disagreed-*MS-PL*

Interestingly, we notice that when the plural nouns in (52a) and (53a) are mapped onto plural quantifiers, they give grammatical structures. By contrast, when the same nouns (52b) and (53b) are mapped onto singular quantifiers, they result in grammatically weak structures. What follows from these examples is that the definite DPs *ʔar-riḏḏālu* and *ʔal-ʕarab* are plurals.

Therefore, we can say that the sentences in (50a) and (51a) show defective agreement in SVO structures since their subjects are plural whereas the verbs are singular. This behaviour threatens the topic view. We notice that the number agreement morpheme is missing from the verbs in



that they argue that [Spec: TP] of SVO is occupied by a *topic*, and the subject is *null pro* which occupies [Spec: v\*P]. The *null pro subject* is identified by the agreement morpheme, the *identifier*. Noticeably, the examples in (54a) and (55a) lack such an identifier. Consequently, there will be no *null pro subject*. Therefore, the possible nominated subjects are the lexical nouns which appear as preverbal subjects, *?al-bədō* ‘the nomads’ and *?al-bahəm* ‘the lambs’ in (54a) and (55a) respectively.

I assume that full agreement in SVO structures is a fundamental factor for Al-Balushi and others to propose that the *null pro subject*, which occupies [Spec: v\*P], is the grammatical subject of SVO structures. As a result, they argue that the lexical noun, which co-indexes with the *null pro*, is a topic base-generated in [Spec: TP]. Now, if the basic fundamental factor ‘full agreement’ is not available, Al-Balushi and others’ proposals may collapse. I am not saying that *null pro subject* and *topics* do not exist in Arabic. They do exist, but not within the analysis suggested by Al-Balushi and others. I will present my analysis on both issues in section (4).

In summary, the previous investigations of the agreement system in Arabic evidently reveal that full agreement is robustly attested in VSO structures. The investigations also show that defective agreement is found in SVO structures. As a reminder, it is generally conceived that full agreement is only present in SVO structures whereas defective agreement is only present in VSO structures. I have shown that this idea is not correct and there is a number of consequences that can be drawn from the above discussion.

First, the *null expletive* hypothesis suggested by [Mohammad \(2000\)](#) is based on defective agreement in VSO structures. He argues that defective agreement is a result of a *null expletive* subject situated in [Spec: TP] which dictates singular agreement to the verb in the VSO order. This claim, however, does not account for the structures that show full agreement in VSO. Therefore, [Mohammad](#)’s generalization in (44) which says: “*In VS configurations, the verb is always singular*

and it picks its gender from the left-most conjunct" cannot accommodate full agreement in VSO structures.

Second, based on full agreement in SVO structures, Al-Balushi (2011, 2012), Al-Horais (2009) and Soltan (2006, 2007a) argue that the subject in SVO structures is *null pro* which occupies [Spec:  $v^*P$ ]. This *pro*, they argue, is identified by the agreement morpheme attached to the verb. I have shown that the same morpheme is present in VSO structures that show full agreement. However, this morpheme cannot be analyzed within the frame of their proposal. Consequently, Al-Balushi's (2012) generalization in (19), repeated below as (56), is not valid at least for the examples presented above.

- (56) *"Since SA verbs never agree with their objects and never agree with their subjects in terms of [Number], then the SA  $I^0$  and  $v^{*0}$  are f-incomplete, hence f-defective, except in the SVO order where there is no overt subject."*

(Al-Balushi, 2011, p.158)

We notice that Al-Balushi argues that verbs never agree with their lexical subjects. He continues, they only agree with covert subjects, (*pro*). Obviously, the examples presented above assure the inaccuracy of this generalization. We have seen that verbs in VSO structures can fully agree with their postverbal subjects.

Third, I have shown that SVO structures, which show defective agreement, lack the agreement morpheme, the '*identifier*' in Al-Balushi and others' analysis. This by default will lead to the absence of the *null pro*. If this is the case, the *topic* view is more likely to be undermined simply because the clause needs a syntactic subject to converge. The only possible candidate subject is the lexical noun that occupies [Spec: TP]. If my argument is on the right track, some important questions arise such as: what is the subject in the absence of *null pro*? How is [Spec:  $v^*P$ ] occupied? I will respond to these questions in the next section.

## 4 The account

Most of the studies that have investigated the agreement system in Arabic generally concentrate on two types of agreement, namely defective agreement in VSO structures and full agreement in SVO structures, and the related conclusions were drawn on the basis of these two types. However, what follows from the discussion in the previous section is that there is a need for a unified analysis that accounts for the agreement system of Arabic. A rigorous analysis, however, must account for defective agreement in SVO structures and full agreement in VSO ones. In this section, I provide a syntactic solution that accounts for all types of agreement found in Arabic. Theoretically, my account builds on two different syntactic arguments. First, strong features trigger overt movement in the narrow syntax whereas weak features trigger covert movement at LF (Chomsky, 1995; Lasnik, 2001, 2002). If this is the case, agreement in the sense of this assumption can be checked overtly in the narrow syntax or covertly at LF. If agreement features are strong, they are checked overtly. If, on the other hand, agreement features are weak, they are checked covertly. Second, Arabic subject DPs in finite clauses are assigned structural nominative Case (Benmamoun, 2008).<sup>16</sup> I assume that feature checking (Case; agreement features) can take place either under a Spec-Head configuration or a government configuration; this depends on the

<sup>16</sup>Ouhallah (1994) argues that Arabic NPs receive nominative Case as a default one. His claim is built on the structures of verbless sentences (non-finite). In such sentences, topics and complements are assigned nominative Case as can be seen below:

- |   |  |
|---|--|
| (1) ʔar-radʒul-u mudarris-u-n<br>the-man-NOM teacher-NOM-NUN<br>'The man is a teacher.' | (2) ʔal-mərʔat-u mudarrisat-u-n<br>the-woman-NOM teacher-FM-NOM-NUN<br>'The woman is a teacher.' |
|---|--|

All DPs in the examples above are assigned nominative Case. However, if a Case assigner (e.g., main verbs or the copula verb *kān* 'was' and its so called sisters (*mazāla* 'still'; *lajisa* 'not'; *ʔaṣṣbaḥa* 'became'), a complementizer 'ʔinna: that' or a preposition)) comes into play, it assigns different Case; see the following examples:

- |   |  |
|---|--|
| (3) ʔar-radʒul-u kān mudarris-a-n<br>the-man-NOM was teacher-ACC-NUN<br>'The man was a teacher.'    | (4) ʔinna ʔal-mərʔat-a mudarrisat-u-n<br>that the-woman-ACC teacher-FM-NOM-NUN<br>'Certainly, the woman is a teacher.' |
| (5) ʔar-radʒul-u fii ʔal-mədrasat-i<br>the-man-NOM in the-school-GEN<br>'The man is at the school.' | (6) ʔal-qalam-u ʔəla ʔal-kitāb-i<br>the-pen-NOM on the-book-GEN<br>'The pen is on the book.'                           |

type of word order.

My proposal is as follows: The movement of the subject DP from its base-generated [Spec: VP] to a higher position is triggered by feature checking of *Case* and *agreement*. I argue that the movement of the subject DP (overtly or covertly) is subject to the type of agreement (defective or full) that the word order shows. I will assume that full agreement has strong features which means all  $\phi$  features (person, number and gender) are present. By contrast, defective agreement has weak features which means one or two, maybe all, of  $\phi$  features is/are missing. In order to explain my argument, I will present an example for each type and explain how agreement triggers (*overt/covert*) syntactic movement. I should point out that, in all cases under investigations, I adopt the overt *Head-movement*; i.e., V-to-T movement (of the verb) generally takes place due to the strong features of T. There is only one exception where the verb moves covertly. This happens in SVO structures that show defective agreement.

This section proceeds as follows: I present my account of the agreement system in (4.1- 4.4); next, I introduce my analysis of the *null pro subject* in (4.5); then, I discuss preverbal subject DPs versus topics in (4.6); finally, I give a brief account of indefinite subjects in SVO structures in (4.7).

## 4.1 Defective agreement in VSO

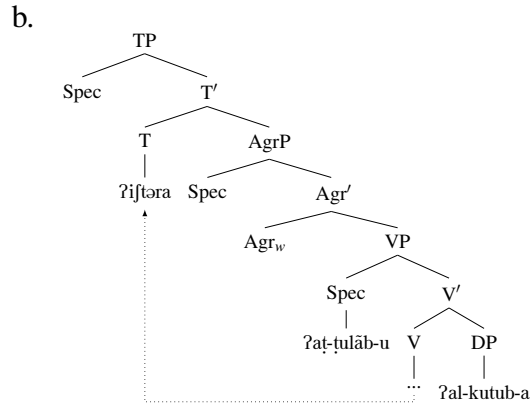
The following example shows defective agreement. The verb is singular whereas the postverbal subject is plural: only number agreement is lost; gender and person agreement is preserved.

The linear order, VSO, of (57a) is a result of V-to-T movement as shown in (57b).

- (57) a. ?iftərə            ?at-tulāb-u            ?al-kutub-a  
           bought-*MS-SG* the-student-*MS-PL-NOM* the-books-*ACC*  
           ‘The students bought the books.’

---

See Benmamoun (2008) for an analysis of verbless (non-finite) clauses, which differs from Ouhallah’s analysis. He assumes that DPs in non-finite clauses receive a structural nominative Case except topics; they receive nominative as a default Case.



I argue that V-to-T movement takes place for two reasons. First, verbs should move in order to spell out the VSO order. Second, in the sense of [Adger \(2003\)](#) the verb should move to T to check its uninterpretable feature [*upast*] (past in this example) against the interpretable feature of T[*past*]. As a result of the movement, the tense morpheme and the verb are fused to form one prosodic unit. As can be seen in (57b), the subject *?at-tulāb-u* ‘the students’ stays in situ. Following [Benmamoun \(2008\)](#), I argue that subject DPs are assigned a structural nominative Case. Therefore, the subject should move in order to check for Case, but the movement should be delayed to LF since a Case feature has no semantic interpretations ([Chomsky, 1995](#)). We can say that subjects in VSO structures do not need to move overtly for Case checking; they might move for some other reasons, such as *gender* and *person* agreement checking. In sentence (57a) verb-subject agreement is not available [*V<sub>SG</sub>: Sub<sub>PL</sub>*]. The lack of agreement may justify the subject remaining in situ in the narrow syntax. Notice that I have labeled the *Agr* head with little ‘w’ which indicates weak features. If we agree that weak features do not trigger movement in the overt syntax ([Chomsky, 1991, 1995](#); [Lasnik, 2002](#); [Pollock, 1989](#)), we expect the subject movement (XP-movement) from [Spec: VP] to [Spec: AgrP] to take place covertly at LF respecting (*the principle of Procrastinate*).<sup>17</sup> Supporting my claim, [Chomsky \(1995\)](#) suggests that Arabic, a VSO/SVO language, allows both overt/covert movements of the subject NPs to

<sup>17</sup>[Chomsky \(1995\)](#) argues that covert movement (at LF) is cheaper than overt movement (in the narrow syntax) and he calls it ‘*principle of Procrastinate*’.

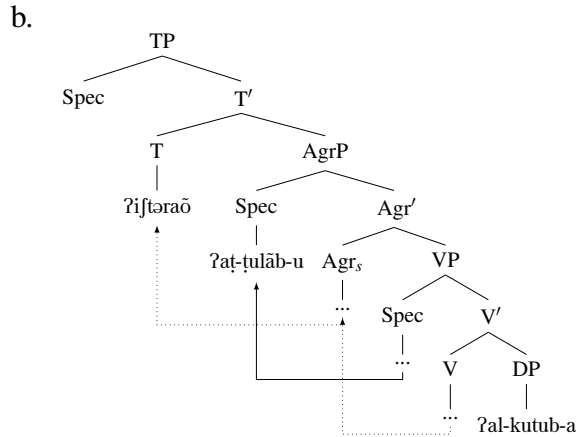
[Spec: AgrP]. These movements depend on strong/weak features that the verb displays. Up to now, we have seen the covert movement of the subject DP is due to the weak features (defective agreement) as shown in (57b).<sup>18</sup> Before I end this part, there remains one issue which needs some clarification. In what configuration does agreement take place? The answer is that it may seem inappropriate to claim that agreement takes place under a Spec-head configuration since the verb and the subject in (57b) are not in a Spec-head relation. However, it might be possible that agreement takes place under a Spec-head configuration. At some point in the early stages of the derivation, the verb can be in a Spec-head relation with the subject, say [Spec: VP] with [V<sup>0</sup>: VP] (Also noticed by Benmamoun, 2000a). Then I assume that the verb is *momentarily* in a Spec-head relation with the subject before it reaches its final landing site, T<sup>0</sup>. If this analysis is feasible, then verb-subject agreement in VSO can be established under a Spec-head configuration. However, the idea that verb-subject agreement takes place under government remains the suitable analysis.

## 4.2 Full agreement in VSO

The structure in (58a) differs from (57a) in agreement type despite the fact that they show the same word order, the VSO order. We can see that full agreement is manifested in (58a).

- (58) a. ʔiftəraõ      ʔaʔ-tulāb-u      ʔal-kutub-a  
           bought-*MS-PL* the-student-*MS-PL-NOM* the-books-*ACC*  
           ‘The students bought the books.’

<sup>18</sup>Chomsky explains that verbs in English-like languages do not move in the overt syntax due to weak V-feature of T; therefore, they move at LF for *economy condition* reasons. By contrast, he continues, English subject NPs, for example, raise to [Spec: IP] because the NP-feature of T is strong. Irish, a VSO language, shows the opposite. Verbs raise to T in the overt syntax and subject NPs move to [Spec: Agr<sub>v</sub>P] covertly at LF.

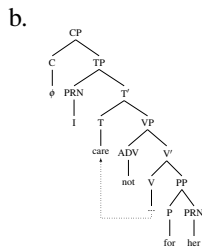


The schematic tree in (58b) significantly differs from the one in (57b). They differ in the number of syntactic movements. Tree (57b) shows only one movement, V-to-T, whereas tree (58b) shows two movements, a successive movement of the verb (V-to-Agr-to-T) and an XP movement of the subject DP [Spec: VP]-to-[Spec: AgrP]. The V-to-T movement is triggered for the same reason that triggers movement in (57b), tense checking and spelling out the correct word order.<sup>19</sup> Additionally, we notice that the verb moving to T takes the agreement morpheme (the number agreement is *ō* merged as the head of AgrP). This does not, however, violate *Head Movement Constraints* (HMC) (Roberts, 2001; Radford, 2009b, 1997; Travis, 1984). Radford (2009b) points out that "Head movement is only possible between a given head and the head of its complement" (p.157). Applying this to (58b), we can see that the VP phrase is a complement of Agr and AgrP is a complement of T. This means that V-to-Agr-to-T successive cyclic movement is possible in

<sup>19</sup>I argue that the tense feature is strong in Arabic thus it always triggers V-to-T overt movement. Interestingly, Radford (2009b) reports that when the tense feature was strong in Elizabethan English, V-to-T movement used to take place as illustrated by (1a&b) below.

- (1) a. I care not for her. (Borrowed by Radford from *Thurio, Two Gentlemen of Verona, V.iv*)

(Radford, 2009b, p.153)



Radford argues that T feature is weak in contemporary English. It cannot attract a verb to move from V-to-T. Thus, it is checked either by merged auxiliaries or by affix hopping of the tense morpheme to the verb. Therefore, a verb need not move to T.

(58b). Thus, I consider the agreement morpheme  $\bar{o}$  not to be an intervening element since it is taken by the raising verb to T and cannot be left behind. This is why HMC is preserved in (58b). For the subject DP movement, I have claimed that full agreement is a strong feature. This requires the subject DP to move overtly in the narrow syntax from [Spec: VP] to [Spec: AgrP]. Notice that I labelled the *Agr* head in (58b) with little ‘s’ which indicates a strong feature. The AgrP head (*Agr*:  $\bar{o}$ ) which is already attached to the verb attracts the subject DP *?aṭ-ṭulāb* ‘the students’ to its specifier, [Spec: AgrP]. The subject DP movement to [Spec: AgrP] results in verb-subject full agreement and nominative Case checking. Now, we ask the question: how is agreement established? Before I answer the question, let me introduce Benmamoun’s (2000a) proposal for agreement configurations in SA and Moroccan Arabic. Then we will see if his proposal is applicable to full agreement in VSO structures in SA.

SA:

- (59) a. Person agreement takes place under government or Spec-Head Agreement.  
 b. Number agreement takes place exclusively in a Spec-Head configuration.

Moroccan Arabic:

- (60) Agreement takes place in either a government configuration or a Spec-Head configuration.

(Benmamoun, 2000a, p.28)

To simplify Benmamoun’s generalization in (59a), it is assumed that person agreement<sup>20</sup> in SA is always present in both structures VSO and SVO. Therefore, verb-subject agreement checking in the VSO order is established under a government configuration whereas subject-verb agreement

<sup>20</sup>Gender agreement is by default included.

in the SVO order is established under a Spec-head configuration. In generalization (59b), he argues that number agreement<sup>21</sup> checking is strictly established under a Spec-head configuration. This means that it is only applicable to the SVO order. It is evident that both generalizations cannot avail themselves to the examples that show full agreement in VSO structures in SA and in the dialects of Arabic. We need a rule that accommodates agreement  $\phi$  features (number, person and gender) in both orders VSO and SVO in Arabic.

Benmamoun's generalization in (60) seems to be an appealing solution to the puzzle of the agreement configuration in VSO structures that show full agreement. Recall that Benmamoun (2000a) has provided the examples in (31a&b) from Moroccan Arabic that show *symmetrical* agreement in VSO and SVO orders. For an easy follow-up, they are repeated here as (61a&b)

- (61) a. kla-w le-wlad  
ate-3PL the-children  
'The children ate.'
- b. le-wlad kla-w  
the-children ate-3PL  
'The children ate.'

(Benmamoun, 2000a, p.27)

We notice that verb-subject full agreement is motivated in (61a) and subject-verb full agreement in (61b). Based on this, Benmamoun suggests the generalization in (60) for Moroccan Arabic. Now, to answer the question prompted above, namely, how full agreement is established in VSO structures, I extend Benmamoun's generalization in (60) to SA and to the different dialects of Arabic that show full agreement in the VSO order. To be precise, agreement in VSO structures that show full agreement is established under a government configuration.

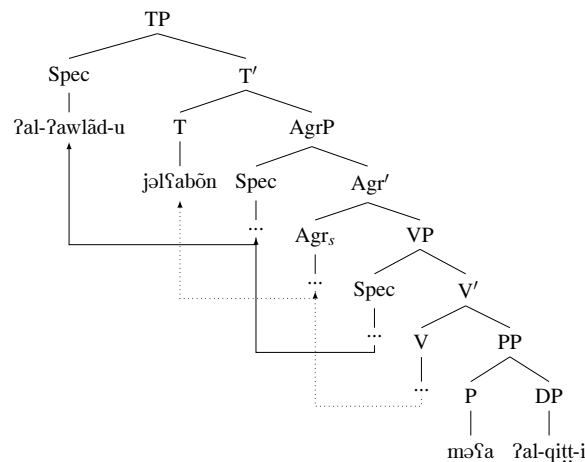
<sup>21</sup>Gender and person agreement is by default included.

### 4.3 Full agreement in SVO

Structures that show full agreement in SVO orders have been analyzed in different ways. The differences stem from the status of the preverbal DPs whether they are topics or subjects (see section (3.1.4) above for the discussion of the topic view). My analysis adopts the subject view. I argue that preverbal DPs that are located within the domain of TP are subjects. They are originally base-generated in [Spec: VP], the thematic subject position. After being assigned a  $\theta$ -role (agent), they move to [Spec: AgrP] for agreement and Case checking, then they move to [Spec: TP] for EPP feature checking.<sup>22</sup> The examples in (62) illustrate my analysis.

- (62) a.  $\text{ʔal-ʔawlād-u}$        $\text{jəlʕabōn}$        $\text{məʕa ʔal-qitt-i}$   
 the-boy-*MS-PL-NOM* play-*MS-PL* with the-cat-*GEN*  
 ‘The boys play/are playing with the cat.’

b.



Notably, two successive syntactic movements result in the spell-out of sentence (62a), the Head movement V-to-Agr<sub>s</sub>-to-T and the XP movement from [Spec: VP] to [Spec: AgrP], then to [Spec: TP]. Due to strong features that T and Agr<sub>s</sub> bear, all movements take place overtly. It is clear that full agreement holds between the subject and the verb. What follows from (62b) is that agreement is established under a Spec-head configuration.

<sup>22</sup>It is reasonable to assume that the movement of the subject from [Spec: AgrP] into [Spec: TP] is triggered by EPP feature checking. EPP features seem to be strong in imperfect clauses in Arabic. I will elaborate on this issue in section (4.6).

#### 4.4 Defective agreement in SVO

In this section, I give my account of SVO clauses that show defective agreement. This type of agreement is also named *deflected agreement* by [Ferguson et al. \(1961\)](#).<sup>23</sup>

- (63) a.  $\text{ʔar-ridʒāl-u}$                        $\text{tadʒmaʕu}$                        $\text{ʔal-ħaṭab-a}$   
           the-man-*MS-PL-NOM* collect-*FM-SG* the-firewood-*ACC*  
           ‘The men collect/ are collecting the firewood.’                      (Collective reading)
- b.  $\text{ʔar-ridʒāl-u}$                        $\text{jədʒmaʕōn}$                        $\text{ʔal-ħaṭab-a}$   
           the-man-*MS-PL-NOM* collect-*MS-PL* the-firewood-*ACC*  
           ‘The men collect/ are collecting the firewood.’                      (Distributive reading)

The example in (63a) shows that the verb lacks number and gender agreement with its subject. By contrast, the example in (63b) shows that full agreement is held between the preverbal subject and the verb, all  $\phi$  features are present. Structurally, these examples seem to be similar. However, they denote different interpretations. This behaviour will be analyzed in the following discussion.

I will begin my analysis by arguing that the derivation of the two clauses in (63) is performed in the narrow syntax, but in a different way. In other words, each structure requires a different analysis. I will not pay much attention to the structure in (63b) since it can be analyzed within

<sup>23</sup>A few studies have taken up investigations of deflected agreement ([Alghamdi, 2015](#); [Beeston, 1975](#); [Belnap, 1991](#); [Belnap and Shabaneh, 1992](#); [Belnap and Haeri, 1997](#); [Ferguson, 1989](#); [Versteegh, 1984](#)). Deflected agreement, in their views, generally holds between non-human plural nouns and their postnominal feminine singular adjectives (1) and (2).

- (1)  $\text{ʔal-dʒibāl}$                        $\text{ʔar-rāsjiāh}$                       (2)  $\text{ʔas-sijōf}$                        $\text{ʔal-morhafah}$   
           the-mountain-*FM-PL* the-anchored-*FM-SG*                      the-sword-*FM-PL* the-sharpened-*FM-SG*  
           ‘the anchored mountains’                      ‘the sharpened swords’

I, among others, ([Brustad, 2000](#); [Holes, 1990](#)) argue that their claim is not accurate. The following examples show that full agreement holds between non-human plural nouns and their postnominal adjectives.

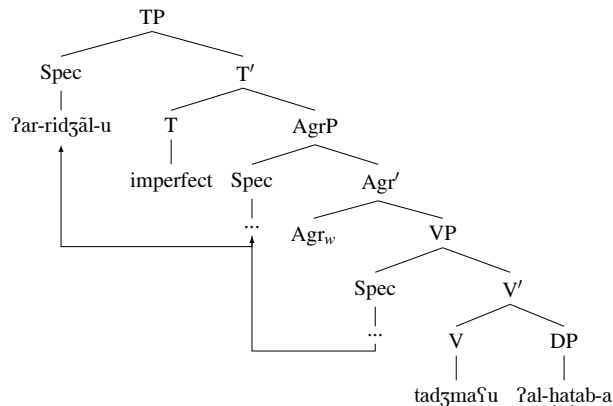
- (3)  $\text{ʔal-dʒibāl}$                        $\text{ʔar-rāsjiāt}$                       (4)  $\text{ʔas-sijōf}$                        $\text{ʔal-morhafāt}$   
           the-mountain-*FM-PL* the-anchored-*FM-PL*                      the-sword-*FM-PL* the-sharpened-*FM-PL*  
           ‘the anchored mountains’                      ‘the sharpened swords’

Additionally, *deflected*, agreement is not limited to non-human plural nouns, human plural nouns show the same patterns in (5) and (6).

- (5)  $\text{ʔaʕʕxās}$                        $\text{moməjazah/moməjazōn}$                       (6)  $\text{ʔar-ridʒāl}$                        $\text{ʔal-bāsilah/ʔal-bawāsil}$   
           persons-*MS-PL* distinguished-*FM-SG/MS-PL*                      the-man-*MS-PL* the-brave-*FM-SG/MS-PL*  
           ‘distinguished persons (people)’                      ‘the brave men’

the outline of the account used for SVO structures that show full agreement; (see section (4.3) for the proposal suggested for full agreement in SVO structures). The structure in (63a) will be the focus of my analysis. Let me begin with an idea put forth by [Brustad \(2000\)](#). He argues that the subject in (63) can be interpreted *individually* or *collectively* depending on the type of agreement. *Collective agreement*, so called by [Brustad](#), requires the verb to take feminine singular agreement as in (63a). Conversely, *individuated agreement* requires the verb to take all agreement  $\phi$  features as in (63b). We notice that two crucial agreement features (number and gender) are lost between the subject and the verb in (63a); person agreement might be preserved.<sup>24</sup> This means that the established agreement is weak. Referring to the idea that weak features do not trigger movement in the overt syntax ([Chomsky, 1991, 1995](#); [Lasnik, 2002](#); [Pollock, 1989](#)), I expect that the head movement of the verb from V-to-T will take place covertly at LF respecting *the principle of Procrastinate*.<sup>25</sup> By contrast, the subject has to move cyclically from [Spec: VP] to [Spec: AgrP] to [Spec: TP] for EPP feature checking; the schematized tree in (64) illustrates the syntactic derivation of (63a).

(64)



<sup>24</sup>It might be argued that collective reading denotes one group thus it triggers feminine singular agreement with the verb (see [Mathieu \(2012a, 2014\)](#) and [Dali \(2015\)](#) for the singulative proposal). I argue that the subject *ʔar-riḏḏāl-u* denotes masculine plural reading rather than feminine singular one. The subject being semantically different (in number) from the verb is adequate evidence to trigger defective agreement.

<sup>25</sup>This analysis is suggested independently by [Chomsky \(1995: for the verb movement in English\)](#) and by [Radford \(2009a,b\)](#).

I should point out that, in the course of my analysis of agreement system, this is the only case wherein I argue that the head (verb) movement takes place covertly. The question might arise as to why do I suggest such an analysis? The answer is as follows: in the case of VSO structure, the verb has to move overtly to T to spell out the correct word order regardless of the agreement feature strength. In the case of SVO order that shows full agreement, the verb has to move to T due to the strong features; all  $\phi$  features are present. However, for the case in hand, neither of the two requirements are available. The verb need not to move to spell out the desired word order. Instead, this will be satisfied by the subject movement to [Spec: TP]. The verb movement is redundant. There remains the issue of how the agreement relation is established. In sentence (63a), the person agreement feature might be the only preserved feature that holds between the subject and the verb. If this prediction is correct, agreement is established under a Spec-head configuration.

#### 4.5 Null pro subject

This section gives a brief account of the *null pro* subject in light of the agreement analysis presented above. I argue that *null pro* may not be able to occupy the thematic subject position [Spec: VP] as long as a lexical subject DP is 'orbiting' within the domain of TP. In other words, *null pro* can be a thematic subject in the absence of the lexical subject. In sentence (65), the subject is the lexical noun *?aṭ-ṭulāb* whereas the subject in sentence (66) is *null pro*.

(65) *?aṭ-ṭulāb-u*                      *?iṭṭaraō*              *?al-kutub-a*  
 the-student-*MS-PL-NOM* bought-*MS-PL* the-books-*ACC*  
 'The students bought the books.'

(66) *?iṭṭaraō*              *?al-kutub-a*  
 bought-*MS-PL* the-books-*ACC*  
 'They (masculine) bought the books.'

My argument focuses on the idea that in Arabic the *null pro* can be a subject of a clause in a certain environment. Let us begin the discussion by defining this environment in the following generalization:

- (67) *Null pro can be the subject of VSO structures in the absence of the lexical subject. However, it may never be the subject of SVO structures since their [Spec: TP] is always filled with a lexical subject.*

My idea is built on [Camacho's \(2013\)](#) assumptions drawn about *null pro* subjects. He proposes the following:

- (68) *"The availability of pro and the agreement copying mechanism yields two possible configurations: one where an overt DP is the true argument, and one where it acts as the antecedent for a null subject."* (p.209)

[Camacho's](#) first configuration is applicable to the case in hand. I argue that the lexical noun 'ʔaṭ-ṭulāb' is the *true* argument (i.e., the subject) of the sentence (65). It is not an antecedent (topic) for a *null pro* subject. In sentence (66), by contrast, the subject is *null pro* since the lexical subject is not available. This *null pro* is identified by  $\phi$  features that appear on the verb. I should point out that the *null pro* subject in sentence (66) must be *D-linked* (i.e., linked to a discourse) in order to get its specification. This means that a situational background that tells us about the nature of the *null pro* subject is required. It is evident that the agreement morpheme cannot by itself identify the *null pro*; it needs the contribution of other factors like the discourse (see [Rizzi, 2005](#), for more details). Thus, the claim that assumes the *null pro* is a result of rich agreement may not be on the right track. If this claim were true, we would expect languages, which have no morphological agreement system, not to have *null pro*; however, this is not the case. Japanese and Chinese, for example, have no agreement morphology and yet their grammatical systems allow for the *null pro* subject ([Duguine, 2012](#); [Huang, 1989](#); [Jaeggli, 1982](#); [Jaeggli and Safir, 1989](#)).<sup>26</sup> I

<sup>26</sup>Working within the identification hypothesis proposed by [Jaeggli \(1982\)](#), [Jaeggli and Safir \(1989\)](#) argue that *null subjects* can be identified by different means. Accordingly, Italian *null subjects* are identified by the agreement morphology. Chinese *null subjects* are identified by c-command. Japanese *null subjects* can be inferred pragmatically.

am not totally against the idea that the agreement morphology has a pivotal role in identifying the *null pro*, however, this role is required only in the absence of the ‘*real*’ lexical subject.

In summary, it is plausible to claim that the lexical subject and the *null pro* subject may not simultaneously appear in the same TP; only one candidate subject should appear at a time. I believe that the generalization I have formulated in (67) is able to capture the differences between two roles of the agreement morphology. I suggest that, in the presence of the lexical subject either in the SVO or VSO order, the *default* role of the agreement features is to map agreement from the verb onto its antecedent/succedent subject. In the absence of the lexical subject, the secondary role of agreement features is to identify the *null pro* subject in the VSO order. Based on the discussion, two important issues have emerged. First, agreement  $\phi$  features on the verb cannot be taken as a basis to argue that the *null pro* is the real subject of SVO structures as claimed by some studies (e.g., AlAlamat, 2014; Al-Balushi, 2011, 2012; Al-Horais, 2009; Soltan, 2006, 2007a). Second, as a subsequent result of the first issue, the preverbal DPs that fall within the TP domain may not be topics; they are lexical subjects of SVO structures. This conclusion takes us to the next section where I argue that preverbal subjects must be kept distinct from topics.

## 4.6 Preverbal subjects versus topics

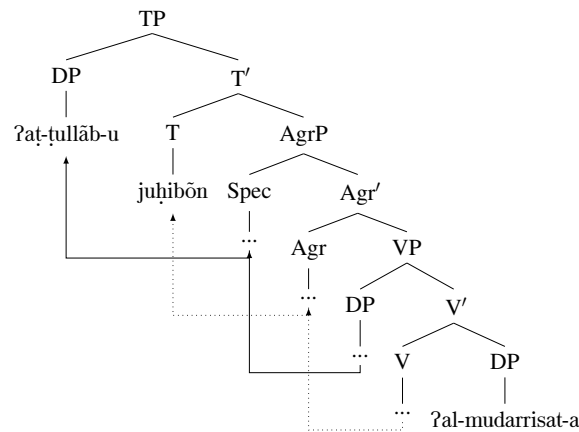
This section investigates the preverbal DPs in Arabic. These DPs have been a puzzling issue among researchers. The puzzle follows from the syntactic position they occupy. Some studies argue that they are topics or dislocated elements occupying [Spec:TP]; they occupy this position either by direct external merge (base-generated) or arrive there by internal merge (syntactic movements). By contrast, some studies argue that they are structural subjects occupying [Spec:TP] as a result of an XP movement from a lower position in the syntactic structure. In this section, I argue that preverbal DPs can be topics or left-displaced objects (LDOs) or they can be subjects

depending on the syntactic position they occupy. If, on one hand, they fall out of the TP domain, they can be topics or LDOs occupying an  $A^{bar}$  position. If, on the other hand, they fall within the TP domain, they are subjects occupying an A position.

Below I discuss the preverbal subject DPs. I argue that the preverbal DPs, in SVO structures, are structural subjects occupying [Spec: TP] as shown in (69a) and schematized in (69b).

- (69) a.  $\text{ʔaṭ-ṭullāb-u}$                        $\text{juḥibōn}$   $\text{ʔal-mudarrisat-a}$   
 the-students-*MS-NOM* like-*PL* the-teacher-*FM-ACC*  
 ‘The students like the (female) teacher.’

b.



The subject  $\text{ʔaṭ-ṭullāb-u}$  ‘the students’ is first merged into [Spec: VP], then it moves to [Spec: AgrP] where it checks for agreement  $\phi$  features. Finally, it moves to [Spec: TP] for an EPP feature checking.<sup>27</sup> The verb moves from V-to-Agr-to-T for uninterpretable features and agreement features checking. My argument, that the preverbal DPs occupying [Spec: TP] are preverbal subjects, is supported by many studies. Doron (1996), Doron and Heycock (1999, 2010) argue that, in Arabic and Modern Hebrew, preverbal DPs that occupy [Spec: TP] are *broad* subjects; they are not topics. Alexopoulou et al. (2004) also argue for the same view in Levantine Arabic. Similarly, Benmamoun (2008) and Fassi Fehri (1993), and Goodall (2002) have argued (for Arabic and Spanish respectively) that [Spec: TP] is an A position occupied by a preverbal subject DP.

<sup>27</sup>EPP feature checking on T is required in the case of SVO order.

Now, we turn to the topics and the LDOs. For the ease of discussion, I will use two different versions of the example introduced in (69a). In the first version (70), the DP *ʔal-mudarrisatu* ‘the female teacher’ (the object in (69a)) is assigned nominative Case whereas the same DP is assigned accusative Case in (71).

(70) ʔal-mudarrisat-u    ʔaṭ-ṭullāb-u    juḥibōna-ha  
 the-teacher-*FM-NOM* the-students-*MS-NOM* like-it-*FM-SG*  
 ‘The (female) teacher, the students like her.’

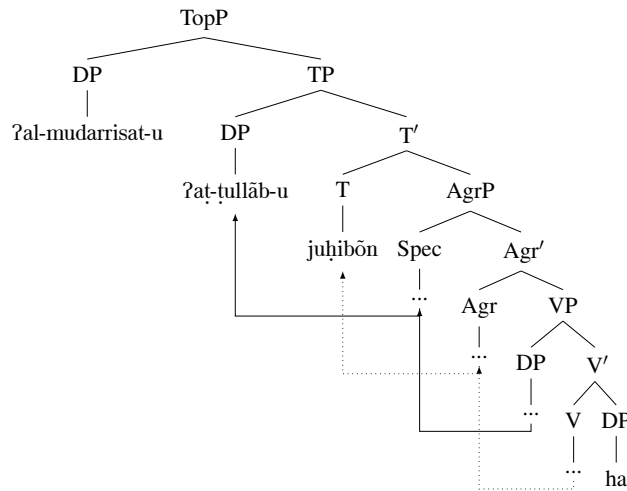
(71) ʔal-mudarrisat-a    ʔaṭ-ṭullāb-u    juḥibōna-ha  
 the-teacher-*FM-ACC* the-students-*MS-NOM* like-it-*FM-SG*  
 ‘The (female) teacher, the students like her.’

We notice that although the DP *ʔal-mudarrisat-u/a* is appearing in the same sentence, it is assigned different Case. The assignment of different Case implies that the noun is generated in different syntactic positions despite the fact that it appears at the beginning of the clause. To explain the two different instances of Case assignment, I propose that nominative preverbal DPs are topics whereas accusative preverbal DPs are LDOs. My explanation goes as follows: I will discuss preverbal topics, then I will turn to LDOs (preverbal LDOs from here onward).’

**Preverbal topics:** I argue that the nominative DP *ʔal-mudarrisatu* is a topic base-generated in the [Spec:TopP]. My argument follows from the idea that Arabic DPs that are not arguments of finite clauses are assigned default nominative Case (Benmamoun, 2008). Notice that the topic DP *ʔal-mudarrisat-u/a* in (70) is external to the finite clause, the TP (i.e., the structure is [DP, SVO]). Thus, it receives nominative Case as the default one; there is no dominating operator such as prepositions, complementizers or verbs to assign genitive or accusative Case to the topic. The schematic tree in (72b) shows the topic-based analysis.

(72) a. ʔal-mudarrisat-u    ʔaṭ-ṭullāb-u    juḥibōna-ha  
 the-teacher-*FM-NOM* the-students-*MS-NOM* like-it-*FM-SG*  
 ‘The (female) teacher, the students like her.’

b.



It can be noticed that there is a feminine singular pronominal DP *ha* occupying the object position; it co-indexes with the topic. At the linear order level, this inalienable pronoun is attached to the verb.<sup>28</sup> Two important issues follow from this pronoun. First, it cannot be dropped or left out since Arabic grammar, in most cases, does not allow for resumptive pronouns to be dropped. Second, we notice that agreement is established between the topic and this pronoun; it is not established between the topic and T. This can be taken as strong evidence that the topic is not in a Spec-head relation with T as argued by Al-Balushi and others. Therefore, it is reasonable to conclude that topics do not fall within the TP domain.

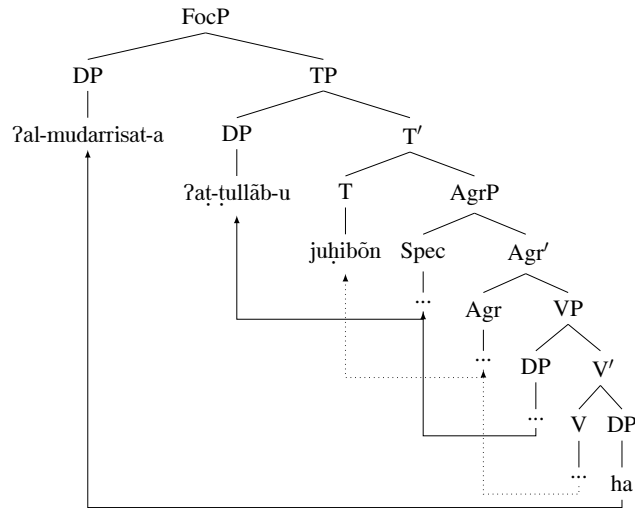
**Preverbal LDOs:** If we look back at example (71), we notice that the DP *ʔal-mudarrisata* is assigned accusative Case. It can be inferred that, at some point in the syntactic derivation of (71), the DP *ʔal-mudarrisat-a* has been in a position where it has been assigned accusative Case. The elected position is the complement of VP. Thus, I propose that the transitive verb *juhib* ‘like’ assigns accusative Case to *ʔal-mudarrisat-a*, the object of the clause. Having been assigned accusative Case, the object can remain in situ, this is the default status as the case in (69). Alternatively, I propose that the object can be left-displaced to the front of the clause for focus purposes.

<sup>28</sup>I assume that the pronominal object *ha* is attached to the verb at PF level. There is no requirement for a syntactic movement in the narrow syntax. Neither agreement feature checking nor Case checking is required.

However, its canonical position, the complement of the VP, cannot be left vacant because of a language-specific requirement. Therefore, the resumptive pronoun *ha* takes the responsibility to occupy the vacant position; the schematic (73b) instantiates the proposed analysis.

- (73) a.  $\text{ʔal-mudarrisat-a}$      $\text{ʔaṭ-ṭullāb-u}$      $\text{juḥibōna-ha}$   
 the-teacher-*FM-ACC*    the-students-*MS-NOM*    like-it-*FM-SG*  
 ‘The (female) teacher, the students like her.’

b.



The proposed analysis in (73b) differs from the one in (72b) in two important respects which make preverbal topics different from preverbal LDOs. First, we notice that they are assigned different Case (i.e., topics are assigned nominative Case; LDOs are assigned accusative Case). Second, topics are base-generated in [Spec: TopP] whereas LDOs arrive in [Spec: FocP] as a result of the object being displaced to the focus position.

Before closing this subsection, I introduce crosslinguistic evidence which supports my assumption that topics must be kept separated from preverbal subjects. Having investigated topics and preverbal subjects, [Cardinaletti \(2004\)](#) and [Rizzi \(2005\)](#) argue that topics should be kept distinguished from preverbal subjects. They argue that preverbal subjects are suitable, *felicitous* as termed by Rizzi (p.210), to provide new information out of the blue. Topics, by contrast, provide information; however, they must be D-linked (linked to a discourse). Both, preverbal subjects and topics, describe an event about the argument, namely aboutness. Topics are [+aboutness/

+D-linked], but preverbal subjects are [+aboutness] only (ibid). An idea that was put forth by Rizzi (2005) to tease out topics from subjects is the readiness of subjects to accept quantification; a trait which is not available to topics in most cases, specifically CILD (clefted or left-dislocated items); see the below examples.

- (74) a. \*Nessuno, Piero lo ha visto  
 no-one, Piero him has seen  
 ‘No one saw Piero.’ (Italian)
- b. Nessuno ha visto Piero  
 no-one has seen Piero  
 ‘No one saw Piero.’ (Rizzi, 2005, p.211)

In (74a) the CILD quantified item *Nessuno* ‘no one’ which occupies a topic position, renders the sentence ungrammatical. The ill-formedness is due to the quantification of the topicalized noun. By contrast, in sentence (74b), the same lexical noun accepts quantification since it is occupying a subject position. This distributional evidence, as so called by Rizzi, suggests that preverbal subjects project under a functional head which is different from the functional head that projects topics. A similar case can be found in Arabic; see (75) below.

- (75) a. mā hāḏa ʔaṣ-ṣəwt  
 what this the-sound  
 ‘What is that noise?’ (Speaker-A asked)
- b. **walad-u-n**, jelʕabu ʔal-korat-a  
 boy-*Top-NOM-NUN* play the-ball-*ACC*  
 ‘A boy plays/is playing football.’ (Speaker-B answered)
- c. \*walad-u-n jelʕabu ʔal-korat-a  
 boy-*NOM-NUN* play the-ball-*ACC*  
 ‘A boy plays/is playing football.’

Sentence (75b) is acceptable because it is linked to an ongoing discourse. For example, someone might have asked the question in (75a). The answer is *walad-u-n, jelʕabu ʔal-korat-a*. Therefore, the indefinite DP is acceptable because it is topicalized and linked to an ongoing event. However,

(75c) is ungrammatical because it was uttered out of the blue; there was no background discourse. This syntactic behaviour shows that topics are distinct from preverbal subjects.

In support of my argument of topics-versus-preverbal subjects, Goodall (2002) proposes what he calls the *CP-layer specialization hypothesis*; it is quoted below.

- (76) *"Phrases in the CP layer will receive topic, focus or other operator interpretation. When subjects raise out of VP, they may not go higher than IP layer."*  
(p.95)

I have argued that preverbal subjects occupy [Spec: TP]; topics, by contrast, cannot occupy [Spec: TP] since they occupy a [Spec] of a phrase higher than TP. My argument is in the spirit of this hypothesis.

Another piece of evidence in support of my argument, Obata (2012) and Radford (2009a) argue that topics occupy an  $A^{bar}$  position. If topics occupy an  $A^{bar}$  position, their  $\phi$  features may not be checked by  $T^0$ ; by contrast, subjects can occupy an A position, thus they bear  $\phi$  features that can be checked by  $T^0$ . This is exactly what we have seen in examples (69a), (70) and (71), repeated below as (77), (78) and (79) for more clarifications.<sup>29</sup>

- (77)  $\text{ʔaʔ-tullāb-u}$                        $\text{juḥibōn}$        $\text{ʔal-mudarrisat-a}$   
the-students-*MS-PL-NOM* like-*MS-PL* the-teacher-*FM-SG-ACC*  
'The students like the teacher.'

- (78)  $\text{ʔal-mudarrisat-u}$                $\text{ʔaʔ-tullāb-u}$                        $\text{juḥibōna-ha}$   
the-teacher-*FM-SG-NOM* the-students-*MS-PL-NOM* like-*MS-PL*it-*FM-SG*  
'The (female) teacher, the students like.'

- (79)  $\text{ʔal-mudarrisat-a}$                $\text{ʔaʔ-tullāb-u}$                        $\text{juḥibōna-ha}$   
the-teacher-*FM-SG-ACC* the-students-*MS-PL-NOM* like-*MS-PL*it-*FM-SG*  
'The (female) teacher, the students like.'

In example (77), the subject  $\text{ʔaʔ-tullāb-u}$  'the male students' shows full agreement of  $\phi$  features with the verb  $\text{juḥibōn}$  'like'. This means that the subject is in an A position since it is able to

<sup>29</sup>The gloss of the features is added to show the differences between the topics and the subjects.

establish full agreement with its verb. However, the case is different in (78) and (79). Because the topic and the LDO are occupying an  $A^{bar}$  position, agreement is not established with the verb and all  $\phi$  features are lost.

In summary, the previous discussion provides us with clear evidence that topics are different from preverbal subjects. Each type occupies a different syntactic position. Therefore, it is reasonable to argue that topics and left-displaced objects do not occur within the domain of TP. They occupy a higher syntactic position, specifically [Spec: TopP] or [Spec: FocP]. This position locates above TP and below CP. By contrast, preverbal subjects fall within the TP domain; they occupy [Spec: TP]. Having shown that preverbal DPs occupying [Spec: TP] are subjects, I will proceed to the next section to give a brief background on indefinite preverbal subjects in Arabic.

#### **4.7 Indefinite subjects in SVO**

I have argued that subjects of SVO structures occupy the specifier position of TP, [Spec: TP]. They arrive there as a result of a successive XP movement from [Spec: VP] to [Spec: AgrP] to [Spec: TP]. As long as the subject noun is definite, it can occupy the preverbal subject position, [Spec: TP]. The problem arises when the subject noun is indefinite. The [Spec: TP] position is very sensitive to the type of subject DPs it hosts. In other words, definite DPs can occupy [Spec: TP] without any restrictions; indefinite DPs, by contrast, cannot do so. As far as indefinite DPs are concerned, linguists who investigated word order in Arabic showed a controversial stance. On one hand, some studies claim that indefinite DPs cannot be placed preverbally unless they are topicalized (Ayoub, 1981; Fassi Fehri, 1993). On the other hand, some studies argue against the first claim and contend that not all indefinite preverbal DPs are topics (Aoun et al., 2010; Mohammad, 2000); they seem to behave as preverbal subjects. However, these studies left the issue open for further investigation. The status of indefinite DPs that occupy preverbal subject

positions will be investigated in the next chapter.

## 5 Conclusion

This chapter has investigated the difference between the preverbal subject DPs and topic/focus DPs. It also provided a comprehensive review of the agreement system in SA and in different dialects of Arabic. Evidently, the investigation of the agreement system revealed that full agreement is robustly attested in VSO structures. It also showed that defective agreement is found in SVO structures. As a reminder, it is generally conceived that full agreement is only present in SVO structures whereas defective agreement is only present in VSO structures. I have shown that this idea is not correct and I have drawn the following conclusions. I claim that the lexical subject and the *null pro* subject may not simultaneously appear in the same TP; only one candidate subject should appear at a time. I have argued that in the presence of the lexical subject either in the VSO or SVO order, the *default* role of the agreement features is to map agreement from the verb onto its pre/postverbal subject. I showed that in the absence of the lexical subject the secondary role of agreement features is to identify the *null pro* subject. I have discussed the status of preverbal DPs and provided clear evidence that topics are different from preverbal subjects. I have argued that topics and left-displaced objects do not occur within the domain of TP, they locate within the CP layer. By contrast, preverbal subject DPs fall within the TP domain; they occupy [Spec: TP]. Having established the subjecthood of preverbal subject DPs, I will argue that indefinite DPs can operate as preverbal subjects, but they need a special treatment. They must be licensed by some elements in order to occupy preverbal subject positions. This conclusion takes us to §3 where I investigate the status of indefinite DPs in preverbal subject positions.

# Chapter 3

## Distribution and Licensing

### 1 Introduction

This chapter aims to investigate the syntactic distribution and licensing of DPs in SA and SUD. Arabic DPs show different syntactic distributions depending on the type of the structure they appear in (SVO or VSO) and on the semantic type of the DP (definite or indefinite). The variability of the two types (orders and DPs) puts some distributional restrictions on the DPs that occupy subject positions. In other words, definite DPs can occupy the subject position in the VSO order, the postverbal subject position. They can also occupy the subject position in the SVO order, the preverbal subject position. The definite DPs, being in different syntactic positions, do not require any special treatment in order to appear in any subject position (a pre- or postverbal position). By contrast, indefinite DPs do not behave in the same way as definite DPs. That is to say, indefinite DPs can occupy the postverbal subject position in the VSO order. However, they cannot occupy the preverbal subject position in the SVO order unless they are licensed by modification. They must be modified by an adjective, a diminutive or by CS. This issue, licensing by modification, is the central point of this chapter.

It has been argued by several studies ([Al-Balushi, 2011](#); [Al-Horais, 2009](#); [Ayoub, 1981](#); [Soltan, 2007a](#), among others) that indefinite DPs cannot occupy preverbal subject positions. The argument was built on the basis of the asymmetric agreement system between SVO and VSO structures. I have argued against this claim (asymmetry in agreement system) in the previous chapter, §2. I have shown that the agreement system can be symmetric in SVO and VSO structures (i.e., full agreement can be found in SVO and VSO, and so can be defective agreement).

I will argue that the inability of indefinite DPs to appear as preverbal subjects is not due to the agreement system. Instead, it is due to another factor: indefinite DPs can appear in preverbal subject positions; however, they need to be modified in order to be syntactically eligible to stand as preverbal subjects.

I will show that indefinite DPs are encliticized with nunation (NUN) to mark indefiniteness. Nunation by itself cannot license indefinite DPs to appear as preverbal subjects. Thus, the aid of modification is required to promote indefinite DPs to occupy preverbal subject positions. I argue that modification and nunation, working in tandem, license indefinite DPs in preverbal subject positions. Following [Giusti \(2002\)](#) and [Mathieu \(2012b\)](#), I propose that syntactic *visibility* conditions must be satisfied. The idea is that, for the case in point, indefinite preverbal subjects in Arabic, the *head*  $D^0$  must be filled by a determiner (nunation) and the specifier of the NP [Spec: NP] must be filled by a modifier. The two positions, being filled, become visible to the noun. This is how the indefinite DP becomes licensed to appear as a preverbal subject.

Licensing by modification plays an important role in the syntactic distribution of DPs in SA and in SUD. More specifically, it augments nunated nouns (nouns that are encliticized with nunation *-n*) to appear in non-licit syntactic environments. Modifiers are thought to take only the role of modification, as a semantic role. However, they seem not to have only this role, but also extend to effectively participate in the distribution of DPs and licensing them to occupy some restricted syntactic positions in SA. Licensing by modification is not only attested in SA but also in SUD. I argue that the role of modifiers is not merely related to modification without any direct influence on the distribution of DPs. Crosslinguistically, there appear to be cases where modifiers extend the distributions of DPs and help to license DPs found in non-licit positions (Spanish, [Contreras, 1986](#); Italian, [Longobardi, 1994](#) and [Chierchia, 1998](#); French, [Mathieu, 2012b](#)). This chapter will focus on licensing indefinite subjects in the SVO orders since the syntactic subject



- (2) a. \*ḥanaḥi-n daxal fi ʔal-dʒader  
snake-NUN entered in the-wall  
Intended: ‘A snake entered into the wall.’ \*(+nutation / - adjective)
- b. \*ḥanaḥi- kebēri-n daxal fi ʔal-dʒader  
snake- big-NUN entered in the-wall  
Intended: ‘A big snake entered into the wall.’ \*(- nutation / + adjective)
- c. ḥanaḥi-n kebēri-n daxal fi ʔal-dʒader  
snake-NUN big-NUN entered in the-wall  
‘A big snake entered into the wall.’<sup>1</sup> ✓(+ nutation / + adjective)

The sentence in (2a) is ungrammatical because it lacks a modifier. Likewise, the sentence in (2b) is ungrammatical since nutation is missing. Interestingly, the sentence in (2c) is perfectly well-formed. The co-existence of the adjective *kebēri-n* ‘big’ and nutation has licensed the indefinite DP to occupy the preverbal subject position in SVO order.

Al-Rajhi (2010) argues that the diminutive is a type of modification that can change the semantic status of a given noun to occupy a non-licit environment. It works with nutation to license indefinite DPs to occupy preverbal subject positions. The following examples show how the diminutive and nutation positively license indefinite DPs to appear as preverbal subjects:

- (3) a. \*radʒul-u-n daxala ʔal-maktab-a  
man-NOM-NUN entered the-office-ACC  
Intended: ‘A man entered the office.’ \*(+nutation / - diminutive)
- b. \*rudʒeil-u- daxal ʔal-maktab-a  
man-DIM-NOM- entered the-office-ACC  
Intended: ‘A small man entered the office.’ \*(- nutation / + diminutive)
- c. rudʒeil-u-n daxal ʔal-maktab-a  
man-DIM-NOM-NUN entered the-office-ACC  
‘A small man entered the office.’ ✓(+ nutation / + diminutive)

By examining the structure in (3a), we notice that nutation is attached to a non-diminutivized noun which renders the sentence ungrammatical. In (3b), the noun *radʒul* ‘man’ is diminutivized

<sup>1</sup>A wall built with fragmented stones.



indefinite preverbal subjects in Arabic.<sup>3</sup>

Second, this chapter comes to positively contribute to finding solutions to the long lasting problem of the indefinite DPs' distributions specifically in preverbal subject positions. Ayoub (1981), Demirdache (1991), Olarrea (1996) state that indefinite DPs are not allowed in preverbal subject positions in SA as is the case in other languages unless they are topicalized. I argue that indefinite DPs can occupy preverbal positions, however, they need to be licensed since they have a more restricted distribution as opposed to indefinite DPs in postverbal positions. It cannot be claimed that the preverbal position is allocated only for a topic position (Aoun et al., 2010; Mohammad, 2000). There are DPs that do not seem to be topicalized and still occur in the preverbal positions as follows:

- (5) a. walad-u-n      ʔawiil-u-n      dʒaʔa  
       boy-NOM-NUN tall-NOM-NUN came  
       'A tall boy came.' (SA) (Mohammad, 2000, p.11)
- b. walad ʔawiil ʔadʒa  
       boy tall came  
       'A tall boy came.' (Palestinian Arabic) (ibid)

Aoun et al. (2010) state: *"It is not clear what to make of these data as far as the status of the preverbal position is concerned (p.63)"*. The aim of this chapter is to provide an answer to this puzzle by investigating the preverbal subject DPs distribution and licensing in SA and in SUD.

The chapter proceeds as follows: in section 2, I discuss the distribution of Arabic DPs; I show how definite DPs have an asymmetric distribution with indefinite DPs. Section 3 presents the puzzle of the case of licensing; section 4 gives an account of licensing by modification, three licensing elements will be discussed, namely adjectives, diminutives and CS. Section 5 summarizes the chapter.

<sup>3</sup>Mathieu (2012b) argues that the visibility of the specifier and the visibility of the head may work disjointly (only one might be required) or conjointly (both are required) as the case of indefinite phrases in French. For Arabic indefinite preverbal subjects, the visibility of the specifier and the head is required (i.e., they work conjointly).

## 2 Distribution of determiner phrases

This section discusses the distribution of DPs in Arabic. We have seen that the Arabic grammar offers two grammatical subject positions to host the subject DP. I have argued that these positions are [Spec: VP] in the case of VSO order and [Spec: TP] in the case of SVO order. In the following subsections, I discuss the distribution of definite DPs in subsection 2.1 and the distribution of indefinite DPs in subsection 2.2.

### 2.1 Definite DPs

Definite DPs can be freely distributed in subject positions. They can appear as the subjects of VSO structures; they occupy postverbal subject positions as shown by (6). They can also appear as the subjects of SVO structures by occupying the preverbal subject positions (7).

(6) *kataba ʔal-mudarris-u ʔal-dʒumlat-a*  
 wrote the-teacher-*NOM* the-sentence-*ACC*  
 ‘The (male) teacher wrote the sentence.’ (VSO)

(7) *ʔal-mudarris-u kataba ʔal-dʒumlat-a*  
 the-teacher-*NOM* wrote the-sentence-*ACC*  
 ‘The (male) teacher wrote the sentence.’ (SVO)

Notice that the definite subject *ʔal-mudarrisu* ‘the teacher’ appears as a postverbal subject in (6) and as a preverbal subject in (7). The free distribution of definite subject DPs is not limited to SA but also found in SUD. This can be seen in (8) and (9).

(8) *farō ʔar-riḏʒādʒēl ʔal-beyiet*  
 bought-*PL* the-men the-house  
 ‘The men bought the house.’ (VSO)

(9) *ʔar-riḏʒādʒēl farō ʔal-beyiet*  
 the-men bought-*PL* the-house  
 ‘The men bought the house.’ (SVO)

Definite DPs in SA and SUD are symmetrically distributed in subject positions regardless of the word order type. There are no distributional restrictions on them. Definite DPs being in different subject positions do not require any special treatment. All structures in (6) and (7) for SA, (8) and (9) for SUD are grammatically well-formed. They just differ in the placement of the subject, preverbal/postverbal. What follows from the examples above is that definite DPs are syntactically and semantically able to occupy subject positions. This behaviour falls under the generalization that definite DPs are strong DPs.<sup>4</sup> Thus, they need not any augmentation to occupy any argumental position, specifically subject positions.<sup>5</sup> Arabic definite DPs are subject to this crosslinguistic property. They can occupy preverbal/postverbal subject positions in SVO/VSO without any restrictions.

## 2.2 Indefinite DPs

Unlike definite DPs, indefinite DPs show an asymmetric distribution when occupying preverbal or postverbal subject positions. That is to say, indefinite DPs in VSO can be admitted to postverbal subject positions without any restrictions (see (10)). By contrast, preverbal subject positions are sensitive to the type of the DPs they host. In sentence (11), indefinite DPs cannot be

<sup>4</sup>It is argued that strong DPs are e-type DPs that cannot be found as complements of *existential there* ( $\exists$ ) constructions (Gierling, 1997; Guillemin, 2011; Hartmann, 2005; Zamparelli, 1995, 2000, 2014). What matters for the current investigation is the ability of the definite DPs to occupy subject positions in (in)transitive declarative constructions. That is, DPs that resist to appear in *existential there* constructions can occupy subject positions without any restrictions. By contrast, not all DPs that are acceptable in *existential there* constructions can act as subjects specifically in preverbal subject positions. See the examples in (1) for the DPs in existential constructions and the examples in (2) for the DPs in preverbal subject positions.

- |  |  |
|--|--|
| <p>(1) a. honāka radʒul-u-n fi ʔal-ḥadiqat-i<br/> there man-<i>NOM-NUN</i> in the-garden-<i>GEN</i><br/> ‘There is a man in the garden.’</p> <p>b. *honāka ʔar-radʒul-u fi ʔal-ḥadiqat-i<br/> there the-man-<i>NOM</i> in the-garden-<i>GEN</i><br/> * ‘There is the man in the garden.’</p> | <p>(2) a. *radʒul-u-n fi ʔal-ḥadiqat-i<br/> man-<i>NOM-NUN</i> in the-garden-<i>GEN</i><br/> Intended: ‘A man is in the garden.’</p> <p>b. ʔar-radʒul-u fi ʔal-ḥadiqat-i<br/> the-man-<i>NOM</i> in the-garden-<i>GEN</i><br/> ‘The man is in the garden.’</p> |
|--|--|

We notice that indefinite DPs can appear in existential constructions, but not in preverbal subject positions. By contrast, DPs that resist existential constructions can be preverbal subject DPs.

<sup>5</sup>The current investigation focuses on the DPs that occupy subject positions. It does not focus on object positions since any type of DPs can occupy them without any restrictions.

admitted to preverbal subject positions in SVO structures.<sup>6</sup>

- (10) *daxala radʒul-u-n ʔal-maktab-a*  
 entered man-*NOM-NUN* the-office-*ACC*  
 ‘A man entered the office.’ (VSO)
- (11) \**radʒul-u-n daxala ʔal-maktab-a*  
 man-*NOM-NUN* entered the-office-*ACC*  
 Intended: ‘A man entered the office.’ (SVO)

Looking closely at sentences (10) and (11), it is noticeable that they have the same number and type of lexical categories. However, the type of the clause structure (VSO/SVO) restricts the distribution of indefinite subjects in SA. The indefinite subject, appearing in the preverbal subject position, leads to the ungrammaticality of (11). This phenomenon is not only attested in SA since SUD tends to show the same restrictions on indefinite DPs. They can be used in postverbal subject positions (12), but not in preverbal subject positions (13).

- (12) *daxal ḥanaʒi-n fi ʔal-dʒader*  
 entered snake-*NUN* in the-wall  
 ‘A snake entered into the wall.’ (VSO)
- (13) \**ḥanaʒi-n daxal fi ʔal-dʒader*  
 snake-*NUN* entered in the-wall  
 Intended: ‘A snake entered into the wall.’ (SVO)

The indefinite subject DPs in (11) and (13) respectively, *radʒul-u-n* ‘a man’ and *ḥanaʒi-n* ‘a snake’, must be modified in order to spell out grammatical sentences. Notice that all nouns are encliticized with nunation; however, nunation by itself does not render the sentences correct. The ungrammaticality of (11) and (13) is connected with the occupancy of the subject positions; they are occupied by indefinite DPs. In order to fix the problem, these indefinite subjects must be modified (see (14) and (15) for example).

<sup>6</sup>Some examples presented in the introduction are repeated in this section for the purpose of discussion.

- (14) radʒul-u-n    ʔawēl-u-n    daxala ʔal-maktab-a  
 man-*NOM-NUN* tall-*NOM-NUN* entered the-office-*ACC*  
 ‘A tall man entered the office.’
- (15) ḥanaʕi-n    kebēri-n    daxal    fi ʔal-dʒader  
 snake-*NUN* big-*NUN* entered in the-wall  
 ‘A big snake entered into the wall.’

It can be noticed that when the indefinite subject DPs in (14) and (15) are modified by the attributive adjectives *ʔawēl-u-n* ‘tall’ and *kebēri-n* ‘big’, they spell out grammatical sentences. In other words, indefinite DPs are licensed to occupy preverbal subject positions. The existence of a modifier and nunation is substantially required to license indefinite DPs in preverbal subject positions.

By contrast, nunation suffices to license indefinite DPs in postverbal positions. This means that the role of nunation *must not* be underestimated. [Almansour \(2012\)](#), [Fassi Fehri \(1993\)](#), [Lyons \(1999\)](#) and [Shlonsky \(2004\)](#) argue that Arabic may not have a real indefinite article and the presence of nunation might be attributed to phonological reasons and not to syntactic ones. I argue that nunation is a syntactic head of a special type that occupies  $D^0$  position despite the fact that it is unable to license indefinite DPs in preverbal subject positions.

In summary, definite DPs are symmetrically distributed in preverbal subject positions (in SVO structures) and postverbal subject positions (in VSO structures). By contrast, indefinite DPs do not show the same distribution. They can appear as postverbal subjects (in VSO structures), but they cannot appear as preverbal subjects (in SVO structures) unless they are modified.

### 3 The puzzle

The fact that modification has a concrete role to play in the distribution and well-formedness of DPs is crosslinguistically attested. For instance, what happens in SA is similar to what happens

in Spanish (Contreras, 1986) and French (Mathieu, 2012b). First consider French.

- (16) a. \*J'ai lu de romans l'été dernier  
I.have read DE novels the-summer last  
Intended: 'I read (some) novels last summer.'
- b. J'ai lu de bons romans l'été dernier  
I.have read DE good novels the-summer last  
'I read good novels last summer.'
- c. \*De romans ont été publiés l'été dernier  
DE novels have been published the-summer last  
Intended: '(Some) novels were published last summer.'
- d. De bons romans ont été publiés l'été dernier  
DE good novels have been published the-summer last  
'(Some) good novels were published last summer.' (Mathieu, 2012b, p.2-4)

The *de* nominals (so called by Mathieu) in examples (16a&c) lacking a prenominal modifier results in ill-formedness of both sentences. They occupy two different syntactic positions, object/subject respectively. However, the puzzle is that they become grammatical when they are prenominally modified by *bons* 'good'. A similar case is found in Spanish (Contreras, 1986). Spanish bare nouns are not permitted in preverbal subject positions (see example (17a)) below. However, if the bare DPs are modified, for example by an adjective, they can appear in such environments as shown in (17b).

- (17) a. \*Escritores han aceptado su invitación  
writers have accepted his invitation  
'\*Writers have accepted his invitation.' (Spanish)
- b. Escritores franceses han aceptado su invitación  
writers French have accepted his invitation  
'French writers have accepted his invitation.' (Mathieu, 2012b, p.3)

The modifier *franceses* 'French' transforms sentence (17a) from an ungrammatical structure to a grammatical one. This comes on a par with what happens in French and Arabic. It is plausible to argue that the well-formedness of (17b) is a result of the modifier which turns the subject into a

real argument. Similarly, Italian shows the same restrictions on bare nouns. Such nouns must be placed postverbally in order to spell out grammatical sentences. For example:

- (18) a. \*Acqua viene giù dalle colline  
 water comes down from-the hills  
 ‘\*Water comes down from the hills.’ (Italian)
- b. Viene giù acqua dalle colline  
 comes down water from-the hills  
 ‘Water comes down from the hills.’ (Longobardi, 1994, p.616)

Focusing on Arabic, subjects can be either preverbal or postverbal. Postverbal subjects pose no syntactic problem to nunated nouns. In other words, nunated nouns can occupy postverbal subject positions without any restrictions. For example:

- (19) daxala radʒul-u-n ʔal-maktab-a  
 entered man-NOM-NUN the-office-ACC  
 ‘A man entered the office.’

The postverbal subject *radʒul-u-n* ‘a man’ requires no elements to license it to appear in such a position; the sentence grammaticality is saved without the intervention of modification. However, if the same subject is placed in preverbal position, the sentence becomes ungrammatical as the following example shows:

- (20) \*radʒul-u-n daxala ʔal-maktab-a  
 man-NOM-NUN entered the-office-ACC  
 Intended: ‘A man entered the office.’

The puzzle is that when the preverbal subject is modified, the sentence becomes grammatical as we have seen in (1c), (3c) and (4c) repeated respectively below in (21).

- (21) a. radʒul-u-n ʔawēl-u-n daxala ʔal-maktab-a  
 man-NOM-NUN tall-NOM-NUN entered the-office-ACC  
 ‘A tall man entered the office.’ (modification by adjective)
- b. rudʒeīl-u-n daxala ʔal-maktab-a  
 man-DIM-NOM-NUN entered the-office-ACC  
 ‘A small man entered the office.’ (modification by diminutive)

- c. walad-u mudarris-i-n jaktubu ?al-wadʒib-a  
 boy-*NOM* teacher-*GEN-NUN* writing the-homework-*ACC*  
 ‘A teacher’s son is doing the homework.’ (modification by CS)

For the current puzzle, three remedies are exploited to render these sentences grammatical, namely adjectives, diminutives or indefinite CSs. The presence of nunation is required in all cases. In section 4, I will present an account of each type of these licensors.

## 4 Licensing by Modification

I have shown in section 2 that Arabic expresses different distribution of DPs that occupy subject positions. The type of word order and the semantic type of DPs ( $\pm$  definite) play an important role in the distribution. Arabic mainly shows two different orders (VSO/SVO). In the case of VSO, postverbal subject DPs have a free distribution regardless of their semantic type. DPs ( $\pm$  definite) can freely occupy postverbal subject positions without any restrictions on condition that the subject NPs are accompanied by the definite article *?al* for definite subjects or nunation in the case of indefinite subjects (see (22) for definite postverbal subjects and (23) for indefinite postverbal subjects).

- (22) kataba ?al-mudarris-u ?al-?idʒabat-a  
 wrote the-teacher-*NOM* the-answer-*ACC*  
 ‘The teacher wrote the answer.’

- (23) kataba mudarris-u-n ?al-?idʒabata  
 wrote teacher-*NOM-NUN* the-answer-*ACC*  
 ‘A teacher wrote the answer.’

It is evident that the subject DP in (22) is definite while it is indefinite in (23). Both sentences are grammatical. However, when it comes to SVO order, the case is different from VSO, specifically with indefinite DPs. In other words, definite DPs can be admitted to preverbal subject positions without any restrictions as shown by (24).

- (24) ʔal-mudarris-u kataba ʔal-ʔidʒabat-a  
 the-teacher-*NOM* wrote the-answer-*ACC*  
 ‘The teacher wrote the answer.’

As far as definite DPs are concerned, there are no grammatical restrictions on them to occupy preverbal subject positions. However, the potential problem lies in the SVO order when the preverbal subject position is occupied by an indefinite noun as shown in (25) and (26).

- (25) \*mudarris-u-n kataba ʔal-ʔidʒabat-a  
 teacher-*NOM-NUN* wrote the-answer-*ACC*  
 Intended: ‘A teacher wrote the answer.’

- (26) \*mudarris-ōn katab-ō ʔal-ʔidʒabat-a  
 teachers-*NOM.PL* wrote the-answer-*ACC*  
 Intended: ‘Teachers wrote the answer.’

In sentence (25), the preverbal subject position is occupied by an indefinite noun *mudarris-u-n* ‘a teacher’ which leads to the ungrammaticality of the sentence. Some languages, English for example, permit indefinite plural nouns to occupy subject positions. These DPs do not require the presence of an overt determiner. Arabic, by contrast, does not tolerate indefinite plural nouns in preverbal subject positions although they carry a determiner (nunation) as shown in (26).<sup>7</sup> To overcome the ill-formedness of these structures, preverbal DPs must be licensed to occupy the subject position in SVO. Licensing can be achieved by modifying the indefinite DPs. The following subsections introduce and investigate three different kinds of licensing, namely adjectives, diminutives and CSs.

#### 4.1 Licensing by Adjectives

The role of adjectives is not limited only to modifying the nouns they accompany (semantic role). They can change the syntactic distribution of these nouns. From the point of view of

<sup>7</sup>I assume that the ending *-n* in *mudarris-ōn* is to show plural agreement. I argue that nunation is present but it is morphologically suppressed. See §4 for detailed explanations.



- (28) a. \*ḥanaḥi-n daxal fi ʔal-dʒadre  
 snake-NUN entered into the-wall  
 Intended: ‘A snake entered into the wall.’
- b. ḥanaḥi-n kabēri-n daxal fi ʔal-dʒadre  
 snake-NUN big-NUN entered into the-wall  
 ‘A big snake entered into the wall.’

When the adjective *kabēri-n* ‘big’ in (28a) is missing, the sentence is ungrammatical; when it is available in (28b), it renders the sentence grammatical. Equally required, nunation must be attached to the noun *ḥanaḥi-n* ‘a snake’ in order for the sentence to preserve grammaticality.

The question that needs to be answered is what do adjectives and nunation do in order to fix the ungrammaticality of the sentences (27a&b) and (28a)? I also want to understand how adjectives and nunation contribute to change the status of the indefinite preverbal subject DPs. We notice that these DPs become legitimate in a syntactic position where they cannot occupy without the presence of the adjectives and nunation. To answer the question, I am proposing a syntactic solution to this puzzle. Building on Mathieu’s (2012b) proposal for a similar phenomenon in French; specifically, what he termed as *de nominals*, I argue that adjectives, in Arabic improve the status of preverbal nunated DPs enabling them to appear as preverbal subjects in French (Mathieu’s study). Recall the following examples from Mathieu’s examples (16a-d) repeated here as (29a-d) respectively.

- (29) a. \*J’ai lu de romans l’été dernier  
 I.have read DE novels the-summer last  
 Intended: ‘I read (some) novels last summer.’
- b. J’ai lu de bons romans l’été dernier  
 I.have read DE good novels the-summer last  
 ‘I read good novels last summer.’
- c. \*De romans ont été publiés l’été dernier  
 DE novels have been published the-summer last  
 Intended: ‘(Some) novels were published last summer.’

- d. De bons romans ont été publiés l'été dernier  
 DE good novels have been published the-summer last  
 '(Some) good novels were published last summer.' (Mathieu, 2012b, p.2-4)

The *de* nominal object *de romans* 'novels' in (29a) is not grammatically acceptable; however, when it has been modified in (29b) by the adjective *bons* 'good', it leads to the sentence's integrity. Similarly, the passivized subject *De romans* 'novels' in (29c) is not acceptable to occupy such a position without rearrangement. When it is modified, it is licensed to appear as a passivized subject as shown by (29d). Arabic nunated nouns show a similar behavior of French *de* nominals but not exactly the same. They are similar in the sense that preverbal DPs that are accompanied by nunation (for Arabic) or *de* (for French) are not grammatically acceptable without being licensed by modification. In order for preverbal subject DPs (Arabic) and passivized subject DPs (French) to initiate sentences, they must be modified. By contrast, Arabic nunated nouns are different from French *de* nominals in the sense that they are acceptable as postverbal subjects and objects without the need for modification as seen by (23) above. However, French *de* nominals require modification in any syntactic position.

Similarly, Italian weak indefinite DPs occupying subject positions are not allowed unless they are semantically improved. Chierchia (1998) argues that modification can improve ill-formed structures such as (30a); bare plural subjects, which are the source of ill-formedness, can occupy argumental positions (subjects) if they are modified (30b).

- (30) a. \*Hanno telefonato studenti  
 have called students
- b. Hanno telefonato studenti che volevano sapere la data dell'esame  
 have telephoned students that want-to find-out the date of-the-exam  
 'Students who want to find out the date of the exam have called.'

(Chierchia, 1998, p.384-385)

The subject *studenti* is licensed to occupy the postverbal subject position. Bare DPs, in Italian,

can occupy an argumental (subject) position if they are made heavy by any sort of modification (Chierchia, 1998). In structure (30b), *studenti* was modified by the subsequent relative clause *che volevano sapere la data dell'esame* which results in a grammatical sentence.

With regard to licensing by modification, another case is found in Italian as well. Having investigated the distribution of mass nouns in Italian, Delfitto and Schroten (1991) argue that mass bare singular nouns occupying preverbal subject positions require an adjectival modifier to spell out correctly as represented in (31).

- (31) a. \*Acqua scende dalle colline  
       'Water comes down from the hills'
- b. Acqua fresca e limpida scende dalle colline  
       water fresh and limp comes-down from-the hills  
       'Fresh and limp water comes down from the hills'

(Delfitto and Schroten, 1991, p.181)

The sentence (31a) is ruled out since it was initiated by an indefinite mass noun.<sup>8</sup> Its well-formed version (31b) is a result of adding the adjectival modifiers *fresca* and *limpida*. It can be argued that, crosslinguistically, modification plays an important role to license preverbal subjects in illicit environments. Longobardi (1994) argues that bare nouns cannot be preverbal subjects in Romance unless licensed by a sort of modification. In the example (32a), when the preverbal subject *linguisti* is modified by the following adjectival phrase *capable of writing the Memoire or*

<sup>8</sup>Mass nouns and generic nouns in Arabic do not behave like their counterparts in Spanish and Italian. The idea is that, Arabic mass and generic nouns are treated like definite nouns, therefore, they need no licensing to appear in preverbal positions as shown by the examples below:

- (1) a. ?al-kilāb-u tantafiru fi ?a-qurā  
       the-dogs-NOM spread in the-villages  
       'Dogs are widespread in villages.'
- b. ?az-zeyt-u ?aθqal-u min ?al-mā?-i  
       the-oil-NOM heavier-NOM from water-GEN  
       'Oil is heavier than water.'

The definite article *?al* must precede mass/generic nouns in order for the structure to give mass/generic reading. The removal of the article will result in ungrammatical structures.

LSLT, it results in the grammaticality of (32b).

- (32) a. \*Linguisti diventano subito famosi  
 linguists become immediately famous
- b. Linguisti capaci di scrivere il Memoire o LSLT diventano subito famosi  
 linguists capable of writing the Memoire or LSLT immediately become famous  
 (Longobardi, 2000, p.693)

Longobardi (2000) argues that bare nouns must be lexically governed in order to appear as preverbal subjects. He proposes the following descriptive generalization.

- (33) *"The first constraint appears to be related to the fact that Romance unmodified BNs, unlike modified ones and normal, overtly determined DPs, have the same distribution as wh-traces and wide scope quantifiers; that is, they must be lexically "governed" (however this descriptive notion may be ultimately formalized in the theory). In fact, the constraint can perhaps be related to the actual presence of an empty category, understood as a syntactic (i.e., nonpronominal) variable, in the D position of BNs (Contreras 1986, Longobardi 1994). Preverbal subject positions in several languages have been known for many years to be insufficiently "governed" in this sense. Modification, unnecessary for clearly lexically governed BNs such as direct objects, seems to somehow remedy the violation."*

(Longobardi, 2000, p.693)

What follows from this generalization is that bare plurals in Romance languages cannot be placed in preverbal subject positions unless they are modified. They seem to have an empty D as proposed by Longobardi (2000). This empty D needs to be lexically governed. This generalization can be used, to some extent, for the problem of indefinite preverbal subject DPs in Arabic. The indefinite preverbal subject DPs must be lexically governed by a modifier. However, this need does not stem from an empty D as proposed by Longobardi. Instead, I argue that the D position can be filled by nunation. However, nunation by itself is not strong enough to license indefinite DPs in preverbal subject positions thus modification is required.<sup>9</sup>

<sup>9</sup>For the case in point, this generalization does not conflict with the syntactic visibility conditions proposed by Giusti (2002) and Mathieu (2012b). The difference between the two proposals lies in the number of licensing elements. The former requires one element: modification. The latter requires two elements: modification and realization of the head.

Before we proceed to the next subsection which outlines the theoretical framework proposed for this study, I would like to point out that a question might arise *why do uninflected nouns appear as postverbal subjects without being modified?* Two solutions are available to answer the question. First, this phenomenon is not limited to Arabic but also found in Romance languages, Italian and Spanish. [Delfitto and Schroten \(1991\)](#) point out that while bare plurals cannot appear as preverbal subjects (34b), without being licensed, they can appear as postverbal subjects of intransitive verbs (34a) and objects (34c) in Spanish.

- (34) a. Han llegado estudiantes  
have arrived students
- b. \*Estudiantes han ocupado el edificio  
Students have occupied the building
- c. Yo he visto estudiantes en el edificio  
I have seen students in the building.

([Delfitto and Schroten, 1991](#), p.155-156)

Licensing of bare plurals in the said positions is attributed to their being lexically governed by the verb. [Delfitto and Schroten \(1991\)](#) state:

- (35) *"We will assume that object BPs are "rescued" in Italian and Spanish by an independent strategy, which consists of the incorporation of the whole BP into its governing lexical head (i.e. V<sup>0</sup>)."* (p.157)

They also extend this strategy to the postverbal subjects of ergative verbs. They argue that ergative verbs can pattern like direct objects as shown by (34a). Similarly, [Chierchia \(1998\)](#) points out that bare NPs in Italian can occupy postverbal positions (objects) as long as they are governed by lexical heads such as verbs as shown in (36).

- (36) Leo ha mangiato patate  
Leo ate potatoes  
'Leo ate potatoes.'

([Chierchia, 1998](#), p.383)

The bare plural *patate* occupies the object position without the need for licensing since it is lexically governed by the verb.

A second proposal introduced by [Zamparelli \(2000\)](#) assumes that the argumental positions must be filled by what he terms strong DPs (SDP); he argues that these positions cannot be filled by predicate DPs (PDP), weak DPs. He points out, however, that there are cases where PDPs can be found in argumental positions. Zamparelli, building on [Longobardi \(1994\)](#), justifies PDPs' appearance in argumental positions by stating that they are lexically governed by VPs or by prepositional phrases (PP). Indeed, I unequivocally contend that this proposal is applicable to Arabic. The VP governing the indefinite subject in the VSO order licenses it to appear in a postverbal subject position as manifested in (23), repeated below as (37).

- (37) kataba mudarris-u-n      ?al-?idzabat-a  
 wrote teacher-NOM-NUN the-answer-ACC  
 'A teacher wrote the answer.'

The structure in (38) shows how PPs license indefinite DPs by means of movement.<sup>10</sup>

- (38) a. \*radʒul-u-n      fi ?al-ḥadiqat-i  
 man-NOM-NUN in the-garden-GEN  
 b. fi ?al-ḥadiqat-i      radʒul-u-n  
 in the-garden-GEN man-NOM-NUN  
 'There is a man in the garden.'

The sentence (38a) is ungrammatical since it is initiated by an indefinite DP; however, when the indefinite DP is lexically governed by the PP, the sentence becomes well-formed (38b).<sup>11</sup>

<sup>10</sup>The role of the PP in (38b) is not to modify the indefinite DP *a man*. Rather, in order for the structure to be grammatical, the PP is moved to the front.

<sup>11</sup>I will not discuss the role of modification by CPs in this thesis. Modification by CPs does not effectively contribute to the distribution of DPs in preverbal subject positions. The idea is that, CPs can only modify definite DPs. These DPs do not require any type of modification to appear in preverbal subject positions.

- (1) a. ?aṭ-ṭālib-u      ?allaḏi qābalta-hu      nadʒaḥ fi ?al-ixtibār-i  
 the-student-NOM who you-met-him passed in the-test-GEN  
 'The student who you met passed the test.'  
 b. ?aṭ-ṭālib-u      nadʒaḥ fi ?al-ixtibār-i  
 the-student-NOM passed in the-test-GEN  
 'The student passed the test.'

It can be noticed that when the non-restrictive modifying CP *who you met* is removed from the structure (1a), it does not affect the grammaticality of (1b). In other words, the distribution of the definite DP *the student* is not affected. By contrast, CPs cannot modify indefinite DPs which in turn cannot license them in preverbal subject positions.

In summary, we can close this section by stating that preverbal indefinite subjects, in Arabic, are weak DPs which need the help of extra elements in order to be licensed in preverbal subject positions. We have seen that when the nunated nouns (indefinite DPs) in (27c, SA) and (28b, SUD) are modified by adjectives, they become licensed (strong DPs) to occupy preverbal subject positions. Below, in section (4.1.1), I investigate the syntactic structure of the modified indefinite preverbal subject DPs in Arabic within a theoretical framework which will hopefully provide an answer to the puzzle.

#### 4.1.1 Theoretical framework

Subject positions must be filled by argumental DPs. I adopt the DP-hypothesis which requires a nominal constituent to be headed by a functional element, the determiner, as proposed by Abney (1987). The DP-hypothesis, in its basic contents,  $D^0$  and  $N^0$ , both, must be filled to form a full DP. As far as postverbal subjects in Arabic are concerned, this basic version of DP may suffice since the minimum requirement for a DP is satisfied, as exemplified and schematized in (39a).

- (39) a. *daxala radʒul-u-n ʔal-maktab-a*  
 entered man-*NOM-NUN* the-office-*ACC*  
 ‘A man entered the office.’

- b.  $[_{TP} [_{T'} [_{T} \text{daxala}_t ] [_{VP} [_{DP} [_{D'} [_{D} \text{radʒul-u-j-n}] [_{NP} [_{N} \dots_j ]]]] [_{V'} [_{V} \dots_t ] [_{DP} \text{ʔal-maktab-a}]]]]]$

The indefinite postverbal subject *radʒulu-n* is acceptable since it occupies a postverbal position. The minimum requirement of a full DP is met: both nunation in  $D^0$  and *radʒulu* in  $N^0$  are available. Thus, an indefinite DP is formed. Landau (2007) argues that the head must be visible to the noun in order to be licensed as an argument. As long as the postverbal subject position is concerned, Landau’s argument is valid. His argument is straightforwardly a feasible solution to the indefinite

(2) \**ʔālib-u-n ʔallaḏi qābalta-hu nadʒaḥ fi ʔal-ixtibār-i*  
 student-*NOM-NUN* who you-met-him passed in the-test-*GEN*  
 \*‘A student who you met passed the test.’

postverbal subjects as can be seen in (39a). Nunation filling the D<sup>0</sup> position of the indefinite DP suffices to license the DP to appear as a postverbal subject.

By contrast, if we generate the SVO version of (39a), we end up with an ungrammatical sentence as represented in (40).

- (40) \*radʒul-u-n    daxala ʔal-maktab-a  
 man-NOM-NUN entered the-office-ACC  
 Intended: 'A man entered the office.'

The same subject DP used in (39a) appears in (40). But the latter is ill-formed. The Head requirement proposed by Abney (1987) and Landau (2007) does not rescue (40) from being ungrammatical.

Surprisingly, when we modify the preverbal subject *radʒulu-n* by the adjective *ṭawēlu-n*, the sentence becomes grammatical as can be seen in (41).

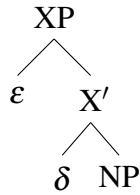
- (41) radʒul-u-n    ṭawēl-u-n    daxala ʔal-maktab-a  
 man-NOM-NUN tall-NOM-NUN entered the-office-ACC  
 'A tall man entered the office.'

To parse out the nuances of this puzzle, I adopt two syntactic theories: the Naked Noun constraint theory and the syntactic visibility theory. The first theory is put forth by Suñer (1982). The author theorises that:

- (42) *"An unmodified common noun in preverbal position cannot be the surface subject of a sentence under conditions of normal stress and intonation."*  
 (Suñer, 1982, p.209)

The second theory is the syntactic visibility theory put forth by Giusti (2002). It requires the presence of the head and the specifier. I argue that the head visibility (phonological realization) suggested by Landau (2007) may not suffice to license NPs to be arguments; I argue that both the specifier visibility and the head visibility are required to work conjointly in order to turn a DP from a predicate into an argument. The visibility conditions, represented in (43), seem to be crucial for indefinite preverbal subject DPs in SA and SUD.

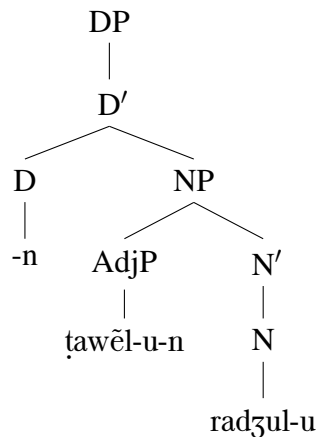
(43)



Syntactic visibility conditions require  $\varepsilon$  and  $\delta$  to be visible to the NP in order to form an intact DP that can occupy an argumental position, the preverbal subject position in our case. I should point out that the operationalization of the syntactic visibility theory is not the sole factor that renders the DP intact; more syntactic operations (movements) are required. The idea is that, a DP structure primed in syntax may differ from the DP phonological linear order. Therefore, some syntactic movements that spell out the correct order are needed. If we simply use the visibility condition structure proposed in (43) to represent the indefinite DP shown in (44a&b), we end up with the wrong word order.

- (44) a. radʒul-u-n      ʔawēl-u-n  
 man-NOM-NUN tall-NOM-NUN  
 ‘A tall man’

b.

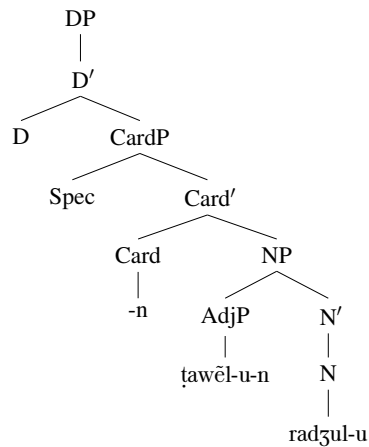


It can be noticed that (44b) yields the wrong order; the adjective precedes the noun while it must be the opposite, the noun should precede the adjective. To overcome this problem, more projections must be available. Based on that, the virtual use of DP projection in (43) is not enough for our analysis of the DP in the current study. It is well-established that DPs can project more

functional heads, such as NumP and AgrP (Fassi Fehri, 1993; Ritter, 1991). Following Mathieu (2012b), I will use ( cardinal phrase (CardP) to project instead of using NumP or AgrP. The functional head Card<sup>0</sup> is an appropriate candidate head for indefinite DPs under investigation. Nunation as a head of the indefinite DPs appears with indefinite nouns regardless of the number agreement they show; it appears with the singular, dual and plural.

The structure in (44a) shows N-Adj order which is the default order in Arabic. By contrast, (44b) shows Adj-N which is the syntactic word order before any subsequent movements take place. To achieve the correct linear order N-Adj, the noun has to move to a position higher than the specifier of the NP. There must be another specifier position which avails itself to receive the moved noun. Thus, a projection is required. This additional projection should appear between the DP and the NP. The newly proposed CardP offers two important syntactic slots: a specifier and a head. The proposed solution for the syntactic derivation of the indefinite DP in (44a) is schematized in (45).

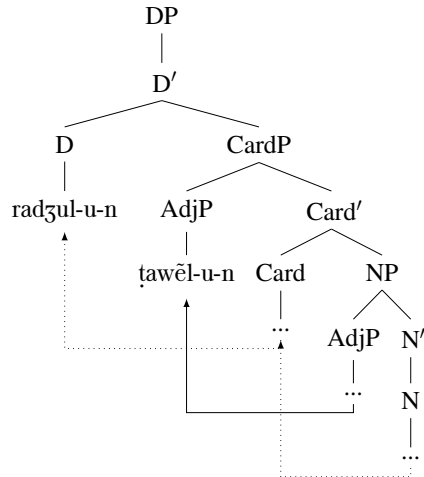
(45)



As can be noticed in (45), the primed indefinite DP's constituents are not generated in the correct order. The head and the Spec are syntactically visible to the noun *radʒul-u* which makes it possible to place the indefinite DP preverbally. The visibility condition is satisfied by generating: a) the head, nunation, under the head of CardP and b) the modifier, *ʔawēlu-n*, under the Spec of the NP. However, more syntactic movements are required to spell out the correct linear order. The

syntactic schematic illustrated in (46) represents the structure that is ready to be spelled out after movements have taken place.

(46)



We can notice that the correct order (N-Adj) is achieved in (46) by three different syntactic movements. These movements are discussed below.

#### 4.1.2 Syntactic movements

The correct linear order of the indefinite DP illustrated in (47a) is a result of three different syntactic movements. All these movements are theoretically discussed within the syntactic theory and they are empirically attested in many languages. These movements are N-to-D, Head and XP/ movements (see (47b)) for an overview.

- (47) a. radʒul-u-n      ṭawēl-u-n  
           man-NOM-NUN tall-NOM-NUN  
           ‘a tall man’

- b.  $[DP [D' [D \text{ radʒul-u}_i\text{-n}_k][CardP [Spec \text{ ṭawēl-u}_j\text{-n}][Card' [Card \text{ i}_k][NP [Spec \text{ j}][N' [N \text{ i}]]]]]]]$

The indefinite DP *radʒul-u-n ṭawēl-u-n* is a product of three syntactic movements. First, due to the affixal nature of nunation, the noun *radʒul-u* moves from its base-generated position  $N^0$  to  $D^0$ , the head of the CardP, in order to agglutinate with nunation. Arabic is among the languages that show N-to-D movement (Fassi Fehri, 1993, for Arabic; Bernstein, 2003, 1993,

for Norwegian; Picallo, 1991, for Catalan and Taraldsen, 1990, for Swedish). In languages and constructions where the raising operation adjoins the noun to the article, common nouns may be allowed to raise to D (Longobardi, 1994, 1996a,b). Once fusion takes place, the correct linear order has to be processed. This is achieved by moving the new formed constituents (noun + nunation  $\rightarrow$  *radʒulu-n*) from the head of the CardP, Card<sup>0</sup> to the head of the DP, D<sup>0</sup> position. Finally, the modifier *ʔawēlu-n* moves from the [Spec: NP] to the [Spec: CardP] leaving no empty traces between the noun and its modifier.

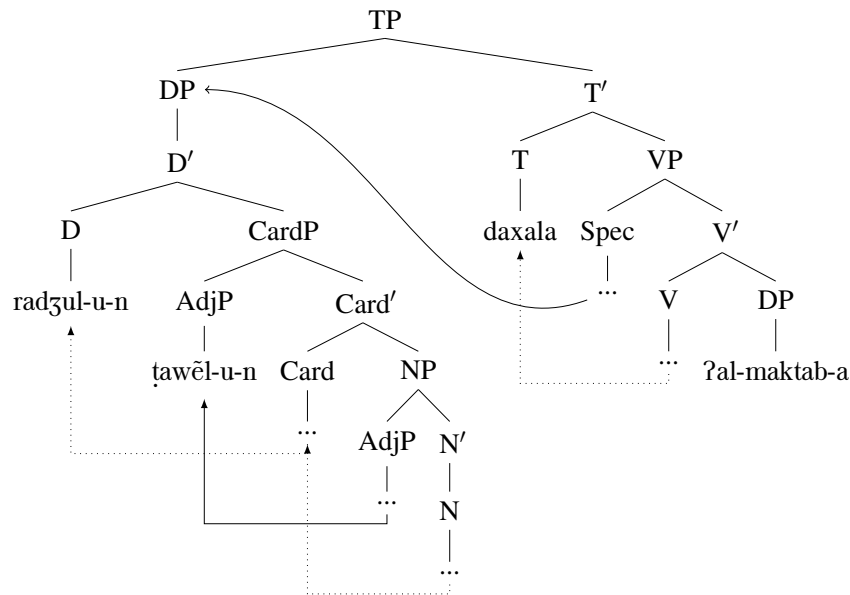
The indefinite DP in (47a) is the ultimate intact phonological word order of a modified nunated noun. It can be seen that the syntactic visibility requirements are satisfied; both the head and the specifier are visible to the noun. Recall that the visibility requirements are suggested by Giusti (2002) and adopted by Mathieu (2012b) for a similar problem in French. In my analysis of licensing by adjectives, I followed Mathieu's analysis of licensing *de* nominals in French. However, there is a difference in the process of derivation used here, and in Mathieu's derivation of French *de* nominals. He treats the modifier, AdjP, as an adjunct adopting the adjunction theory whereas I follow Cinque's (1994) proposal for adjective system in Romance. Cinque concludes that the adjectives are generated to the left of their modified nouns, specifically in [Spec: NP]. The phonological linear order N-Adj is a result of the noun overtly moving two heads higher (successive movement) in syntax due to the agreement features which need to be checked as discussed in Chomsky (1993, 1995). I extend Cinque's view to Arabic as can be seen in (46). The noun *radʒulu-n* moves from N to Card<sup>0</sup> to merge with nunation; once the noun and nunation have fused, the new formed element moves to D<sup>0</sup>.<sup>12</sup> One additional XP movement is required; it is the movement of the adjective from the [Spec: NP] to the [Spec: CardP]. So far, we have seen

<sup>12</sup>Cinque (1994) suggests that the two movements are required for agreement feature checking; however, noun-adjective agreement, in our example '*radʒulu-n ʔawēlu-n*', could be established by the first movement (N-to-Card<sup>0</sup>). Thus, I assume that the second movement of '*radʒulu-n*' is required to fill the D<sup>0</sup> position in order to spell out a strong DP.

how the structure of a modified indefinite DP is derived. It is worth showing how this structure is employed in a clause. I introduce a brief explanation of how modified indefinite DPs appear as preverbal subjects. I remind the reader that indefinite DPs cannot appear as preverbal subjects unless they are modified. The example (41) is repeated below as (48a) for the convenience of discussion.

- (48) a. *radʒul-u-n    ʔawēl-u-n    daxala    ʔal-maktab-a*  
 man-NOM-NUN tall-NOM-NUN entered the-office  
 ‘A tall man entered the office.’

b.



I have proposed in §2 that indefinite DPs can appear as preverbal subjects if they are modified. In sentence (48a), because the indefinite noun *radʒulu-n* is modified by the adjective *ʔawēlu-n*, the latter licenses the former to occupy the [Spec: TP]. Notice that the entire subject DP has moved from [Spec: VP] to [Spec: TP]. V-to-T movement takes place as well. The movements result in the spell out of the SVO order. We notice also that the adjective is juxtaposed to the left of the noun giving the order N-Adj. This order is a result of the noun moving to a higher position than the adjective; see the proposed movements in (46). I point out that the attributive adjectives in Arabic always follow the nouns showing the fixed order **N-Adj**. My viewpoint on juxtaposition of adjectives inside their DPs is different from Fassi Fehri's (1999) viewpoint. He

argues that Arabic allows for an Adj-N order since prenominal modifiers can be found preceding their modified nouns. In the next section, I shed light on Fassi Fehri's account of the adjectives' distribution in Arabic; I argue that Arabic is dominantly N-Adj. I will show that the adjectives that seem to be premodifiers are originally postmodifiers with elided nouns.

### 4.1.3 Fassi Fehri's (1999) account

Postnominal adjectives exhibit some syntactic properties that are different from prenominal adjectives.<sup>13</sup> Fassi Fehri (1999) argues that, in addition to its being as a N-Adj language, Arabic can also be an Adj-N language. He introduces the following examples:

- (49) a. ʔakal-tu ladiida        ʔ-ʔa'aam-i  
 ate-I    delicious-ACC the-food-GEN  
 'I ate the delicious (of the) food.'
- b. ʔ-aqraʔ-u jadiid-a l-kutub-i  
 I-read    new-ACC the-books-GEN  
 'I read the new (of the) books.'
- (50) a. ʔakal-tu ʔ-ʔa'aam-a    l-ladiida  
 ate-I    the-food-ACC the-delicious-ACC  
 'I ate the delicious food.'
- b. ʔ-aqraʔ-u l-kutub-a        l-jadiid-at-a  
 I-read    the-books-ACC the-new-FEM-ACC  
 'I read the new books.'

(Fassi Fehri, 1999, p.115)

Based on the examples (49a&b), Fassi Fehri argues that Arabic has prenominal adjectives. He argues that both adjectives *ladiida/jadiid-a* appear before their modified nouns giving the order Adj-N. Fassi Fehri points out that the adjectives in such constructions pattern like nouns since they are assigned structural Case and the modified nouns carry genitive Case. He also points

<sup>13</sup>Let us accept the term prenominal adjectives as termed by Fassi Fehri, just for the sake of the argument.

out that these adjectives are heading what he terms synthetic genitive. The so-called prenominal adjectives are also termed *adjectival constructs* by Al-Sharifi and Sadler (2009) and Kremers (2005). By contrast, the constructions in (50a&b) show the same adjectives but they appear postnominally; they show the N-Adj order. Fassi Fehri argues that prenominal adjectives have partitive reading/modification of the following nouns. He indicates that the respectively mapped constructions (49a = 50a) and (49b = 50b) can carry the same interpretation thus can be used interchangeably. Before I delve into the argument, I indicate that the paired constructions show different syntactic properties.

- (i) premodifiers lack agreement features with the following nouns whereas postmodifiers show full agreement with their modified nouns.
- (ii) premodifiers receive different Case from the following nouns whereas postmodifiers carry the same Case that assigned to their modified nouns.
- (iii) premodifiers never take the definite article whereas postmodifiers agree with their modified nouns (in)definiteness.
- (iv) premodifiers form a CS structure with the nouns they precede whereas postmodifiers show modifyee-modifier normal relations.

Let us take a look at other constructions that can be structurally analogized to Fassi Fehri's examples. We will see that they never show the partitive or interchangeable readings. Moreover, the reordering of the claimed prenominal adjectives with the following nouns may result in a semantically unacceptable sentence.

- (51) a. qābalt-u ṭawēlat-a ʔaf-ʃaʕr-i  
 met-I tall-*FM-ACC* the-hair-*GEN*  
 'Intended for: I met a woman with long hair.'

≠

- b. qābalt-u ʔaf-ʃaʃr-a ʔaṭ-ṭawēl-a  
 met-I the-hair-*ACC* the-tall-*MS-ACC*  
 ‘I met the long hair.’ (meaningless)
- (52) a. raʔeit-u kabēr-a ʔal-qabilat-i  
 saw-I master-*MS-ACC* the-tribe-*FM-GEN*  
 ‘Intended for: I saw the master of the tribe.’
- ≠
- b. raʔeit-u ʔal-qabilat-a ʔal-kabēr-ata  
 saw-I the-tribe-*FM-ACC* the-big-*FM-ACC*  
 ‘It reads: I saw the big tribe.’
- (53) a. ʔiftara yousifu yāliyāt-i ʔaθ-θaman-i  
 bought Joseph expensive-*FM-PL-ACC* the-price-*MS-SG-GEN*  
 ‘Joseph bought of the expensive price.’
- ≠
- b. \*ʔiftara yousif-u ʔaθ-θaman-a ʔa-yāliyāt-i  
 bought Joseph-*NOM* the-price-*ACC* the-expensive-*FM-PL-ACC*  
 ‘No reading.’

We will now focus on one pair of sentences from the above examples and try to investigate the pair thoroughly. I will focus on sentences (52a&b) since both sentences are still semantically appropriate. When the Adj-N order is reversed to N-Adj, the reversal results in a completely different meaning. Fassi Fehri’s proposal claims that the relations between the two structures might be purely semantic. I believe that his proposal may not be the full story. I show that there are several syntactic and semantic changes that result from placing the adjectives pre- or postnominally.

The prenominal adjectives that occupy the object position are assigned accusative Case. All the prenominal adjective phrases that follow the verbs in the examples I provide and in Fassi Fehri’s examples are behaving like object DPs; we can note this from the Case that is assigned to the adjectives: they are assigned accusative Case. The nouns that follow the adjectives, in

Adj-N order, are always assigned genitive Case. A salient property of Arabic noun-adjective relation is the full agreement between the modifiers and the modifyees; not only  $\phi$  features are manifested but also Case and (in)definiteness. When we look at the examples that show Adj-N order, all the five pillars of agreement collapse (gender, number, person, Case and (in)definiteness). By contrast when the adjectives are placed postnominally, they show full agreement with the preceding nouns. I assume that these differences might be due to the different syntactic positions which the adjectives occupy.

The different surface positions, left/right, which the adjectives appear in, should be treated independently. If they surface in different positions, crucially, they have different underlying structures (Alexiadou et al., 2007). This proposal seems to be more plausible than Fassi Fehri's analysis of adjectives' placement in Arabic. Following Kayne (1994), Fassi Fehri (1999) assumes that both premodifiers and postmodifiers occupy [Spec: NP]. The correct linear order is achieved according to the adjective position. In other words, if the adjective is placed prenominally, no movement is required since the linear order corresponds to the syntactic distribution Spec-Head-Noun as shown by (54).

- (54) *ladiida*        *t-ta'aam-i*  
delicious-*ACC* the-food-*GEN*  
'the delicious of the food.'

By contrast, Fassi Fehri argues that when the adjective is placed postnominally (55), N-movement is required since the linear order is different from the syntactic distribution.

- (55) *t-ta'aam-a*    *l-ladiida*  
the-food-*ACC* the-delicious-*ACC*  
'the delicious food.'

Fassi Fehri points out that the movements of X and XP are independent of each other. This is what we suggest in the current study. The Head movement is independent from the Spec

movement. The current study and [Fassi Fehri's \(1999\)](#) study share the same syntactic view as far as postnominal modifiers are concerned. However, I argue that Arabic is mainly a N-Adj language and may not be an Adj-N language as claimed by [Fassi Fehri](#). I discuss this issue in the coming subsection.

#### 4.1.4 Against the prenominal view

I argue that Arabic may only be classified as a N-Adj language.<sup>14</sup> I will show that the DP constructions that include prenominal adjectives are originally postnominal constructions with elided nouns. The ellipsis of the nouns is due to the rich morphology found on the attributive adjectives of these constructions. I show that the adjectives carry some morphological elements which reflect the identity of the elided nouns. In constructions where adjectives precede nouns, I assume that adjectives become semi-nouns occupying the head noun position (i.e.,  $N^0$ ); they do not occupy the specifier position (i.e., [Spec: NP]) as proposed by [Fassi Fehri](#). My assumption is supported by arguments put forth by [Shlonsky \(2004\)](#) for Semitic languages; [Panagiotidis and Marinis \(2011\)](#) for the Greek language and [Kester \(1996\)](#) for Romance and Germanic languages, except English. In constructions like (56), [Shlonsky \(2004\)](#) considers the prenominal adjectives as head nouns and not specifiers. He assumes that they show 'nouny', as called by Shlonsky, property by being able to occupy a head noun position,  $N^0$ . I introduce the example in (56) to show [Shlonsky's](#) proposal.

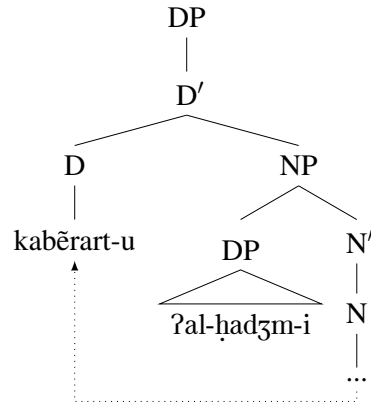
<sup>14</sup>In his 19<sup>th</sup> universal of grammar, [Greenberg \(1966\)](#) observes that "When the general rule is that the descriptive adjective follows, there may be a minority of adjectives which usually precede, but when the general rule is that the descriptive adjectives precede, there are no exceptions.". Similarly, [Alexiadou et al. \(2007\)](#) argue that if a language shows the optional placement of adjectives, pre/postmodifiers, the order N-Adj is the default order and prenominal, Adj-N is the exception. What follows from the two claims is that the N-Adj order is the dominant order in Arabic. There might be language-specific exceptions. For Arabic, these exceptions are not enough to generate a solid claim that the language can be Adj-N. Analogously, we cannot make the claim that English is a N-Adj language just because of the following example:

- (1) The *inspector general* visited the Airbase last week.

It is noticeable that the adjective *general* follows the noun *inspector* showing the order N-Adj. This case cannot be taken as a basis to argue that English is a N-Adj language.

- (56) a. kabēart-u   ʔal-ḥadʒm-i  
 big-*FM-NOM* the-volume-*MS-GEN*  
 ‘of the big volume’

b.



The adjective *kabēart-u* in (56b) is base-generated in the  $N^0$  position. It is acting as the head noun of the CS; let us call this type of CS as *quasi-CS* (QCS).<sup>15</sup> The genitive NP is base-generated in the [Spec: NP]. The linear word order is derived by moving the adjective from  $N^0$  into the  $D^0$  position (i.e., N-to-D movement takes place). Adjectives in such constructions can receive nominative, accusative or genitive Case depending on the grammatical position of the entire DP; the genitive NP always receives genitive Case. As a rule of thumb, the CS's structure must contain two pillars, namely the head noun and the genitive NP; I assume, at least for the structures introduced by Fassi Fehri in (49) and the structures presented by me in (51a) and (52a), that the head noun position is occupied by a lexical element. This element should carry categorical features of a noun in order to form the head pillar of the CS construction. The head noun position of the CS is usually filled by a noun. However, in the case of the examples (49), (51a), (52a) and (56a), the noun is not available. Thus the CS structure is not complete since its head noun is missing. Therefore, the adjective takes the role of the missing noun spelling out QCS. It is reasonable to assume that in QCS structures the Arabic grammar allows for 'jettisoning' the nouns that the adjectives modify.

<sup>15</sup>It is quasi in the sense that the head noun position ( $N^0$ ) is not occupied by a *noun*. Instead, it is occupied by an adjective.

The process of jettisoning the nouns from complex DPs and preserving the adjectives is not limited to Arabic but also attested in other languages. Having discussed determiner spreading in Greek, [Panagiotidis and Marinis \(2011\)](#) consider the adjective phrases which carry a determiner and have elided nouns as quasi-pronominal DPs. They are quasi in the sense they have no phonetically realized nouns as shown below.

(57) to meghalo  
the big  
'the big one'

(58) [<sub>D</sub> to [<sub>FP</sub> [<sub>AdjP</sub> meghalo] <sub>F</sub> [<sub>N</sub> eN]]] ([Panagiotidis and Marinis, 2011](#), p.289)

[Panagiotidis and Marinis](#) argue that such constructions are basically DPs with an empty noun. In the same vein, ([Kester, 1996](#)) assumes that the adjectival constructions with elided nouns are DPs with a null *pro*. This *pro* originates in N<sup>0</sup>. However, the semantic contents of the *pro* must be morphologically recovered in order to license the adjectival construction to act as full DPs. For example, Kester argues that the plural morpheme which is post-attached to the adjectives in (59) leads to the visibility of the *pro* making the adjectival construction acceptable.

(59) blinden *pro*  
'blind (people)'

([Kester, 1996](#), p.69)

The semantic contents of the *pro* are recovered by the plural morpheme *-n* thus it licenses the adjective to act as a full DP. Another example introduced by Kester, which can make the semantic contents of the *pro* visible, is the gender system in Dutch.

(60) de besprokene *pro*  
the talked-about  
'the person talked about'

([Kester, 1996](#), p.69)

The definite article *de* helps the adjectival construction *the talked about* to withstand as a full DP since the semantic contents of the elided noun are recovered through the gender system visualized

on the definite article. Similarly, the examples in (61) respectively show that Albanian DPs and Swedish DPs can spell out without a noun as argued by Julien (2005).<sup>16</sup>

- (61) a. Më pëlqen i kuq-i  
 me-DAT like MS.SG red-DEF-MS-SG-NOM  
 ‘I like the red one.’ (Julien, 2005, p.303, borrowed from Dalian Kallulli p.c.)
- b. Jag ta-r den röd-a  
 I take-PRES DEF.CG.SG red-DEF  
 ‘I’ll take the red one.’ (Julien, 2005, p.303)

Julien concludes that when the noun is deleted, the contents of the DP that can be spelled out is the adjectival phrase.

The deletion of the noun in the presence of an adjective is attested in Bulgarian. Due to the presence of rich morphology on adjectives, nouns can be elided. (The examples in (62) are from Vesela Simeonova, pers. comm.)

- (62) a. Koja kniga kupi?  
 which book-FM-SG bought-2ND  
 ‘Which book did you buy?’ (Speaker-A asked)
- b. tfervena-ta  
 red-FM-SG-DEF  
 ‘The red one’ (Speaker-B answered)

We notice that the adjective *tfervena* ‘red’ is carrying semantic and morphological features that tell us about the nature of the elided noun. Thus there is neither a necessity for a noun nor for a pronoun.<sup>17</sup>

<sup>16</sup>Julien (2005) indicates that the example (61b) represents Northern Swedish.

<sup>17</sup>Languages that do not tolerate elided nouns in such constructions require the N<sup>0</sup> position to be filled by a kind of pronoun, called in some literature *pro-NP*. English grammar, for example, requires a *pro-NP* to preserve the DP grammatical; see the example in (1).

- (1) a. Which book did you buy?  
 b. \*I bought the red.  
 c. I bought the red one.

In (1b), the sentence is ungrammatical because the elided noun is not recovered by a pronoun. By contrast, the sentence in (1c) is acceptable since the elided noun is represented by the *pro-NP one*.

The notion of elliptical DPs (DPs with elided nouns) mentioned above are robustly attested in Arabic. I argue that the constructions such as (51a), repeated here as (63), are postmodifiers with an elided noun. They are not premodifiers of the nouns they follow as contended by Fassi Fehri (1999).

- (63) qābalt-u ṭawēlat-a ʔaf-ʃaʕr-i  
 met-I tall-*FM-ACC* the-hair-*GEN*  
 ‘Intended for: I met a woman/gril with long hair.’

Let us assume that the elided noun is *bint* ‘girl’, then the basic structure for (63), before the modified noun is elided, is as follows:

- (64) qābalt-u bint-a-n ṭawēlat-a ʔaf-ʃaʕr-i  
 met-I girl-*SG-ACC-NUN* tall-*SG-FM-ACC* the-hair-*GEN*  
 ‘I met a girl with long hair.’

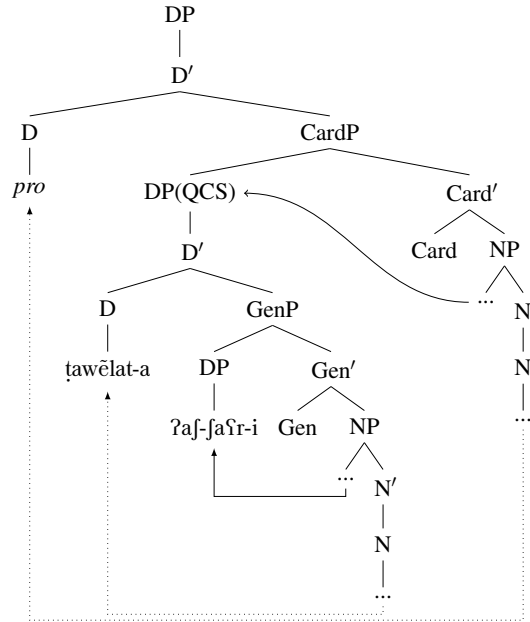
Building on Kester (1996) and Panagiotidis and Marinis (2011), I argue that the sentence (63) has an elided noun *bint* ‘girl’. Recalling Kester’s argument, he claims that the semantic contents of the *pro* must be compensated by morphological elements in order for the adjectival constructions to be licensed as argumental DPs, argues Kester for Dutch. Indeed, his claim makes itself available to Arabic. In (63), the elided noun is identified by three morphological elements that are available on the adjective: *i*) gender marker (feminine), *ii*) Case marker (accusative) and *iii*) number (singular). All these morphological elements provide strong evidence for the claim that the adjective ‘*ṭawēlat*: long/tall’ is a postmodifier of an elided noun; it is not a premodifier of the noun that follows as argued by Fassi Fehri. It is worth pointing out that none of these morphological elements, which appear on the adjective, agree or relate to the noun that follows, *ʔaf-ʃaʕr-i* ‘the hair’ (i.e., all  $\phi$  features, Case and definiteness agreement are lost between the adjective and the noun).

The *quasi-CS* in (65a) shows the syntactic distribution for the ‘*nounish*’ adjectival construc-

tions. Following Shlonsky (2004), I propose that the adjective comes to act as the head noun of the CS by occupying  $N^0$  whereas the genitive NP fills the specifier position of the NP.

- (65) a.  $\text{tawēlat-a}$   $\text{ʔaf-faʔr-i}$   
 tall-*FM-ACC* the-hair-*GEN*  
 ‘of long hair’

b.



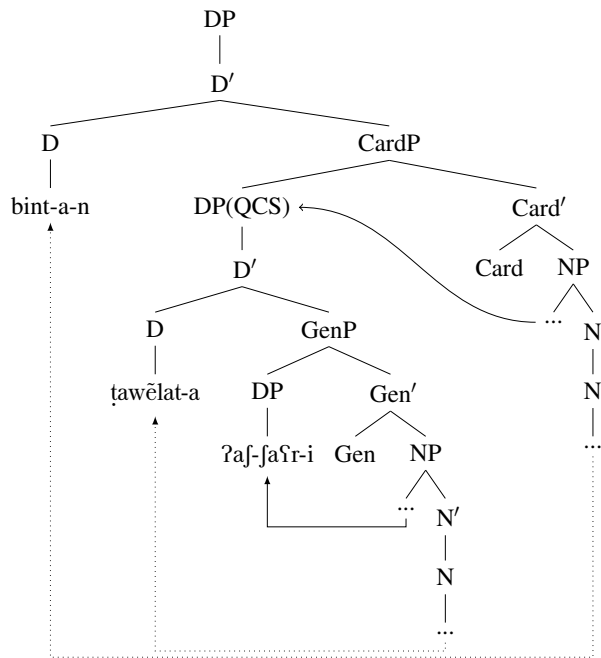
The syntactic distribution in (65b) shows that the head noun is a null *pro*. There is no phonologically realized noun. Its absence is compensated by the rich morphology that appears on the adjective. It can be noticed that the QCS is occupying the Spec of the NP that has an elided noun. As Shlonsky (2004) argues, in constructions where nouns are elided, the adjective occupies the  $N^0$  position. Then, it raises to the head  $Agr^0$  ( $Gen^0$  in my analysis) then to  $D^0$  (the D of the phrase occupying [Spec: CardP]), not the D of the argumental phrase since the latter is occupied by a null *pro*. I have argued that in QCS structures the adjective does not enter into agreement with the genitive NP. Instead, I argue that the adjective agrees with the *pro* that represents the elided noun. The idea is that, in schematic (65b), the *pro* comes to fill the  $N^0$  position in lieu of the elided noun. Subsequently, the *pro* moves from the  $N^0$ -to- $D^0$ . The *pro* movement can take place overtly or covertly depending on the richness of the formal features (Vermandere, 2002). For the case in point, the *pro* moves overtly since agreement  $\phi$  features, Case feature and indefiniteness are

established between the *pro* and the adjective 'ṭawēlat-a: long'. The proposed syntactic structure in (65b) provides an elegant solution to the QCS structures that have elided nouns. It results in the correct spell out of the sentence in (65a).

We turn now to the structure where the head noun is not deleted. The sentence in (65a) differs from the sentence in (66a). The difference lies in the sense that the adjective in (66a) is preceded by a noun whereas the sentence in (65a) is missing the noun thereof.

- (66) a. bint-a-n ṭawēlat-a ʔaf-jaʕr-i  
 girl-ACC-NUN tall-FM-ACC the-hair-GEN  
 'a girl with long hair'

b.



It is evident that both structures in (65b) and (66b) show the same syntactic distribution except that in each structure the  $N^0$  position is filled by a different element. In other words, in structure (65b), the  $N^0$  is occupied by a null *pro* whereas the identical position in (66b) is occupied by a lexical noun. We notice that the adjective *ṭawēlat-a* in (66b) is placed as a postmodifier of the noun *bint-a-n*; it is also notable that full agreement is established between the noun and the adjective in a N-Adj configuration. By contrast, no agreement is established between the adjective and the following genitive NP. Analogously, the structure in (66b) exactly shows the same syntactic

distribution as (65b) except that, as I explained above, in the latter the  $N^0$  position is filled by a null *pro*. If this is the case, then it is evident to argue that adjectives in Arabic are placed in postnominal positions. Based on the argument, it is reasonable to claim that the adjectives in QCS structures are postmodifiers of elided nouns. They are not premodifiers of the following genitive NPs. Instead, they are acting as a head noun of the QCS whereas the genitive NP forms the complement part of the QCS. The difference between the adjectives in normal structures (i.e., Nouns are followed by adjectives only; no genitive NPs included) and the adjectives in QCS lies in the type of semantic reading. The former gives a comprehensive reading whereas the latter gives a partitive reading.

In brief, I claim that Arabic is mainly a N-Adj language and not an Adj-N language. The structures that may appear to show an Adj-N order are misleading since they do not have a phonologically overt noun. I have shown that such structures have elided nouns. At the syntactic level, in order for QCS DPs to spell out, the  $D^0$  position or the Spec position must be visible to the NP (Giusti, 2002). I have proposed that a null *pro* comes to fill the  $N^0$  position then it moves to the  $D^0$  position. In this case, it makes the D visible to the NP which in turn licenses the QCS to converge. I have shown that the null *pro* is identified by the agreement  $\phi$  features, Case marker and (in)definiteness.

To summarize the issue of licensing by adjectives, I have shown that adjectives positively improve the distributions of indefinite DPs. To be precise, indefinite DPs cannot occupy preverbal subject positions. However, when the indefinite DPs have been modified, they become able to occupy the preverbal subject positions on condition that nunation is attached to the modified nouns. With regard to the adjective positions in Arabic, I have argued that Arabic is dominantly a N-Adj language (i.e., adjectives are placed in postnominal positions); it cannot be classified as an Adj-N language. I have shown that the adjectives that seem to be prenominal are evidently



Al-Rajhi (2010) proposes that the diminutive is a kind of modification which denotes smallness. Therefore, when it targets nouns, it changes their semantic status by adding more specification to them. Likewise, Sawaie (2014) argues that the diminutive can positively change the status of diminutivized nouns by giving them an accurate description. In addition to the semantic role, diminutives can be used for pragmatic purposes such as affection and endearment. In my discussion of diminutives, I focus on the semantic role. I show that diminutives improve the status of the indefinite preverbal subjects in Arabic.

#### 4.2.1 Deriving diminutives

Diminutives can be produced by different means of morphologicalization. They can be derived by circumfixation, infixation, suffixation, or reduplication (Al-Rawabdeh, 2011; Barbaresi, 2003; Bravo, 2009; Dahl, 2006; Hamid and Faiq, 2009; Hora et al., 2007; Jurafsky, 1996; Kempe et al., 2007; Ott, 2011; Watson, 2006; Yu, 2002). These processes can be used to diminutivize nouns, verbs or adjectives. I will present examples that show each process and elaborate on them. I will focus on the diminutivization of nouns since they are directly related to the current investigation.

**Circumfixation:** In this process, the derivation of diminutives is achieved by adding a prefix and a suffix to the noun stem. Circumfixation is used, for example, to derive the diminutive in Zenaga.<sup>18</sup> The examples in (68) show how diminutives are formed in this language.

- (68) a. əgrer > ay-əgrar-t  
       ram-*MS* > son-ram-*SG-FM*
- b. wár > ay-wár-t  
       lion > small-lion

(Zenaga, Berber)

<sup>18</sup>A Berber language spoken by Zenaga in Mauritania and northern Senegal (see Hodge (1971)).

( From [Taine-Cheikh 2002](#); cited in [Lieber and Stekauer, 2014](#), p.579)

It can be noticed in the above-introduced examples that the diminutive nouns *ay-əgrar-t*; *ay-wár-t* are preceded by the morpheme *ay* and followed by *t*. The two morphemes surrounding the nouns derive the diminutive form.

**Infixation:** Another process of deriving the diminutive is done by inserting a morpheme into the target noun. This process usually results in the split of the word syllables. The following examples from Pingding (a variety of Mandarin language) show the infixation process.

- (69) a. pɿŋ > p|ɿŋ  
 notebook > small-notebook
- b. kuy > k|uy  
 wok > small-wok

(Pingding Mandarin)

(From [Xu \(1981\)](#); cited in [Yu, 2004](#), p.40)

The diminutive is derived by inserting the retroflex lateral approximant sound /l/ into the word. Specifically, it is inserted between the onset of the syllable and the rhyme.

**Reduplication:** The diminutive form in Modern Hebrew is derived by the process of reduplicating the final syllable as shown by the below examples.

- (70) a. zakan > zkankan  
 beard > little-beard

(Modern Hebrew)

- b. gever > gvarvar  
 man > small-man

([Kreitman, 2003](#))

Diminutives in Modern Hebrew can be derived by the process of reduplication or suffixation as discussed by [De Belder et al. \(2009\)](#). They argue that in the case of reduplication the root is directly merged with the diminutive morpheme under the projection LexP (lexeme phrase) as

exemplified by (71). By contrast, the diminutive can be produced by the process of suffixation (concatenation in their argument). In this process, the diminutive morpheme is suffixed to the stem, not to the root, under the projection SizeP (size phrase) as shown by (72).<sup>19</sup>

- (71) a. kélev > klavlav  
       dog > puppy
- b. xatul > xataltul  
       cat > kitten
- (72) a. kélev > kalb-on  
       dog > dog-DIM  
       ‘a small dog’
- b. xatul > xatul-on  
       cat > cat-DIM  
       ‘a small cat’

(De Belder et al., 2009, p.3)

These examples show how each process works independently to derive different forms of diminutives from different roots or stems.

**Suffixation:** The following examples (73-75) show that the diminutives in the respective languages are derived by the process of suffixation. An external diminutive suffix is attached to the noun. We notice that there are no phonological changes to the internal structure of the diminutivized nouns except for German (see footnote (20) for explanations).

- (73) a. book > booklet  
       b. kitchen > kitchenette

(English)

<sup>19</sup>In addition to the two processes, De Belder et al. have introduced examples in which reduplication and suffixation work conjointly to derive another form of diminutives as can be seen in (1).

- (1) xazir > xazarzir > xazarzir-on  
       pig > piglet > small-piglet

The example in (1) shows that the diminutivized noun *xazarzir* is derived by reduplication of the last syllable /zir/ with a slight phonological change (i.e., the first duplicated syllable has been changed from /zir/→/zar/). By contrast, the diminutivized noun *xazarzir-on* is derived by adding the suffix *-on* to the already diminutivized noun *xazarzir*.

- (74) a. Hund > Hündchen  
dog > dog-*DIM*
- b. Mutter > Mütterchen  
mother > mother-*DIM*  
'little old lady'<sup>20</sup> (German)

(Klein, 2000, p.14)

- (75) a. problem-a > problem-it-a  
problem-*CM* > problem-*DIM-CM*  
'a small problem'
- b. gat-o > gat-it-o  
cat-*CM* > cat-*DIM-CM*  
'a small cat'<sup>21</sup> (Spanish)

(Fábregas, 2013, p.10-11)

There are many languages that use suffixation processes to derive diminutives. I just introduced the above examples to show the process. Please be aware that the diminutive suffix independently used by the above-mentioned languages is not exhaustive. In other words, a language may use different morphological units to produce diminutives. For example, Schneider (2003) listed eighty-six morphological suffixes that can derive diminutives in English.<sup>22</sup> Having introduced different crosslinguistic views of forming diminutives, I turn to discussing diminutives in Arabic in the next subsection.

<sup>20</sup>I assume that the role of the diminutive morpheme *chen* is to indicate smallness at least for the current examples. This diminutive morpheme might also be used to turn the mass reading into count units (see Ott, 2011, for more explanations).

It should be pointed out that the formation of diminutives in these examples (German) is not entirely achieved by the process of suffixation. We notice the first vowel /u/ in the base form is unlauded /ü/ in the diminutivized form.

<sup>21</sup>(CM: class marker (gender))

<sup>22</sup>(See Schneider (2003), p.78)

### 4.2.2 Diminutives in Arabic

The derivation of diminutives in Arabic differs to some extent from deriving diminutives in the languages discussed above. I propose that Arabic diminutives are derived by two processes, *readjustment* and *infixation*. These processes change the internal phonological structure of the diminutivized noun. For example:

- (76) a. radʒul > rudʒeɪl  
 man > man-*DIM*  
 ‘the diminutive: a small man’
- b. kitāb > kuteɪb  
 book > book-*DIM*  
 ‘the diminutive: a booklet’
- c. kātib > kweɪtɪb  
 writer > writer-*DIM*  
 ‘the diminutive: unprofessional writer’

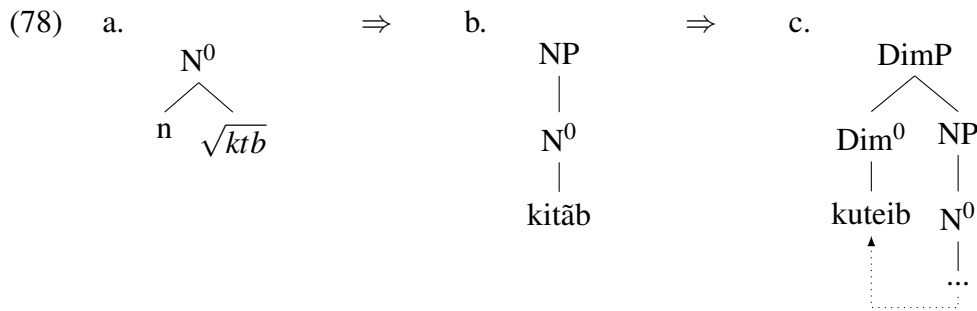
I argue that the diminutivization of the noun *kitāb* in (76b) goes as follows: there are two processes working conjointly, namely readjustment rules and infixation.<sup>23</sup> The readjustment rules shift the nucleus of the first syllable from /ki/ into /ku/ and in the second syllable, they also shift the nucleus from /tāb/ to /teb/. The readjustment rules operate on an idiosyncratic basis; they are not considered as general phonological rules (Siddiqi, 2009). Next, in the infixation process, the diminutive morpheme /j/ (In Arabic, it is called *jā ʔat-taṣyēr*) is inserted before the coda of the second syllable. Notice that the juxtaposition of the diminutive morpheme /j/ to the right of the readjusted vowel /e/ gives in the surface form the diphthong /ei/ sound (i.e., /e/+j/ → /ei/). The patterns of Arabic diminutivized nouns are predictable and thus can be controlled. In other words, the diminutive derivation process suggested above accounts for any noun that fits in the /CVCVC/

<sup>23</sup>For the purpose of analysis, I took the word *kitāb* from (76b) as an example because of its familiarity.

template such as *radzul*.<sup>24</sup>

The examples in (76) show diminutives of singular nouns. Following Upson (1921), I will assume that Arabic diminutives are generated from singular nouns. Diminutives may not be directly generated from the root. Therefore, it is plausible to propose that diminutivized nouns are a product of a bistage operation. The idea is that, if we want to diminutivize a noun, it should undergo a number of steps of processes. Following Embick and Noyer (2007) and Marantz (1997), I argue that the root must first be categorized by merging with *n*, *v*, or *a* in order to be defined as a *noun*, *verb* or *adjective*. Second, once the category of the root is established, a noun for the case in point, the diminutivization of the singular noun can be processed. From there, the singular diminutive noun can be pluralized to give plural diminutives. The examples in (77) and the syntactic structures in (78) show my proposal.

- (77) a.  $\sqrt{ktb}$  > kitāb > kuteib  
 $\sqrt{root}$  > book > book-DIM  
 ‘a book/ a booklet’
- b.  $\sqrt{ktb}$  > kātib > kweitib  
 $\sqrt{root}$  > writer > writer-DIM  
 ‘a writer/ an unprofessional writer’



<sup>24</sup>In addition to the process of infixation, I argue that the process of readjustment in the sense of DM is more suitable than suppletion to derive Arabic diminutives since their patterns are predictable. Suppletion is suitable for deriving irregular unpredictable patterns (Veselinova, 2013). There are different forms of the English copula *be/were*, as an example. Suppletion, as indicated by Halle and Marantz (1993b), can be total such as *be/were*, or partial such as *go, went, gone*.

I also would like to point out that the diminutivization in Arabic is not only achieved by readjustment and infixation. It can also be performed by reduplication specifically with verbs. For example, the verb *sansan* is reduplicated to indicate that winds/liquids flow slowly. Similarly in structure, the verb *famfam*: to sniff/smell to discover a smell in a rude way.

The diminutivization of verbs and adjectives can be derived by the same processes argued for in (78). The root has to merge with a category-specifying functional head (*v* for a verb and *a* for an adjective) before it gets diminutivized. What follows from this behaviour is that roots can have different categorizations in different environments (see [Harley and Noyer, 1999](#)). I assume that roots generally become meaningful elements from the first merge with the category-defining functional heads. This assumption is supported by [Arad's \(2003\)](#) proposal in which she argues that roots get their interpretations from the first category-assigning head. In the same way, [Borer \(2009\)](#) indicates that the meaning of a root can be determined in what she calls level I affixation. In level II, by contrast, the meaning is fixed and cannot be changed. Based on this discussion, I argue that the diminutive has no access to the root; it only has access to the singular form. I also argue that plural diminutives are not a product of a direct diminutivization of plural nouns. Instead, they are a product of diminutivized singular nouns that have been pluralized.<sup>25</sup>

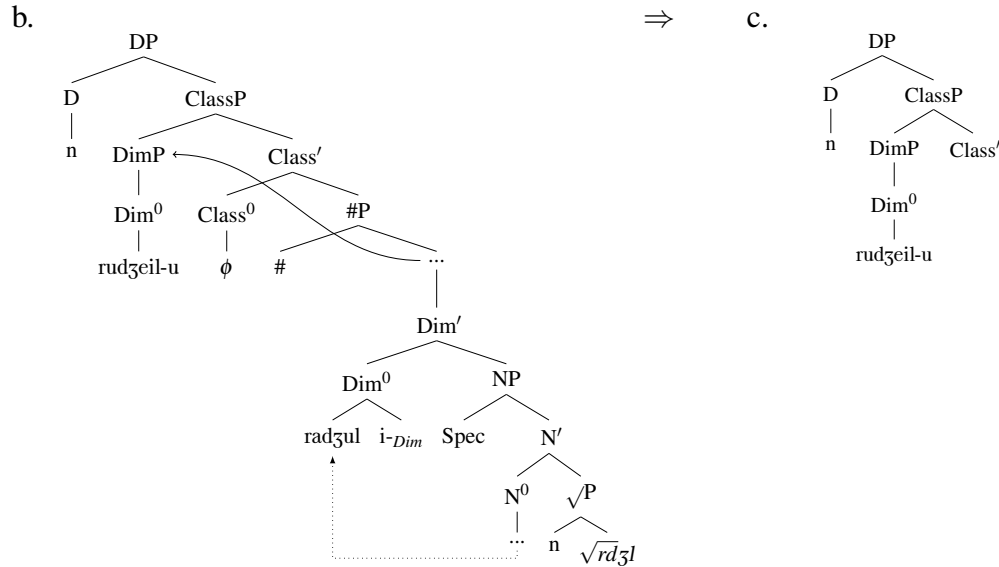
I should point out that my proposal is different from [Steriopolo's \(2013\)](#) and [Wiltschko and Steriopolo's \(2007\)](#) proposals. Having discussed diminutives in different languages, they conclude that the diminutive morpheme could be classified as a head or as a modifier. That is, if it merges with a root, it is considered as a head since it can change the syntactic category of the root from a type to another (e.g., from a verb to a noun). If, on the other hand, the diminutive morpheme merges with a noun (stem), it is considered as a modifier since the merge does not affect the word type (e.g., a noun remains a noun). Indeed, neither of the two proposals fit the diminutive case in Arabic. I have shown that the diminutive is a functional head that derives diminutions from nouns; they are not derived from roots since they have no access to them.

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<sup>25</sup>In their discussion of diminutives, [Alshboul et al. \(2013\)](#) propose that the plural diminutives can be directly derived from the root. Their proposal is arguable since their examples included diminutivized collective nouns. Collective nouns cannot be diminutivized in Arabic. I argue that these nouns should first be singulativized. Once the singulative form is derived, they can be diminutivized according to the processes illustrated in (78b&c).





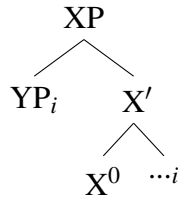


The derivation of the indefinite diminutive DP *rudʒeil-u-n* proceeds as follows: as illustrated in (80b), the root  $\sqrt{rdʒl}$  is categorized as a noun by merging with the category-specifying functional head *n* giving the singular noun *radʒul*. Then, N-to-Head movement takes place (i.e., the noun moves from  $N^0$  to the head  $Dim^0$ ). Under the  $Dim^0$ , two processes operate to diminutivize the noun, they are readjustment of the internal structure of the noun and infixation of the diminutive morpheme. The processes spell out the diminutivized noun *rudʒeil*. We notice that the diminutivization process has been completed. However, there remain two issues to spell out a licensed indefinite DP. First, the syntactic visibility requirement (the visibility of the specifier and the head) has not been satisfied. The second issue is related to the phrase constituents' order (i.e., nunciation should appear after the diminutivized noun). Building [Alexiadou et al.'s \(2002\)](#) idea, I propose that the diminutive phrase, DimP, should move to the [Spec: ClassP]. [Alexiadou et al.](#) argue that a phrasal movement from a complement position to a specifier position is possible even if the moving phrase contains only the head  $X^0$  (see [Alexiadou et al., 2002](#), for more details, p.37-38). This phrasal movement satisfies one requirement of the syntactic visibility, which is the specifier visibility. The other requirement, the head visibility, is satisfied by nunation in  $D^0$  position as illustrated in (80c). My proposal takes into considerations the anti-locality constraints

put forth by [Abels \(2003\)](#). Anti-locality dictates that a complement of a certain head cannot move to its specifier.

(81) Anti-locality Constraint  
\*

([Abels, 2003](#), p.12)

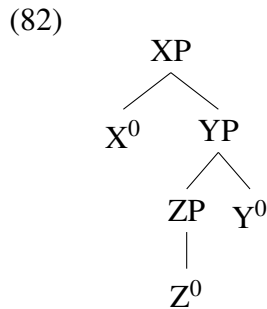


In order to avoid the violation of this constraint, the #P projects between the ClassP and the DimP as illustrated in (80b). There are two advantages of including the #P. First it allows for the phrasal movement of the DimP to the [Spec: ClassP]. If the #P were absent, the DimP would be the complement of the Class<sup>0</sup>. This means, the DimP cannot move because of the anti-locality constraint. The second advantage of the #P is that, in the case of pluralization, the #P provides a platform for deriving plural diminutives from already-diminutivized singular nouns.

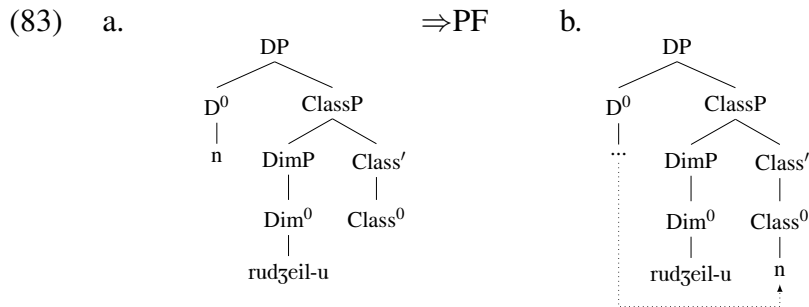
There remains one issue which is the merge of nunation with the diminutivized noun and the correct word order; nunation must follow the noun. If we look at the example (80a), we notice the word *rudzeilu-n* forms one prosodic unit. This implies that the diminutivized noun and nunation have been merged somewhere during the derivation process. Before I give my analysis of the issue, I rule out the possibility of merging the two elements in the syntax proper for two reasons. First, the only movement which can merge the two elements is the Head-to-Head movement (i.e., the head Dim<sup>0</sup> of the specifier DimP to the head D<sup>0</sup> of the maximal phrase DP). This movement (head movement out of the specifier) is not widely attested in the syntax proper ([Matushansky, 2006](#)).<sup>27</sup> Second, There is no demanding necessity for an overt movement since there are no strong features that need to be checked. The alternative analysis which I argue for is that the merge of nunation with the diminutivized noun takes place post-syntactically. Following [Embick](#)

<sup>27</sup>[Matushansky \(2006\)](#) and [Toyoshima \(2001\)](#) argue that Head-to-Spec movement can be achieved in the syntax proper, an idea which I do not adopt in the current investigation. Instead, I propose that the merge of the diminutivized noun with nunation takes place at PF in the sense of [Embick and Noyer \(2001\)](#).

and Noyer (1999, 2001) who argue for movement operations at PF, I argue that nunation and the diminutivized noun are merged at PF by the morphological merger. Embick and Noyer propose that "Lowering movement will be required to unite syntactic terminals that are phonologically spelled together but not joined in overt syntax" (p.561). That is, for the process of lowering to take place, the two *vocabulary items* must be terminal nodes, heads (headedness is crucial to movement operations at PF) and the two terminal nodes may not be necessarily adjuncts. However, Embick and Noyer restrict the lowering movement of the head  $X^0$  to the head of its complement. In other words, the head  $X^0$  can lower to  $Y^0$  but not to  $Z^0$  as explained in (82).



I assume that merging nunation with the diminutivized noun at PF is a feasible solution. If this assumption is on the right track, I propose that merging of nunation located under the head of the DP ( $D^0$ ) with the diminutivized noun located under the head of the DimP ( $Dim^0$ ) can be achieved by the process of lowering movement at PF; not in the syntax proper.<sup>28</sup> That is, nunation is lowered from  $D^0$  to  $Class^0$ . The lowering movement has placed nunation to the right of the diminutivized noun as schematized in (83b).



<sup>28</sup>Franks and King (2000) indicate that lowering movement can also be syntactic. I argue that lowering movements are PF-specific. By contrast, raising movements, either overt in the syntax proper or covert at LF, are considered syntactic movements. See Embick and Noyer (1999, 2001) for a similar argument.



licensed to occupy preverbal subject positions.

### 4.3 Licensing by Construct State

This section aims to discuss the role of CS in licensing indefinite DPs to appear as preverbal subjects in SA and SUD. In the literature, the CS has been investigated on the basis that it is a structure used to express possession; its role is assumed to show the relation between the possessor and the possessum. Therefore, the studies that have investigated CS (e.g., [Borer, 1988](#); [Benmamoun, 2000b](#); [Fassi Fehri, 1993](#); [Ritter, 1991](#); [Siloni, 1991, 1994, 1997](#), among many others), focus on analyzing the internal structure of the CS in isolation from a clause structure.<sup>29</sup> This section, however, takes a different path. It mainly focuses on the role of CS in licensing indefinite DPs in preverbal subject positions. Thus, I do not intend to discuss the CS internal structure in detail or survey the previous linguistic analyses that have discussed it. I only sketch out the basic background information for the Semitic CSs.<sup>30</sup>

In this discussion, I show that CS can license indefinite nouns in preverbal subject positions. I have proposed in the previous discussion of adjectives and diminutives that modification positively changes the distribution of indefinite nouns. As a result, they become able to appear as preverbal subjects. In the same way, CS shows a similar strategy of licensing indefinite nouns. That is, modification by CS and the presence of nunation turn indefinite nouns into arguments that can occupy preverbal subject positions. The structures in (85a) and (85b) are ungrammatical because the specifier is missing in the former and nunation is missing in the latter. Inversely, when nunation and the specifier (i.e., the genitive NP) work conjointly, they produce a grammatical sentence as shown by (85c).

<sup>29</sup>There are different views about deriving CS members in Semitic languages. These views range from deriving CS members in the lexicon ([Borer, 1988](#)) to the post-syntax derivation ([Benmamoun, 2000b](#)). [Fassi Fehri \(1993\)](#), [Ritter \(1991\)](#) and [Siloni \(1997\)](#) propose a syntactic derivation for the CS constituents.

<sup>30</sup>A thorough discussion of the CS types and derivations is postponed to §4.



‘a teacher’s book’<sup>31</sup>

The CS can have more than one genitive NP; however, the right most closing NP must be accompanied by the definite or indefinite article; it must have a determiner and an NP. Let us take a look at the following examples:

- (88) kitāb-.... mudarris-i ʔal-mādat-i  
 book-.... teacher-*GEN* the-course-*GEN*  
 ‘the course teacher’s book/ the book of the teacher of the course’

The word *kitāb* holds as the nominal head, but its direct genitive NP in (86) ‘*ʔal-mudarris-i*’ becomes a bare noun in (88) and the determiner *ʔal* is transferred to the final genitive NP. It can be noticed that the word *mudarris-i* becomes a bare genitive noun. The word, *kitāb*, still acts as the head of the entire CS. This syntactic phenomenon is a trait of the Semitic languages. If the genitive NP of the CS is followed by another genitive NP, it automatically loses its definite article (Siloni, 2003). The following example from Hebrew shows a parallel CS structure to the above example:

- (89) gag (\*ha-) beyt ha-’š  
 roof (\*the-) house the-man  
 ‘the roof of the house of the man’ (Siloni, 2003, p.23)

Looking at (89), the CS is ill-formed if it includes two definite articles, thus the presence of *ha* with the noun *beyt* renders the CS ungrammatical. However, if *ha* is removed, the CS is grammatical. The same process is found in Arabic as shown below.

- (90) \*kitāb-.... ʔal-mudarris-i ʔal-mādat-i  
 \*book-.... the-teacher-*GEN* the-course-*GEN*

The example in (90) is ill-formed because two definite articles appear in the structure. There must be only one and it must appear with the rightmost closing genitive noun.

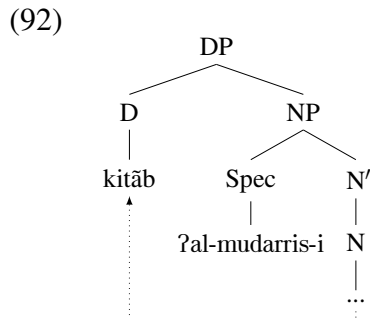
<sup>31</sup> .... is to indicate that the head noun is open to receiving the proper Case depending on its argumental or structural position: Nominative for subject, Accusative for object and Genitive as a complement of a preposition.

Indefinite CSs in Arabic show the same behaviour.<sup>32</sup> Nunation appears with the right most closing genitive NP. Indefiniteness spreads to the entire CS's from the closing NP.<sup>33</sup> If nunation appears with any noun other than the closing NP, it will result in an ill-formed structure as shown by (91).

- (91) kitāb-.... mudarris-i(\*-n) mādat-i-n  
 book-.... teacher-*GEN-NUN* course-*GEN-NUN*  
 'a book of a teacher of a course'

Nunation appearing with the genitive noun *mudarris-i* renders (91) ill-formed; nunation must be present with the CS's closing genitive NP only. This behaviour presents strong evidence that nunation forms the head of indefinite DPs.

Ritter (1991), Mohammad (1988), and Benmamoun (2000b) propose that the head of the CS, the possessum, is originally generated in the head of the NP and the complement DP (the genitive member), possessor, is generated in the Spec of the NP. The existing syntactic order possessum-possessor is a result of raising the possessum to the  $D^0$  position leaving the genitive NP in its place, [Spec: NP].



In CSs, the possessum and the possessor must be adjunct.<sup>34</sup> They must be under the same nominal projection. Fassi Fehri (1993) argues that the possessor cannot be extracted outside the nominal

<sup>32</sup>Siloni (2003) did not talk about indefinite CS. It is conventionally argued that Hebrew does not have an indefinite article; this might be the reason behind the lack of indefinite CS examples in Hebrew.

<sup>33</sup>I will assume the notion of spreadness just for the discussion of background. However, I will give my stance of this notion in the next section.

<sup>34</sup>The idea of adjacency may not be correct. I will discuss this idea later.

projection. Scrambling or extracting the genitive NP will result in an ungrammatical structure of the CS as shown in the below examples:

- (93) a. zur-tu dār-a ʔal-ʔjītam-i  
visited-I house-ACC the-orphans-GEN  
'I visited the orphans' house.'
- b. \*zur-tu ʔal-ʔjītam-i dār-a  
visited-I the-orphans-GEN house-ACC
- c. \*ʔal-ʔjītam-i zur-tu dār-a  
the-orphans-GEN visited-I house-ACC

The ungrammaticality of (93b&c) is a result of scrambling the CS constituents; the order of the possessum and the possessor has been changed. It can be noticed that CS minimally has two pillars (the possessum and the possessor). These two members are structured in a certain inseparable order. These conditions are not satisfied in (93b&c) but they are in (93a).

Adjectives modifying the head noun of CS cannot follow the head or split the CS head from its genitive NP member. They must appear post-nominally following the entire CS construction as indicated below.

- (94) a. bāb-u ʔal-bajit-i ʔal-kabēr-u/i  
door-NOM the-house-GEN the-big-NOM/GEN  
'the big door of the house' OR 'the door of the big house'<sup>35</sup>
- b. \*bāb-u ʔal-kabēr-u ʔal-bajit-i  
door-NOM the-big-NOM the-house-GEN

The structure in (94a) shows that the adjective comes after the CS where it is appropriately situated. The construction in (94b) shows that the adjective intervenes between the CS members, the phrase structure becomes ungrammatical. The same phenomenon appears in the Hebrew structure discussed by Siloni (2003) as follows:

- (95) a. beyt ha-ʔša ha-gadol  
house the-woman the-big

<sup>35</sup>I assume that the Case assigned to the head is NOM; just to show where the adjective can bind. As I mentioned earlier that the head noun is open to receiving any Case depending on its argumental/structural position.

‘the woman’s big house’

- b. \*beyt ha-gadol ha-’ša  
house the-big the-woman

(Siloni, 2003, p.24-25)

The CS structure in (95a) is well-formed since the modifier is placed after the entire CS. By contrast, it becomes ill-formed in (95b) due to the adjective intervening between the CS members.

CS post-modifying adjectives can have an ambiguous referentiality. In other words, they can modify the CS head or the genitive NP:

- (96) bāb-u   ʔal-bajit-i   ʔal-qadēm-(u/i)  
door-*NOM* the-house-*GEN* the-old-*NOM/GEN*  
‘the old door of the house’ OR ‘the door of the old house’

The attributive adjective *qadēm* ‘old’ can refer either to the word *bāb*, the head of the CS or to the word *ʔal-bajit*, the genitive NP of the CS. The ambiguity of this example is unveiled by the Case agreement marker affixed to each constituent of (96). The possible Case marker of the adjective is indicated between the brackets. If the adjective, *ʔal-qadēm*, carries nominative Case, then it must bind to a nominative noun which is in this situation *bāb-u*; if *ʔal-qadēm*, on the other hand, carries genitive Case, then it must bind to the genitive NP, *ʔal-bajit-i*. We notice that Case is crucial in such constructions not only for nouns but also for adjectives.<sup>36</sup>

Gender marker affixed to the CS post-modifying adjective can determine where the adjective binds. If the CS constituents are marked for different gender, the adjective referentiality is not ambiguous if it carries a gender marker.

- (97) a. nāfiḏat-u           ʔal-bajit-i   ʔal-qadēm-i  
window-*FM-NOM* the-house-*GEN* the-old-*GEN*

<sup>36</sup>Chomsky (1986) assumes that NPs should receive Case; if they are not assigned Case, they become ill-formed:

(1) \*NP. If NP is lexical (has phonetic content) and has no Case.

This formulation needs to be extended in order to accommodate Arabic AdjPs and AdvPs. What follows from that is not only  $\phi$  features must be satisfied (person, gender, and number), but also definiteness and Case features as well between attributive adjectives and their nominal heads in SA and in SUD.

‘the window of the old house’

- b. *nāfiḏat-u*            *ʔal-bajit-i*            *ʔal-qadēmat-u*  
 window-*FM-NOM* the-house-*GEN* the-old-*FM-NOM*  
 ‘the old window of the house’

In (97a), the adjective *ʔal-qadēmat-i* is marked for the masculine gender, therefore, it must be modifying a masculine noun which is in this case *ʔal-bajit-i*. By contrast, in (97b), the same adjective is marked for the feminine gender; therefore, it must modify a feminine noun which is *nāfiḏat-u*. The same phenomenon is available in Hebrew as indicated by Siloni (2003). She mentions that the adjectives following the CS can refer to either the head or to the complement on condition that they (the head and the complement) agree in number and gender.

- (98) a. *beyt*            *ha-’š*            *ha-gadol*  
 house-*MS* the-man the-big-*MS*  
 ‘the house of the big man’ OR ‘the big house of the man’

- b. *beyt*            *ha-’ša*            *ha-gadol*  
 house-*MS* the-woman the-big-*MS*  
 ‘the woman’s big house’

(Siloni, 2003, p.25)

In the example (98a), the attributive adjective *ha-gadol* referentiality is ambiguous; it is not clear whether it modifies the head noun of the CS or the genitive NP. Both, the head noun and the genitive NP, are masculine and, by default, the attributive adjective is masculine as well. Thus, it is difficult to predict what the adjective *ha-gadol* modifies. Conversely, the adjective referentiality in (98b) is not ambiguous. The adjective *ha-gadol* gender feature (masculine) disambiguates its referentiality. It must be modifying a masculine noun which is in this case the CS head noun ‘*beyt*’. The possibility that the adjective *ha-gadol* modifies the CS genitive NP is excluded since the two elements have a different gender feature. Unlike Hebrew, the ambiguity of the Arabic post-nominal adjectives of CSs can be eliminated by the morphological Case as instantiated by the example (96). Despite the fact that Arabic adjectives are more transparent because of the

rich morphology of the language, there remain some challenges that can neither be solved by  $\phi$  features agreement nor by the morphological Case. A lengthened and problematic example in (99) is introduced by [Mohammad \(1999\)](#).

- (99) ?eben xaal ?abo l-walad T-Tawiil  
son uncle father the-boy the-tall

Because of the ambiguous referentiality of the adjective *T-Tawiil*, the following readings are possible:

- 'the *tall* son of the uncle of the father of the boy'
- 'the son of the *tall* uncle of the father of the boy'
- 'the son of the uncle of the *tall* father of the boy'
- 'the son of the uncle of the father of the *tall* boy'

([Mohammad, 1999](#), p.1)

We observe, from the above-introduced examples, that the head noun, the possessum, of the CS seems to be a bare noun. It is also noticed that the determiner appears only before the rightmost NP. [Ritter \(1991\)](#) argues that the definiteness of the CS noun phrase is determined by the definiteness of the genitive phrase. If there are nested CSs (i.e., multi-genitive NPs), the definiteness of the entire constituents, totally, depends on the closing genitive NP. The genitive NP can be proper noun, pronoun or common noun headed by the definite article *?al* in the case of the definite CS. In the event of an indefinite CS, only indefinite common nouns headed by nunation occupy the genitive NP.

Having presented basic facts about the CSs and their possible structures in Semitic languages, there remain two important issues. The first issue is the linguistic derivation of CS. As I indicated in the footnote (29), it will be discussed in §4. The second issue is the role of CS, precisely indefinite CS, in licensing indefinite DPs to occupy preverbal subject positions. This issue will be

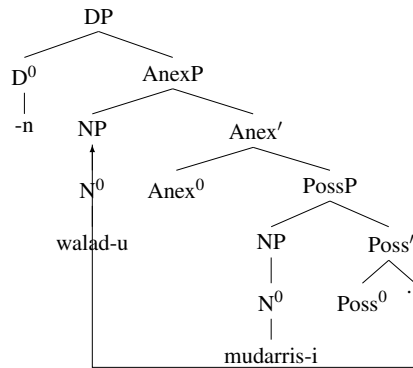


but nunation is missing. The sentence in (100c) is perfectly well-formed due to the presence of nunation and the indefinite possessive NP.

I argue that indefinite CS is generated as one DP. The distribution of the CS members proceeds as follows: starting from the lower position of the syntactic tree, the head noun is generated in  $N^0$ ; the possessive NP is generated in the Spec of the PossP. The PossP is generated under the Annexation phrase (AnexP). Nunation is generated in the  $D^0$  position. The syntactic distribution of (101a) is schematized in (101b).

- (101) a. walad-u mudarris-i-n  
 boy-NOM teacher-GEN-NUN  
 ‘a teacher’s son’

b.



We notice that N-to-D movement cannot take place since  $D^0$  is occupied by nunation.<sup>38</sup> The alternative solution, I propose here, is a phrasal movement that can move the NP that includes the head noun *waladu* to the Spec of the AnexP. If we look at the structure in (102), we notice that the correct linear word order has not been achieved yet.

- (102) \*-n walad-u mudarris-i  
 -NUN boy-NOM teacher-GEN

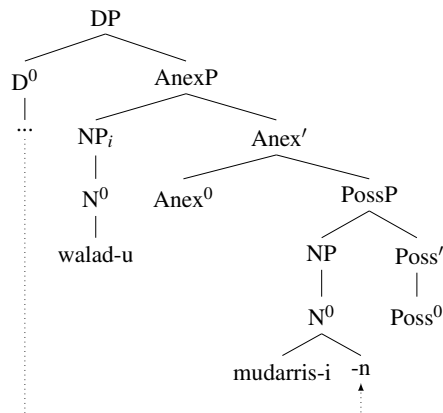
The ill-formedness of the CS phrase in (102) is a result of of nunation remaining in situ. The important question is how can we solve the problem of the mismatch between the syntactic hierarchy and the phonological form? It seems that the correct linear order may not be achieved

<sup>38</sup>N-to-D movement can take place in all types of Arabic determiner phrases except in CS and diminutives since the movement in these constructions will spell out incorrect structures.

in the syntax proper. Instead, I argue that nunation must undergo a movement operation that can lower it to the appropriate position (i.e., attach it to the possessive NP).

**Lowering of nunation:** The CS structure in (102) is ill-formed because it is spelled out from the syntax proper according to its syntactic hierarchy. The problem specifically stems from nunation. In essence, nunation is generated in the proper place,  $D^0$ . However, it does not render a grammatical structure. This implies that syntax cannot exclusively produce grammatical structures. I argue that the derivation of CSs requires a post-syntax operation in order to solve the mismatch problem between the syntactic hierarchy and the phonological form represented in (102). To solve the problem, I follow Embick and Noyer's (2001) proposal that clitics are dependent elements that need a host. The attachment of a clitic to its host can take place in the syntax proper (e.g., using N-to-D movement when possible). If syntax is not able to attach a clitic to an appropriate host, movement operations at PF can avail themselves to do that. For the case in point, the syntax proper is not able to attach nunation to its host, the possessive NP. Therefore, I propose a PF movement operation as an alternative solution to the syntactic movement. Using PF movement, I argue that nunation is a peripheral clitic which needs to be lowered and encliticized to the possessive noun  $N^0$ , the head of the possessive NP; the schematic in (103) instantiates my PF proposal.

(103)



The lowering movement of nunation from  $D^0$  to  $N^0$  of the possessive NP results in the correct linear order of the CS structure.<sup>39</sup> It solves the problem of the incorrect linear order which results from the mismatch between the syntactic structure and the phonological form. The lowering movement of nunation at PF seems to be an effective tool for the case in point, however, there is still some issues with such an analysis. We notice that when nunation hops down to adjoin to the head noun of the possessive NP, it skips two intervening heads, namely  $Anex^0$  and  $Poss^0$ . Additionally, it hops down to a head of an NP that occupies a specifier position, [Spec: PossP] a destination which is not allowed by the framework (i.e., Embick and Noyer's work) I am adopting. These issues might appear as a drawback of the proposed analysis (see footnote (39)). I assume that skipping an intervening head at PF may not threaten the current analysis since the morphological merger at PF is not sensitive to syntactic constraints on movement (Benmamoun, 2000b). However, this *potential* drawback will be accounted for in §4 where I will try to crystallize the proposed analysis.

To reiterate, the proposed analysis of the indefinite CS introduced in (101b) and (103) differs from the proposals suggested in previous studies. The difference lies in the placement of the (in)definite article, nunation/?al in the syntax proper. In the previous analyses that have investigated the CS derivation in Semitic languages, the majority of the proposals assume that the  $D^0$  position is not occupied by an article. It is only occupied by the head noun as a result of N-to-D movement. These studies (Borer, 1996; Ritter, 1991; Siloni, 1997) argue that the (in)definiteness spreads up (i.e., percolates up the tree) to the head noun from the genitive NP making the CS definite or indefinite. In my study, I argue that nunation/?al is generated in its *natural* position,  $D^0$ . Being in this position, it is responsible for the entire CS phrase definiteness or indefiniteness

<sup>39</sup>It might be argued that lowering of nunation from  $D^0$  to  $N^0$  can be blocked by the intervening head,  $Poss^0$ . Analogously, it has been argued that lowering of T to V in English is not blocked by the adverbial head which intervenes between T and V (Bobaljik, 1994).

since it is located in a c-commanding position. My argument that the  $D^0$  takes the responsibility of assigning definiteness or indefiniteness to the CS, I believe, is parallel to the idea that the  $T^0$  is responsible for the tense in the TP. Syntactically speaking, the  $D^0$  is analogous to the  $T^0$  since it has been argued that the DP might be parallel to the TP (Abney, 1987; Benmamoun, 2003; Fassi Fehri, 1993). Noticeably different from previous studies, I argue that the derivation of CS structures is performed in the syntax proper and at PF. The syntactic movement raises the NP that includes the head noun of the CS to the [Spec: AnexP]. The PF movement lowers nunation from  $D^0$  and encliticizes it to the possessor noun  $N^0$ .

## 5 Conclusion

This chapter has discussed the indefinite DPs distribution and licensing in preverbal subject positions in SA and SUD. I have argued that indefinite DPs cannot occupy preverbal subject positions (SVO) without being modified. Three types of modification were investigated, namely adjectives, diminutives and CSs. The presence of nunation is obligatory in order to work in tandem with each type of modification to license indefinite subject DPs in SVO. I have shown that nunation forms one half of determination whereas modification forms the other half. With regard to the adjective positions in Arabic, I have argued that Arabic is dominantly a N-Adj language (i.e., adjectives are placed in postnominal positions); it cannot be classified as an Adj-N language. I have argued that the adjectives that seem to be prenominal are evidently postmodifiers of elided nouns. Having discussed diminutives, I have proposed that Arabic indefinite diminutives is derived by two processes: one in the syntax proper and one process at PF. For the syntactic part, readjustment and infixation, working conjointly, derive diminutives. At PF level, nunation is lowered to encliticize with the diminutive form. Finally, I showed that CSs can license indefinite DPs to appear as preverbal subjects. As far as the internal structure of CS is concerned, I have

proposed that the CS derivation is performed in the syntax proper and at PF. In syntax, a phrasal movement raises the NP that host the head noun of the CS to the Spec of the AnexP. We notice that the phrasal movement does not spell out the correct linear order of the CS's members. Thus, PF movement lowers nunation from  $D^0$  to  $N^0$  of the possessor. The process of lowering results in the correct linear order of the CS structure. I have implied that in addition to expressing possession, CSs can be used to express different linguistic purposes such as, but not limited to, agentivity, affinity and adjectivity. This issue will be discussed in §4.

# Chapter 4

## Construct State

### 1 Introduction

This chapter investigates the internal structure of different types of CS. Since one of the main goals of the thesis is to discuss the structures of Arabic DPs, it tries to provide a rigorous linguistic analysis of a complex DP in Arabic, namely CS. In the previous chapter, I discussed CS as a licensing element of indefinite DPs. Therefore, the discussion was limited to explaining why the indefinite CS structures (indefinite DPs in a CS form) are able to appear in preverbal subject positions, specifically, when it is employed in the SVO clauses as we have seen in the last section of §3. Unlike the discussion in the previous chapter, the investigation of CS in this chapter takes a different path. That is, I focus on the analysis of the internal structure of CS in isolation from a clause structure. I also investigate different types of CS (e.g., possessive, agentive, affinitive, subjective and adjectival CS).

A CS structure includes one head noun and at least one genitive NP. It has been argued that the definiteness/indefiniteness of the entire CS is determined by the semantic status of the rightmost closing genitive NP. In other words, if the closing genitive NP is definite, the CS structure is definite as well (see the structures in (1)).

*Definite CS:*

- (1) a. kitāb-u/a/i                    ʔal-mudarris-i  
          book-*NOM/ACC/GEN* the-teacher-*GEN*  
          ‘the teacher’s book’<sup>1</sup>

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<sup>1</sup>The Case assigned to the head noun of the CS depends on its grammatical position. In other words, it is assigned Case as follows: subjects are assigned NOM; objects are assigned ACC. Complements of prepositions, spatial adverbs and temporal adverbs and the second member of CS are assigned GEN.

- b. kitāb-u/a/i Ali  
 book Ali  
 ‘Ali’s book’
- c. kitāb-u-ka  
 book-*NOM*-your  
 ‘your book’

Notably, the definiteness of CS can be achieved by the addition of the definite article *ʔal* to a genitive common noun as illustrated in (1a). In the same way, proper names that follow the CS head noun render the CS structure definite (1b). Genitive possessive pronominals when following the CS head noun make the CS definite as can be seen in the structure (1c).

As far as the indefinite CS structure is concerned, there is only one way to form it. It is formed by adding an indefinite nunated common noun (nutation + noun) to the head noun of CS as shown by (2).

*Indefinite CS:*

- (2) kitāb-u mudarris-i-n  
 book-*NOM* teacher-*GEN-NUN*  
 ‘a teacher’s book’

Looking at the structure in (2), we notice that the indefinite CS consists of a head noun, a genitive noun encliticized with nutation. Indefinite CS structures cannot be formed without the presence of nutation despite the fact that it is sometimes ‘*phonologically*’ unrealized. The presence of nutation plays an important role in the formation of indefinite CS. I want to argue that the role of nutation is equal in importance to the role of the definite article *ʔal* in forming the definite CS.

The discussion of CS structures proceeds as follows: section 2 briefly surveys the previous accounts which have investigated CS derivations; section 3 discusses different types of CS; in section 4, I give my account of CS derivation and section 5 concludes the chapter.

## 2 CS structure derivation approaches

There have been different views that have discussed the derivation of Semitic CS structures. These views range from deriving CS members in the lexicon (Borer, 1988) to the post-syntax derivation (Benmamoun, 1997, 2000b, 2006). Almansour (2012), Fassi Fehri (1993), Ritter (1991), Siloni (1997) propose a syntactic derivation for the CS members. In this subsection, I introduce a number of different approaches found in the literature which have discussed CS architectures.

### 2.1 Lexical merger

It has been proposed that the constituents of the CS are composed in the lexicon. Borer (1988) suggests that the CS constituents are externally merged into the syntactic structure as one unit. Her argument is based on the idea that a CS structure forms one prosodic unit and the adjacency of its constituents is strictly adhered to. Benmamoun (2000b, 2006) argues against the idea that the CS constituents are composed by lexical merger. His argument is supported by a grammatical phenomenon which is a pure trait of the CS. For example, the CS structure is not an anaphoric island; both members of the CS can enter into different syntactic relations with the elements outside the CS. The example in (3) shows that the CS is followed by a modifying relative clause. However, the relative clause can bind to either the head noun or to the genitive NP but not to the entire CS.

- (3) kitāb-u   ʔal-walad-i   ʔallađi   raʔit  
 book-*NOM* the-boy-*GEN* which/who saw-I  
 ‘The boy’s book which I saw, Or The book of the boy who I saw.’

The non-restrictive relative clause *ʔallađi raʔit* ‘who/which I saw’ can only modify one constituent of the CS at a time. This behaviour poses a problem to Borer’s suggestion since the relative

clause cannot modify the entire CS. If her argument were on the right track, we would expect the non-restrictive relative clause to modify the entire CS structure. Post-modifying adjectives also challenge the lexical merger view. The example (4) shows that the adjective can only modify the head noun of the CS.

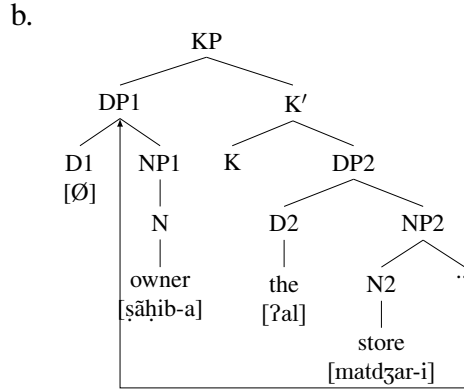
- (4) *bāb-u*            *ʔal-yurfat-i*            *ʔal-qadēm-u*  
 door-*MS-NOM* the-room-*FM-GEN* the-old-*MS-NOM*  
 ‘the room’s old door’

We notice that the adjective ‘*ʔal-qadēm-u*’ bears  $\phi$  features, a semantic (definite) feature and nominative Case thus it must be modifying a noun that carries the identical features which is the head noun *bāb-u* in our case. We also notice that the genitive NP ‘*ʔal-yurfat-i*’ bears different features except the semantic one. The lack of feature agreement between the constituents of CS provides us with strong evidence that CS is not compiled in the lexicon and it is not fed into syntax as one unit as claimed by Borer. If CS were so, we expect it to be strictly assigned, for example, one morphological Case and one set of  $\phi$  features.

## 2.2 Syntactic merger

AlMansour (2012) assumes that CS contains two full DPs that are dominated by a Case phrase (KP). He argues that DP1 is indefinite that includes the head noun of the CS. DP2 is definite and it includes the genitive noun (see (5b) for a simplified structure of his proposal). He argues that the head noun of the CS is generated under a full DP (i.e., DP1) which is dominated by NP2, the complement of D2.

- (5) a. *ṣāḥib-a*    *ʔal-matdʒar-i*  
 owner-*ACC* the-store-*GEN*  
 ‘the store’s owner’



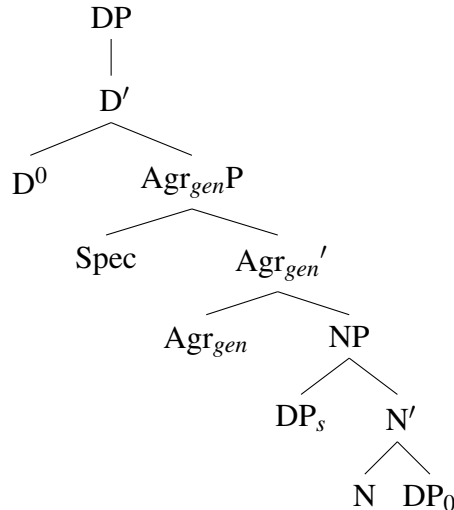
Because of the Distinctness condition, adopted from Richards (2010), that prohibits the linearization of two syntactic objects of the same type in the same Spell-Out domain, Almansour proposes that DP1 should move to [Spec: KP] as illustrated in (5b). He argues that by doing this, two goals can be achieved. First, the genitive DP (the DP2 which is the complement of the phase head K) can spell out since the problem of the Distinctness condition has been solved (i.e., only one DP can spell out in the sense of *Phase Theory*). Second, the movement of DP1 to [Spec: KP] results in the correct linear order of the CS constituents.

I argue that Almansour's analysis suffers from two weaknesses. First, he claims that the head noun is generated under the indefinite DP1; if it were so, we expect nunation to surface in D1 position as a determiner that takes the CS head noun as a complement. However, as a rule of thumb, the head noun can neither take nunation nor the definite article *ʔal*. Only the CS genitive DP is able to take the (in)definiteness article. Second, Almansour's analysis does not account for the indefinite CS, an issue that has not received much attention in the literature.

Having provided a syntactic analysis of CS derivation, Siloni (1997) proposes that the genitive DP of CS is generated in the [Spec: NP]. The head noun is generated in  $N^0$  of the NP. The genitive DP raises to the Spec of AgrP where it checks genitive Case. The phrasal movement of the genitive DP does not achieve the correct linear order of the CS. Therefore, the head noun which occupies  $N^0$  is required to successively move to  $Agr_{gen}^0$  then to  $D^0$  as schematized in (6). Siloni,

following Shlonsky (2004), suggests that  $D^0$  position is generated empty. The idea that the  $D^0$  position remains unfilled by a determiner has been adopted by most studies that have investigated the CS derivation in Semitic languages.

(6) (Siloni, 1997, p.44)

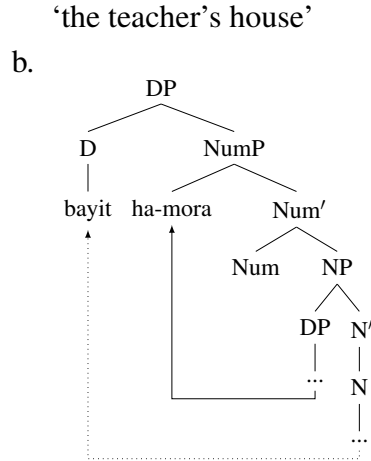


I believe that the agreement projection is not required since agreement is neither held nor required between the members of the CS. In the example (7), all agreement  $\phi$  features and the Case feature cannot be established between the head noun and the genitive NP.

(7)  $\text{ʔalyã}$              $\text{ʔal-mudēr-u}$              $\text{ḥaflat-a}$              $\text{ʔaṭ-ṭullāb-i}$   
 cancelled-*MS-SG* the-principal-*MS-SG-NOM* party-*FM-SG-ACC* the-student-*MS-PL-GEN*  
 ‘The principal cancelled the students’ party.’

We notice that the head noun of the CS *ḥaflat-a* carries features that are totally different from the genitive NP *ʔaṭ-ṭullāb-i* features. Based on this fact, the AgrP proposed by Siloni may not appropriately fit in the syntactic derivation of the CS. Before I end this subsection, I provide one more syntax-based study of CS put forth by Ritter (1991). She argues that the CS constituents are derived in the syntax. Following Abney’s (1987) idea that a DP can include more than one functional projection, Ritter (1991) proposes that in a CS structure a number phrase (NumP) can project between the highest functional DP and the lexical NP as schematized below.

(8) a. bayit ha-mora  
       house the-teacher

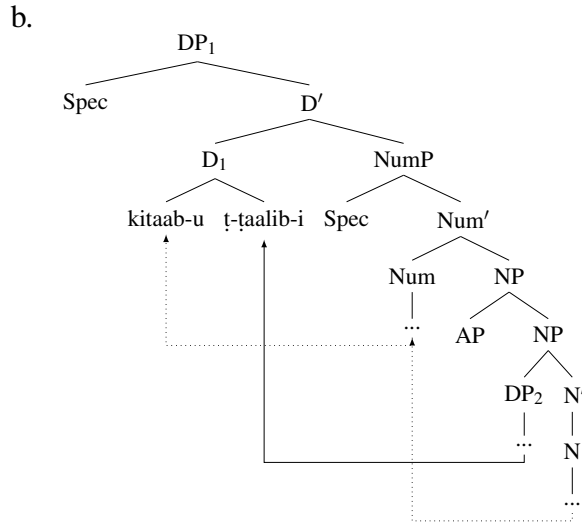


Ritter suggests that the correct linear order of (8a) is a result of two different syntactic movements, namely head movement and phrasal movement. That is, the head noun cyclically moves from  $N^0$  to  $D^0$ ; the genitive DP moves from the Spec of the lexical NP to the Spec of the NumP. Before I turn to the next subsection, I should point out that two arguments have emerged from the studies that have investigated the CS derivation in light of a syntactic analysis. First, all these studies assume that the  $D^0$  position in CS is generated empty. Second, they assume the N-to-D movement in order to spell out the correct phonological order of the CS constituents.

### 2.3 Post-syntactic merger

Benmamoun (1997, 2000b, 2006) argues against the idea that the CS constituents are purely merged by the syntactic merger. He assumes that the syntactic merger requires two syntactic movements: a head movement and a maximal projection movement (i.e., a phrasal movement) to raise the head noun of the CS and the genitive DP to  $D_1$  position as illustrated in (9b).

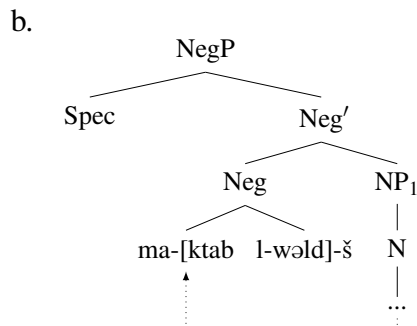
- (9) a. *kitaab-u ṭ-ṭaalib-i*  
 book-*NOM* the-student-*GEN*  
 ‘the student’s book’



(Benmamoun, 2000b, p.150)

Benmamoun indicates that there are some theoretical issues when merging the CS constituents in the syntax proper. First, the movements (the head and phrasal movements) move two different syntactic categories to the same landing site (i.e., to  $D_1$  position; see (9b) above) violating the structure preservation rule.<sup>2</sup> Second, Benmamoun argues that despite the fact that the CS forms one prosodic unit, it does not form a single unit in the syntax. He provides some interesting data from Moroccan Arabic that shows the inability of the head movement to merge negation with the CS as illustrated by (10a&b). By contrast, in the structure and schematic (11a&b), the head movement can merge negation with lexical nouns.

- (10) a. \*ma-ktab l-wəld-š  
neg-book the-boy-neg

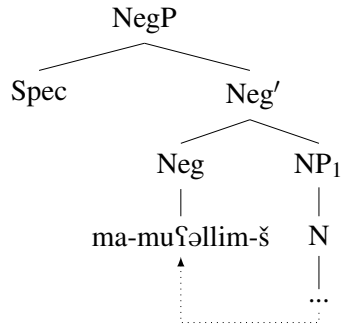


(Benmamoun, 2000b, p.151)

<sup>2</sup>The structure preserving constraints require that, when a syntactic object is moved, the departure site and the landing site must be of the same syntactic category; see Emonds (1985) and Stabler (1992) for more explanations.

- (11) a. ?ana ma-muʕəllim-š  
 I neg-teacher-neg  
 ‘I am not a teacher.’

b.



(Benmamoun, 2000b, p.150)

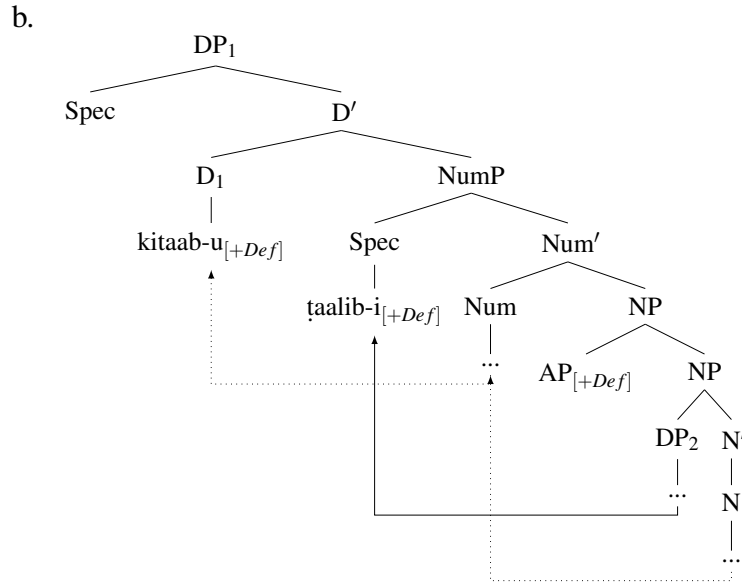
To account for the deficiency of the syntactic merger in deriving (10a) and to abide by the structure preservation constraints, Benmamoun proposes that the CS constituents are merged post-syntactically. He assumes that the post-syntactic merger observes the properties of the CS. These properties are:

- i The members of the CS tend to be adjacent.
- ii The CS constitutes one prosodic unit.
- iii Only the last member of the CS can carry the marker of (in)definiteness.

(Benmamoun, 2000b, 140)

He proposes that the elements of the CS, when externally merged into syntax, are specified for the (in)definiteness feature. Following Ritter (1991), Benmamoun assumes two syntactic movements, namely a head movement of the CS head noun and a phrasal movement of the CS genitive DP as shown below.

- (12) a. kitaab-u ʕ-ʕaalib-i  
 book-*NOM* the-student-*GEN*  
 ‘the student’s book’



(Benmamoun, 2000b, p.154)

It can be noticed that the definite article *ṭ* attached to the genitive noun in (12a) is missing from DP<sub>2</sub> in the syntactic derivation (12b). Having proposed that CS's elements are specified for the (in)definiteness feature, Benmamoun suggests that the morphological merger allows the definiteness feature to spell out with the rightmost member of the CS. Consequently, the abstract definiteness feature is turned into morphological realization of the definite article which is *ṭ* in the exemplary structure in (12a).

The idea that the CS constituents are merged post-syntactically is very interesting since it accounts, to some extent, for the mismatch between the syntactic structure and the phonological form. However, Benmamoun's proposal might need, I believe, some kind of readjustment in order to become more effective. If we assume that the syntactic terminal nodes are spelled out as bundles of features, we expect the morphological merger to interpret these features by replacing them with the suitable Vocabulary Item (VI) in the sense of DM. If this is the case, each terminal node that is specified for a definiteness feature in (12b) must be replaced by the definite VI (i.e., any variant allomorph of the definite morpheme, *ṭal*), but this is not the case; we notice only one terminal node was interpreted for definiteness, *ṭ-ṭaalibi*. By contrast, the word *kitaabu* is

specified for the definiteness feature in the syntax proper, but this feature is not interpreted by a morphological realization at PF. This inconsistency threatens the post-syntax-based analysis. Another disadvantage of this analysis emerges from the syntactic part. The phrasal movement of the word *taalibi* is not clear; is it moved as a DP or as an NP? If it is the latter, is D-feature left behind and consequently spelled out and how? These questions need to be answered. I do not intend to undermine the post-syntactic analysis since it has its own advantages. Rather, I assume that some amendments are required to improve Benmamoun's analysis of the CS derivation.

To sum up, this section gives a general idea about the different views of the CS derivation. These views vary fundamentally since each one of them takes an extreme position (i.e., lexical, syntactic or post-syntactic merger)<sup>3</sup>, except that the latter two analyses agree on the idea that the D<sup>0</sup> position is generated empty. In section 4, I will argue that the D<sup>0</sup> position is not generated empty. Instead, it is occupied by the definite article (*?al* for Arabic or *ha* for Hebrew); in the case of indefinite DPs in Arabic, the D<sup>0</sup> position is occupied by nunation. I will show that the CS structure's derivation is performed in the syntax proper and in the phonological component, PF. My analysis is a reconciliation of Ritter's (1991) and Benmamoun's (2000b) work.

### 3 Types of CS

Ryding (2005) descriptively discusses different types of CS structures. His description is based on the type of relationship between the nouns (i.e., the head noun and the genitive NP) that form the CS. He indicates that the relationship between the members of the CS can express, for example, but not be limited to, *identity, possession, agent and object* relationships.<sup>4</sup> My intention, in this section, is not to replicate Ryding's discussion. Rather, I want to provide an analysis of the

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<sup>3</sup>Although Benmamoun (2000b) argues for a post-syntactic merger, he did not completely ignore the role of the syntactic movements in the syntax proper.

<sup>4</sup>See Ryding (2005, §8 p.205-11) for more descriptive details.

CS structure that accounts for the relationship between the CS members and the different types that were observed by Ryding. Before I begin the discussion, I provide some examples that show different types of CS structures; see (13a-18a) for definite CS and (13b-18b) for indefinite CS.<sup>5</sup>

*Possessive CS:*

- (13) a. qalam-u      ?al-kātib-i  
          pen-*MS-NOM* the-writer-*GEN*  
          ‘the writer/author’s pen’
- b. qalam-u      kātib-i-n  
          pen-*MS-NOM* writer-*GEN-NUN*  
          ‘a/an writer/author’s pen’

*Agentive CS:*

- (14) a. kātib-u            ?ar-risālat-i  
          writer-*MS-NOM* the-letter-*FM-GEN*  
          ‘the writer of letter/message’
- b. kātib-u            risālat-i-n  
          writer-*MS-NOM* letter-*FM-GEN-NUN*  
          ‘a writer of a letter/message’

*Affinitive CS:*

- (15) a. bāb-u            ?al-xaḡab-i  
          door-*MS-NOM* the-wood-*MS-GEN*  
          ‘the wooden door’ (the door manufactured from wood.)
- b. bāb-u            xaḡab-i-n  
          door-*MS-NOM* wood-*MS-GEN-NUN*  
          ‘a wooden door’ (a door manufactured from wood)

*Identitive CS:*

- (16) a. ṭālibāt-u            ?al-lisanijāt-i  
          students-*FM-NOM* the-linguistics-*GEN*

<sup>5</sup>This list of examples is not exhaustive. There are many types of CS structures. I have just introduced these examples to show how the proposed theory can account for different CS structures.

‘the linguistics (female) students’

- b. ṭālibāt-u            lisanijāt-i-n  
 students-*FM-NOM* linguistics-*GEN-NUN*  
 ‘linguistics (female) students’

*Objective CS:*

- (17) a. qəṭṭ-u            ʔaʃ-ʃadʒarat-i  
 cutting-*MS-NOM* the-tree-*FM-GEN*  
 ‘the cutting of the tree’
- b. qəṭṭ-u            ʃadʒarat-i-n  
 cutting-*MS-NOM* tree-*FM-GEN-NUN*  
 ‘(a) cutting of a tree’

*Complex CS:*

- (18) a. qalam-u        kātib-i            ʔar-risālat-i  
 pen-*MS-NOM* writer-*MS-GEN* the-letter-*FM-GEN*  
 ‘the letter writer’s pen’
- b. qalam-u        kātib-i            risālat-i-n  
 pen-*MS-NOM* writer-*MS-GEN* letter-*FM-GEN-NUN*  
 ‘a letter writer’s pen’

We notice that the above examples differ in a number of aspects. Putting aside the case of (in)definiteness and the mismatch of the agreement  $\phi$  features and Case between the two constituents of the CS, each pair of examples expresses a different function (i.e., a different type of CS). For instance, the type of the CS structure in (13) is defined as a possessive CS because the relationship *possessum-possessor* is established between the CS constituents. The relationships between the CS constituents in (14, 15, 16 and 17) are respectively: (*agent-theme*); (*part-source*); (*affiliate-affiliation*) and (*(verbal-action)-object*). Interestingly, the example in (18) is a mixture of two different types of CS. In other words, it expresses the idea of the *possessive* CS (13) and the *agentive* CS (14) in one complex CS. In section (4), I will present a new analysis of the CS

structure that accommodates the different types of CS structures.

### The puzzle

The previous syntax-based approaches that have investigated the CS structure assume that the D<sup>0</sup> position is generated empty. They also assume that the Spec of the NP is occupied by another DP, called genitive DP. None of the studies, to the best of my knowledge, have analyzed the CS structure on the basis of its types and the relationships between its nominal constituents. More importantly, none of these studies explain how and why the determiner (*?al or nunation*) is attached to the genitive NP. In the next section, I will provide an account that will answer the questions and solve the puzzle of the CS derivation.

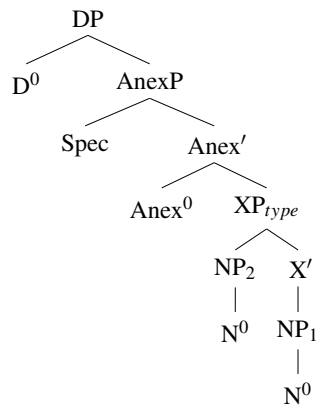
## 4 The account

I want to argue that the CS derivation is a shared process between the syntax proper and the PF component. The idea is that, movement operations required to derive the correct linear order of the CS constituents should take place in the syntax proper. In the event the syntax proper fails to derive the correct linear order, movement operations after syntax will complete the mission.

I will begin my argument by proposing that the CS consists of only one DP that includes two NPs (NP<sub>1</sub>: it includes the *annexed* noun which is traditionally called *muḏāf* and NP<sub>2</sub>: it includes the *annexed-to* noun called *muḏāf-?ileih*; see footnote (6) below). I also propose that, in addition to the annexation (genitive) phrase (AnxP)<sup>6</sup>, a functional phrase (XP) that determines the type of CS must project (e.g., AgenP for agentive CS; PossP for possessive CS) as shown by (19).

<sup>6</sup>Because there are different types of CS, I will use the term ‘*annexation*’ (*AnxP*) instead of the term *genitive*. The term *genitive* is conventionally linked to a structure that shows possession thus it may not be the suitable term for the current investigation. Therefore, I assume that using the term *annexation* is more practical since it can cover any type of the CS introduced above. In essence, the formation of the CS structure is a result of annexation (*?al-?iḏāfah*). Thus, the CS is called in some literature annexation (Al-Azraqi, 1998; Bassiouney, 2010; Ghersetti et al., 2006; Haddar et al., 2010).

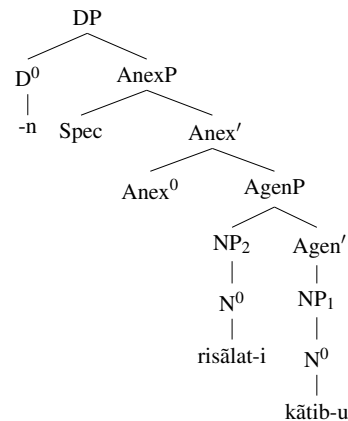
(19)



Let me now operationalize the concept of the proposal introduced in (19) by applying it to the agentive CS example (20) which is the indefinite version of the example (14) introduced earlier.

(20) a. kātib-u            risālat-i-n  
 writer-*MS-NOM* letter-*FM-GEN-NUN*  
 ‘a writer of a letter/message’

b.

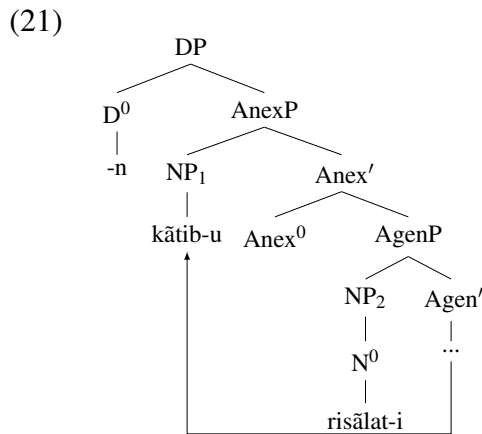


Looking at the syntactic distribution in (20b), we notice that the annexed noun (the head noun) is generated under NP<sub>1</sub>, the complement of the functional head Agen<sup>0</sup>. The annexed-to noun is generated under the NP<sub>2</sub>, the Spec of the AgenP. The AgenP determines the type of the CS which is, in this case, *agentive CS*. Radically different from previous approaches, I argue that the D<sup>0</sup> position in any CS structure is not generated empty. Rather, it is occupied by an article (*?al* or *nunation*); for the example in point, the D<sup>0</sup> position is filled by nunation. It can be noticed that the hierarchical syntactic structure in (20b) is different from the the linear order of the CS constituents in (20a). This indicates that these constituents have undergone some movement

operations. These movements, I argue, take place in the syntax proper and at PF.

#### 4.1 Syntactic movements

Assuming that the CS derivation is a shared process between syntax and PF, I propose a phrasal movement operation that raises the NP<sub>1</sub> phrase from its current position (the complement of the Agen<sup>0</sup>) to the Spec of the AnexP as shown by (21). I should point out that my proposal differs from the majority of the previous studies that have investigated the CS derivation. These studies have argued for N-to-D (head) movement, an idea which I did not adopt in my investigation. This movement is not compatible with the current analysis for two reasons. First, the D<sup>0</sup> position is occupied by the (in)definite article (*nunation or ?al*). Second, if N-to-D movement takes place, it will give an ill-formed structure. In fact, the (in)definite article cannot be cliticized to the head noun as far as CS is concerned.<sup>7</sup>



The proposed phrasal movement (i.e., NP<sub>1</sub> to [Spec: AnexP]) takes us halfway of the derivation process. It only results in the correct order of the lexical NPs; however, the correct order of the entire CS structure has not been achieved yet. The ill-formedness of (22) stems from nunation remaining in the D<sup>0</sup> position. The problem is that the structure is spelled out according to its syntactic hierarchy.

<sup>7</sup>I am not denying N-to-D movement. This movement is very crucial for deriving Semitic DPs as long as they are not CS DPs.

- (22) \*-n k̄tib-u ris̄lat-i  
 -NUN writer-NOM letter-GEN

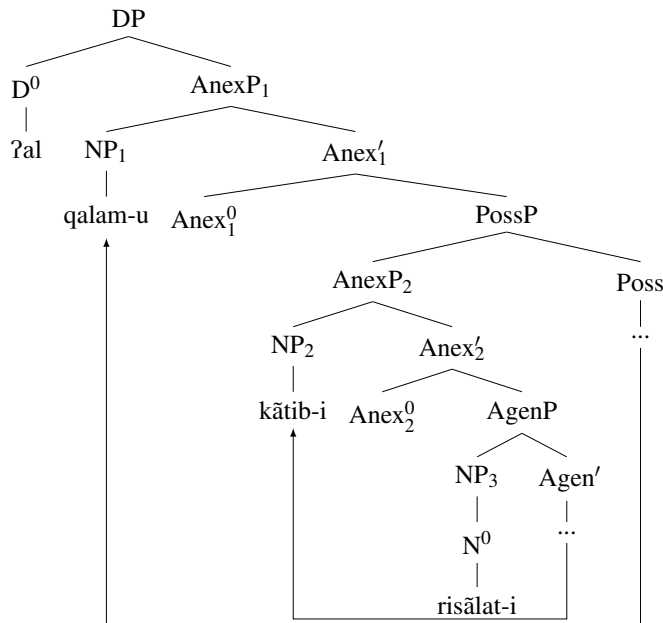
It seems that the syntax proper fails to attach nunation to NP<sub>2</sub>. Therefore, we need an alternative movement that can cliticize nunation to NP<sub>2</sub>. This issue will be discussed in the section (4.2).

Before I end the current section, I would like to explain how the *complex CS* is derived in the syntax proper. I have argued that any type of the CS should be represented by a functional projection in the syntactic structure. This functional projection is labelled according to its type. If this is the case, the basic structure proposed for a simple CS structure in (19) may not be used to derive the complex CS that includes two different types of CS such the example (18a), repeated below as (23).

- (23) qalam-u k̄tib-i ʔar-ris̄lat-i  
 pen-MS-NOM writer-MS-GEN the-letter-FM-GEN  
 ‘the letter writer’s pen’

The CS structure in (23) contains two different types of relationships between the three constituents. Therefore, we need two annexation phrases so the relationship can be established between these constituents. Recall that, in the case of a simple CS structure, we need only one annexation phrase since there are only two lexical NPs (NP<sub>1</sub>, NP<sub>2</sub>). In the example (23), there are three NPs that need two annexation phrases to link them together according to their type (i.e., NP<sub>2</sub> + NP<sub>3</sub> indicates an agent-theme relationship and NP<sub>1</sub> + NP<sub>2</sub> indicates a possessum-possessor relationship). To solve the problem, I propose the schematic in (24) to accommodate the syntactic distribution of the CS constituents of (23).

(24)



To simplify the schematic, the  $NP_1$  is generated as a complement of the  $Poss^0$ . In the Spec of  $PossP$ , the  $AnexP_2$  is generated with an empty Spec. The head of  $AnexP_2$  takes the  $AgenP$  as a complement. The Spec of  $AgenP$  hosts  $NP_3$  whereas its head ( $Agen^0$ ) takes  $NP_2$  as a complement. To place the lexical elements (NPs) of the CS in the correct order, two phrasal movements should take place. The first movement raises  $NP_1$  to the Spec of  $AnexP_1$ ; the second movement raises  $NP_2$  to the Spec of  $AnexP_2$ . The proposed analysis is very elegant since it accounts for complex CSs no matter what the number of lexical NPs they have. I should also point out that the movements are systematic thus predictable as follows:  $NP_x \xrightarrow{\text{moves to}} AnexP_x^{\text{Spec}}$ ,  $x$  is a variable. For instance, we do not assume that  $NP_2$  can move to the Spec of  $AnexP_3$ ;  $NP_2$  should move to the Spec of  $AnexP_2$ . There remains one problem with this syntactic analysis which is similar to the problem we faced in (22). In the structure (25), the syntax proper is unable to spell out the correct order of the complex CS constituents as shown in the below example.

(25) \*ʔal qalam-u kātīb-i risālat-i  
 the pen-*NOM* writer-*GEN* letter-*GEN*

What follows from the ungrammaticality of (22) and (25) is that the syntax proper should not be

expected to execute all kinds of movement operations nor be overloaded. Therefore, I argue for an after-syntax movement operation that can deploy the definite article *?al* or the indefinite article *nunation* from the  $D^0$  position and cliticize to the lowest  $NP_x$ .<sup>8</sup> I will take up this issue in the next section.

## 4.2 Movement operations after syntax

I have shown that the syntax proper is unable to produce the correct phonological form of the CS constituents as illustrated in (22) and (25). Therefore, I argue that movement operations at PF can be used to fix the problem by lowering the (in)definiteness article from the  $D^0$  position to the appropriate position, the rightmost NP of the CS. My argument is mainly inspired by Embick and Noyer (2001, 2007) who argue that movement operations in the phonological component can account for the mismatches between the phonological form and the syntactic form. Their approach is built on Marantz's (1984, 1988) seminal work on *Distributed Morphology*; they argue for two different PF movement operations, *Lowering* and *Local Dislocation*. Embick and Noyer argue that these movements operate at different stages in the morphological merger. That is, the *Lowering* movement occurs before Vocabulary insertion whereas the *Local Dislocation* movement occurs after Vocabulary insertion. Embick and Noyer have tested the theory on different languages (e.g., Bulgarian, English, Huave, Lithuanian and some of the Scandinavian Languages).<sup>9</sup> Before applying the proposed theory to the CS structure, I want to sketch Embick and Noyer's analysis of two languages, Bulgarian and Lithuanian. Their analysis of these languages can help establish the theoretical background for my argument for the role of PF movement operations in deriving

<sup>8</sup>By '*lowest*' I mean the lowest position in the syntactic structure. It should be noticed that the variable  $x$  of the lowest NP in complex CS has the highest value. In other words, if the CS structure has three NPs ( $NP_1$ ,  $NP_2$ ,  $NP_3$ ), the deployed article must be cliticized to  $NP_3$  which is by default the lowest NP in the syntactic structure.

<sup>9</sup>Huave is a language spoken in Mexico. See Embick and Noyer (2001) for a full discussion of their argument for PF movements attested in the listed languages.

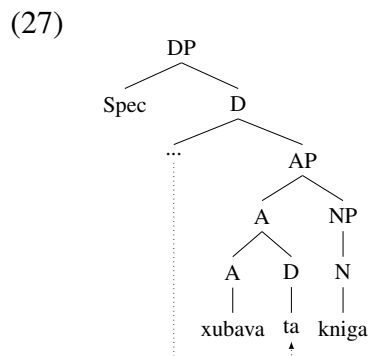
intact CS structures.

#### 4.2.1 Lowering in Bulgarian DPs

Bulgarian DPs are marked for definiteness by adding the definite article to the right edge of the noun (26a). However, if the noun is modified by an adjective, the definite article must be attached to the adjective (26b) as explained by Embick and Noyer (2001, p.568).

- (26) a. kniga-ta  
           book-*DEF*  
           ‘the book’
- b. xubava-ta kniga  
           nice-*DEF* book  
           ‘the nice book’

As far as (26a) is concerned, Embick and Noyer argue that the correct form of the structure is achieved by N-to-D movement in the syntax proper. By contrast, this movement cannot be used to derive the correct form of (26b) since the definite article is attached to the adjective, not to the noun. Therefore, they propose an after-syntax movement operation that lowers the definite article *ta* from the D<sup>0</sup> position to the head of the adjective phrase as illustrated below.



(Embick and Noyer, 2001, p.569)

Notably, the *Lowering* movement of the definite article targets the head of its immediate complement. We notice that the movement of *ta* takes place from a head position to another position respecting HMC in an inverse direction. In other words, the head movement in syntax takes place

by raising  $X^0$  to a higher head position; such a movement must be conditioned by HMC which does not allow a moving head to skip another intervening head. In (27), this movement constraint is respected at PF when the movement takes place in the opposite direction (i.e., *Lowering*).

#### 4.2.2 Local Dislocation in Lithuanian

The Lithuanian reflexive morpheme *-si* shows a different behaviour when appearing with different verbs (Embick and Noyer, 2001). In the case of simple verbs, *-si* is suffixed to the inflected verbs (i.e., verbs inflected with tense and agreement inflections) as shown by (28b). By contrast, in some verbs that have prefixes, *-si* is infixes between the prefix and the verb stem as shown by (29b).

- (28) a. laikaũ  
       'I consider, maintain.'  
       b. laikaũ-**si**  
       'I get along.'
- (29) a. iš-laikaũ  
       'I preserve, withstand.'  
       b. iš-**si**-laikaũ  
       'I hold my stand.'

(Embick and Noyer, 2001, p.578, borrowed from Nevis and Joseph, 1993)

Embick and Noyer argue that the reflexive *-si* has been local-dislocated from a suffix position in (28b) and positioned between the prefix and the verb in (29b). The local dislocation of *-si* is performed in the morphological merger after the Vocabulary insertion took place. The *Local Dislocation* movement only targets terminal heads that are adjacent to each other.

The examples discussed above from Bulgarian and Lithuanian provide good evidence that the movement operations at PF can solve the mismatches between the syntactic form and the phonological form by using two different means of movement operations (*Lowering and Local Dislocation*). In the next subsection, I will show how the two movement operations at PF can be used to fix the deficient linear order of the CS constituents presented in (22) and (25).

### 4.2.3 Lowering and Local Dislocation in Arabic CS

In this section I want to argue that the derivation of the CS structure cannot be exclusively performed in the syntax proper. Therefore, there is a need for post-syntax movements that can move some elements to the appropriate positions. We resort to such movements when the syntax proper becomes unable to perform certain movement operations. For an easy follow-up, I will begin the discussion by repeating the problematic examples (22) and (25) as (30a) and (30b)

- (30) a. \*-n kātib-u risālat-i  
 -NUN writer-NOM letter-GEN
- b. \*ʔal qalam-u kātib-i risālat-i  
 the pen-NOM writer-GEN letter-GEN

The ungrammaticality of (30a) and (30b) stems from the incorrect placement of the (in)definite article. The article must be attached to the rightmost NP, but it is not. The incorrect order that we have in hand is the direct output of the syntax proper. To fix the problem, I argue that the (in)definite article (*nunation*, *ʔal*) must undergo a movement operation that can deploy it from its base-generated position  $D^0$  and cliticize it to the rightmost NP. My argument is inspired by Embick and Noyer's (1999; 2001; 2007) argument presented above. It is also partially inspired by an old proposal put forth by Ritter (1988). She proposed that the surface order of the CS structure in Hebrew can be accounted for by lowering the definite article *ha-* to the genitive NP and simultaneously moving the head noun (N-to-D movement) to  $D^0$  position.<sup>10</sup> Below, I discuss the indefinite CS and the definite CS separately since they slightly differ from each other in the

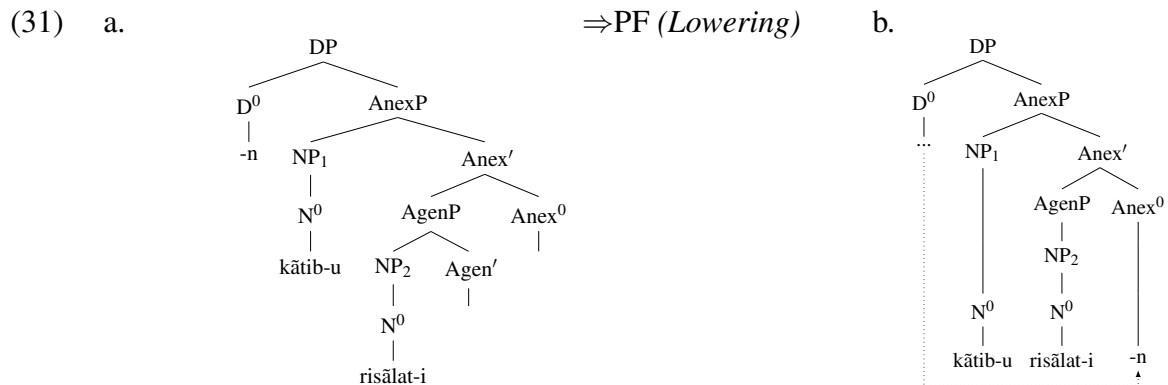
<sup>10</sup>In her work, Ritter (1988) proposed the below analysis for the derivation of the CS in (1):

- (1) beyt ha-mora  
 house the-teacher  
 'the teacher's house'
- [DP (ha-) [NP XP<sub>gen</sub> N<sub>i</sub>]] (Ritter, 1988, p.920)

I believe that Ritter (1988) has abandoned this idea in all her subsequent works. Instead, she adopted the standard view that the definite article is generated directly with the genitive NP whereas the  $D^0$  position is generated empty, an idea that I did not adopt in my current analysis.

placement of the article. That is, *nunation* is post-attached to the noun whereas the definite article *?al* is pre-attached to the noun.

**Indefinite CS:** I have shown in section (4.1) how the phrasal movement in the syntax proper places the lexical constituents (NPs) of the CS in the correct order (see (31a) below). However, the ultimate correct order of all constituents has not been achieved yet. Thus, the *Lowering* movement at PF has been used to lower nunation from the  $D^0$  position to the head of its complement (i.e.,  $Anex^0$ ).

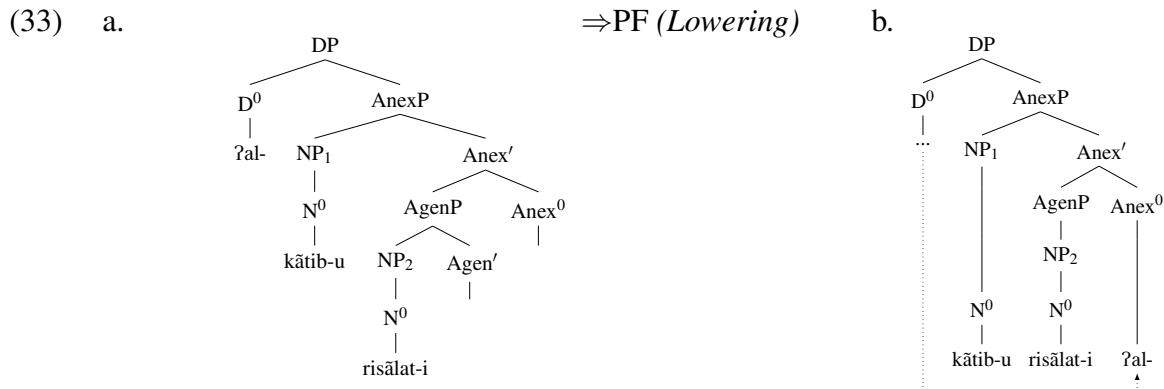


The *Lowering* movement places nunation to the right of  $NP_2$  which is the default position. Notice that the noun *risāla(h)* and *nunation* are zero-level adjacent elements. This implies that they are terminal heads. These heads, being placed in the correct order, are ready for the morphological merger to combine them. The CS structure in (32) is the ultimate output of the *Lowering* movement operation used in (31b).

- (32) kātib-u risālat-i-n  
 writer-NOM letter-GEN-NUN  
 ‘a letter writer’

We notice that the mismatches between the syntactic form and the phonological form have been solved by using a movement operation (*Lowering*) after syntax.

**Definite CS:** The definite CS can be derived, to a certain extent, by the same processes that derive the indefinite CS as explained above. However, there is a slight difference between the two structures which needs a special treatment. The difference lies in the placement of the definite article *?al* and the indefinite article *nunation*. That is, nunation is cliticized to the right of the target noun whereas *?al* should be cliticized to the left of the noun. What follows from this difference is that the *Lowering* movement operation suffices to derive the indefinite CS, but it cannot by itself derive the definite CS. Thus, in addition to this movement, we need another movement that can place the definite article to the left of the noun. As we cannot go back to the syntax proper, the additional movement must be of a PF type. To expose the problem, let us take the definite version of the indefinite structure explained above.



The *Lowering* movement schematized in (33b) deploys the definite article *?al* from its position,  $D^0$ , and places it to the right of the target noun. If the morphological merger joins the string of elements in (33b) according to the existing order, it will give an ill-formed structure.

- (34) \*kātib-u risālat-i ?al  
 writer-*NOM* letter-*GEN* the

Building on Embick and Noyer's (2001) proposal for a similar problem in Lithuanian (see subsection (4.2.2) above), I argue that the definite article *?al* should undergo a PF movement *Local Dislocation* that can shift *?al* to the left of the target noun *risāla(h)*. Unlike *Lowering* movement which operates on a hierarchical dimension, *Local Dislocation* movement operates

on a linear dimension. In other words, the *Local Dislocation* movement operation targets zero-elements that are adjacent to each other. It enables an element to trade its relation of adjacency with the neighbouring element. This movement operation can reverse the order of the target elements.

(35) *Local Dislocation*

$X * Y \rightarrow Y-X$

(Embick and Noyer, 2007, p.319)

What follows from (35) is that if X precedes Y, the *Local Dislocation* movement operation can reverse the linear order to Y-X. This operation can be used to fix the linear order of the syntactic elements (objects) in (33b) before they spell out incorrectly. Notice that these elements are zero-level elements (i.e., they are heads), thus they are a perfect target for the *Local Dislocation* operation. Based on this idea, the structure in (34) can be fixed by local-dislocating the definite article *ʔal* to the left of the target noun *risāla(h)*.

(36) kātib-u ʔal-risālat-i  
 writer-NOM the-letter-GEN  
 ‘the writer of the letter’

It can be noticed that the grammatical structure of the definite CS in (36) and the structure of the indefinite CS illustrated in (32) are not a direct spell out of the syntax proper. Rather, two after-syntax movement operations, *Lowering* and *Local Dislocation*, intervene into the process of the CS derivation. The intervention results in the grammaticality of these structures.

### 4.3 Against Percolation

The present analysis assumes that the *definiteness/indefiniteness* of the CS constituents is *naturally* determined by the article in the  $D^0$  position. The idea of percolation is not assumed in this analysis. Adopting a lexicalist view, Borer (1988, 1996) argues that the (in)definiteness of

the CS percolates (spreads up) from the genitive DP to the head noun of the CS. In my analysis, I argue that the article that occupies the D<sup>0</sup> position is responsible for the (in)definiteness of the entire CS constituents.<sup>11</sup> Being in a c-commanding position, the article in the D<sup>0</sup> position takes the responsibility of assigning definiteness or indefiniteness to the CS. When the (in)definiteness has been established with all the CS constituents in the syntax proper, the language specific movement operations proceed either in the syntax proper or in the phonological component to derive the correct linear order of the CS constituents.

## 5 Conclusion

The current analysis presents a straightforward solution to the puzzle of the CS derivation in Semitic languages. I argue that the derivation of the CS structure is a shared process between the syntax proper and the phonological component. I have shown that the syntactic movements (*phrasal movements*) place the lexical constituents (NPs) in the correct order. I have also argued for after-syntax movement operations, namely *Lowering* and *Local Dislocation*. The *Lowering* movement lowers the (in)definite article to the head of the immediate complement of D<sup>0</sup>. The *Local Dislocation* movement deploys the definite article to the left of the target noun. Having proposed that the D<sup>0</sup> position is occupied by (in)definite article, this analysis accounts, in a natural way, for the (in)definiteness of the all constituents of the CS structure.

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<sup>11</sup> Benmamoun (2000b) argues against the idea of percolation. Building on a minimalist/lexicalist view, he proposes that all the lexical constituents of the CS are generated with (in)definiteness features before they are fed into the syntactic structure. He also assumes that the D<sup>0</sup> position is generated empty.

# Chapter 5

## Nunation

### 1 Introduction

This chapter aims to give an account of the linguistic property of nunation. I will argue that nunation has an important syntactic and semantic role in the derivation of indefinite DPs in Arabic. Syntactically, nunation comes to fill the  $D^0$  position of the indefinite DPs; semantically, it denotes indefiniteness. I will show that nunation is a weak determiner since it cannot independently license indefinite DPs in certain environments. I will also argue that nunation is a phrasal enclitic that seals off indefinite DPs. The importance of discussing nunation stems from its relatedness to the structure of indefinite DPs which is directly connected to the theme of this thesis. The discussion of nunation proceeds as follows: in section 2, I survey the main proposals that have been suggested for the status of nunation and I evaluate them; in section 3, I argue that, in addition to its presence in SA, nunation is widely attested in the contemporary dialects of Arabic; section 4 presents my analysis of the categorical status of nunation; section 5 discusses nunation in proper names and section 6 concludes the chapter.

### 2 Nunation in the literature

There is a scarcity of studies that have independently investigated the linguistic status of nunation. In some studies, where nunation is marginally alluded to, the focus usually concentrates on a certain aspect of a linguistic issue, for example, on the structure of indefinite DPs. In such cases, nunation has received little to no attention. In this section, I review three different ideas that

have been suggested to account for the categorical status of nunation. According to these views, nunation has been discussed as *a) an indefinite article*, *b) a linking element* and *c) a non-indefinite article*. In the following subsections, I discuss each view separately. I end the discussion of each view by giving my stance on it.

## 2.1 Indefinite article

The first view classifies nunation as an indefinite article that contributes to the formation of the indefinite DPs (Abu-Chacra, 2007; Acquaviva, 2008; Habash, 2005; Ingham, 1986, 1991; Kremers, 2003; Kouloughli, 2001, 2007; Musabhien, 2009, among many others). Proponents of this view argue that nunation has a syntactic and semantic role. They assume that the indefinite determination (the syntactic and semantic determination) is realized by the presence of nunation. The idea that nunation indicates indefiniteness seems to be on the right track. However, this view provides inadequate explanations of the syntactic identity of nunation. In other words, the studies listed above did not take into account the different behaviours that nunation exhibits when employed in different structures. For instance, nunation can license indefinite subjects of VSO structures to appear in postverbal subject positions such as the structure in (1). By contrast, in the example (2), nunation cannot by itself license indefinite subjects to appear in preverbal subject positions. However, nunation coupled with the presence of a modifier can license indefinite nouns in preverbal subject positions as illustrated by (3).<sup>1</sup> Equally important, a modifier cannot by itself license indefinite subjects in preverbal subject positions without the presence of nunation; the ungrammaticality of the structure (4) stems from the missing article, nunation.

- (1) daxala radʒul-u-n      ʔal-maktab-a  
 entered man-*NOM-NUN* the-office-*ACC*  
 ‘A man entered the office.’

<sup>1</sup> See §3 for a full discussion of licensing by modification.

- (2) \*radʒul-u-n daxala ʔal-maktab-a  
 man-*NOM-NUN* entered the-office-*ACC*  
 Intended: 'A man entered the office.'
- (3) radʒul-u-n ʔawēl-u-n daxala ʔal-maktab-a  
 man-*NOM-NUN* tall-*NOM-NUN* entered the-office-*ACC*  
 'A tall man entered the office.'
- (4) \*radʒul-u-... ʔawēl-u-n daxala ʔal-maktab-a  
 man-*NOM-...* tall-*NOM-NUN* entered the-office-*ACC*  
 Intended: 'A tall man entered the office.'

Two important observations come out of the above examples. First, nunation must be present with the indefinite noun. Second, nunation seems to behave differently according to the *syntactic* context it appears in. The idea is that, indefinite nouns being in subject positions necessitates that nunation be present with these nouns. However, the difference between the two positions (pre- or post-position) lies in the ability of nunation to do the syntactic determination (i.e., nunation fails to provide the adequate syntactic determination to the indefinite noun in preverbal subject positions). By contrast, nunation provides the semantic determination (indefiniteness) to the subject noun *radʒul* in all of the examples (1-4).

What follows from these observations is that nunation can fulfil the semantic feature of the subject noun (i.e., it can check the interpretable indefinite feature of the noun); however, it can not act as a full determiner in some contexts. Therefore, we find that modification coupled with nunation forms a full syntactic determination which in turn results in the grammaticality of the structure (3). This behaviour gives strong evidence that nunation may not be considered a full indefinite determiner. Rather, nunation can perform half of determination whereas a lexical item satisfies the other half of determination.

## 2.2 Linking element

The second view argues that nunation neither has a syntactic role nor a semantic one. The proponents of this view suggest different proposals for the presence of nunation. For instance, [Almansour \(2012\)](#) believes that nunation is not an article and its presence is merely attributed to a phonological rationale. He argues that nunation is employed to liaise between strings of words.<sup>2</sup> Similarly, [Miller \(2014\)](#) and [Owens \(2006\)](#) argue that nunation works as a linking element; it links nouns to their post-modifying adjectives. I argue that these proposals are not on the right track and thus cannot be maintained. There are instances where nunation is not required to liaise between two or more definite nouns (5a) or between definite nouns and their post-modifiers (5b).

- (5) a. kitāb-u walad-i ʔal-ʕamēd-i  
 book-*NOM* boy-*GEN* the-dean-*GEN*  
 ‘the book of the dean’s son’
- b. ʔal-kitāb-u ʔal-munāsib-u ʔal-mufēd-u  
 the-book-*NOM* the-suitable-*NOM* the-beneficial-*NOM*  
 ‘the suitable beneficial book’

The definite CS structure in (5a) has three coordinated nominal elements, yet nunation is not required to link them together. Likewise, nunation is not needed in the structure (5b) although it consists of a string of three lexical elements, a noun and two attributive adjectives. It might be argued that these constructions are definite, thus they do not need nunation. A counterargument is that, the indefinite CS in (6) provides us with clear evidence that nunation is not required to link the lexical elements of indefinite constructions.

<sup>2</sup>[Almansour](#)’s idea of nunation is reflected on his analysis of the definite CS structure. He assumes that the CS has two DPs: a definite DP headed by a definite article and an indefinite DP with an empty D; see section (4.2.1.2) in §4 for more details.

In a similar way, [Abdel-Razaq \(2015\)](#) assumes that Arabic indefinite DPs are determiner phrases with a non-overt indefinite article. [Abdel-Razaq](#)’s assumption is not clear. He did not provide more details that explain his argument; he just expressed this idea in a footnote. For example, the expression *non-overt* can be interpreted in at least two different ways. Non-overt might indicate that the indefinite article (maybe nunation or something else) is present in the syntactic structure but suppressed at PF. It might also imply that the D<sup>0</sup> position is generated empty.

- (6) kitāb-u walad-i mudarris-i-n  
 book-*NOM* boy-*GEN* teacher-*GEN-NUN*  
 ‘a book of a teacher’s son’

We notice that the three lexical elements are coordinated or linked without the need for a linker such as nunation. Nunation only appears with the rightmost lexical noun to form the syntactic head and determine the indefiniteness of the entire CS structure. I take the absence of nunation in the structures (5-6) as first evidence to argue against the proposal that classifies nunation as a linking element.

Along the same line of thought, Fassi Fehri (2012) argues in one instance that nunation can be a Case marker or a nominal linker.<sup>3</sup> Adopting the idea of some studies that have investigated the *Ezafe/Izafe* phenomenon in Persian and in Hawrami,<sup>4</sup> Fassi Fehri (2012) articulates:

- (7) "I take nunation to be comparatively equivalent to *Ezafe* in Persian (as described e.g. by Larson and Yamakido, 2008), or in Hawrami (see Holmberg and Odden, 2004), where *EZ/IZ* are best analysed as Case markers or nominal linker."

(Fassi Fehri, 2012, see his footnote, p.161)

Fassi Fehri’s assumption expressed in (7) is fraught with theoretical and empirical problems; I will discuss this issue in the subsection below. But before I do so, I would like to indicate that

<sup>3</sup>Case ending and nunation must be kept apart. They are different morphological units. Hetzron (1997) indicates that the endings such as *un*, *an*, *in* are respectively nominative, accusative, genitive Case endings. Indeed, this argument is not accurate. These endings are actually Case + nunation which appear with indefinite nouns. We notice that when nouns are preceded by the definite article ‘ʔal’, nunation disappears but Case is preserved as shown by the following examples:

- (1) a. kitāb-u-n  
 book-*NOM-NUN*  
 ‘a book’  
 b. ʔal-kitāb-u  
 the-book-*NOM*  
 ‘the book’

What follows from these examples is that the presence of nunation is not due to Case marking. Instead, it is to show indefiniteness.

<sup>4</sup>Hawrami is a Kurdish (North-western Iranian) language spoken in a region stretching across the border of Northern Iraq and Iran (Holmberg and Odden, 2008, p.129).

Fassi Fehri has inconsistent views about nunation. In another instance, Fassi Fehri (2009b, 2012) believes that nunation can be considered as an indefiniteness marker.

- (8) *"In line with Brockelmann (1910), it is reasonable to think that mimation<sup>5</sup>/nunation is a mark of indefinite determination, and that -n/-m suffixes are reduced forms of maa."*

(Fassi Fehri, 2009b, p.154-5) & (Fassi Fehri, 2012, p.210)

Notably, Fassi Fehri's analysis of nunation is inconsistent since his argument presented in (7) is not compatible with the argument suggested in (8). It can be noticed that the latter argument is in line with the views discussed in the subsection (2.1) wherein I have presented my opinion on these views. Below, I will argue against Fassi Fehri's idea, articulated in (7), which suggests that nunation can be equivalent to Ezafe.

### Nunation vs. Ezafe

Fassi Fehri (2012) assumes that nunation can be analysed in the same way as Ezafe in Persian or in Hawrami. Here, I want to argue that this claim is untenable by showing that nunation is radically different from Ezafe. For an easy comparison, I will present Ezafe examples followed by their nunation counterparts. I begin with examples that show how the distribution of Ezafe marker is different from the distribution of nunation in definite possessive structures.

- (9) a. kif-e mard-e javân  
bag-*EZ* man-*EZ* young  
'the young man's bag' (Ghaniabadi, 2010, p.28)
- b. ḥaqēbat-u ʔal-walad-i ʔaṣ-ṣayēr-i  
bag-*NOM* the-boy-*GEN* the-little-*GEN*  
'the little boy's bag' (Arabic, possessive CS)

The two examples in (9) show definite possession constructions in Persian and Arabic, respectively.

We notice the Ezafe marker *-e* is attached to the possessum and the possessor but is missing from

<sup>5</sup>Mimation is a Proto-Semitic morphological suffix used in Akkadian presumably to show indefiniteness, yet its role remains unclear (Khan et al., 2011).

the final lexical element, the adjective *javân*: ‘young’. If we compare (9a) with (9b), we find that Ezafe is present in the former but nunation is missing from the latter (i.e., nunation cannot appear since the structure is definite). By Fassi Fehri’s proposal that Ezafe is equivalent to nunation, we expect nunation to surface with the lexical elements of the possessive CS (9b) but it does not; this evidence proves that nunation cannot be analogous to Ezafe.

The examples illustrated in (10) provide us with another piece of evidence that shows nunation is different from Ezafe. The idea is that, prepositions in Persian can host the Ezafe marker as shown by (10a&b). By contrast, nunation cannot appear with prepositions in Arabic (see the examples (10c,d&e)).

- (10) a. ZIR-e MIZ  
under-*EZ* table  
‘under the table’
- b. POSHT-e MIZ  
behind-*EZ* table  
‘behind the table’
- c. \*taḥta-n ʔal-māsāt-i  
under-*NUN* the-table-*GEN*  
‘\*under the table’
- d. \*xalfa-n ʔal-māsāt-i  
behind-*NUN* the-table-*GEN*  
‘\*behind the table’
- e. \*fi-n ʔal-maktab-i  
in-*NUN* the-office-*GEN*  
‘\*in the office’

(Guilani et al., 2012, p.6)

The ungrammaticality of the Arabic structures in (10c,d&e) stems from nunation appearing with the prepositions. The different distributional behaviour of nunation/Ezafe with prepositions gives us strong evidence that nunation cannot be equivalent to Ezafe.

Before I end the discussion of nunation versus Ezafe, I would like to provide one more piece of evidence that shows nunation is different from Ezafe. At clause level, the Persian example in (11a) shows that Ezafe is not required to appear with a DP if the neighbouring element is a VP. However, if the neighbouring element is lexical (e.g., a noun or an adjective), Ezafe is required to surface between the lexical elements; the example (11b) shows this requirement.

- (11) a. ketab-i xandam  
           book-a read-*SG*  
           ‘I read a book.’
- b. ketab-e xub-i xandam  
           book-*EZ* nice-a read-*SG*  
           ‘I read a nice book.’
- (Gita Zareikar, pers. comm.)

The Arabic examples in (12), the counterparts of the Persian examples in (11), show that nunation must be present with lexical elements in all indefinite environments. The presence of nunation is neither required nor affected by the neighbouring elements.<sup>6</sup> Instead, I argue that nunation is a purely DP-internal structure requirement.

- (12) a. ?aqra?u kitāb-a-n  
           I-read book-*ACC-NUN*  
           ‘I read/am reading a book.’
- b. ?aqra?u kitāb-a-n mumtiʕ-a-n  
           I-read book-*ACC-NUN* interesting-*ACC-NUN*  
           ‘I read/am reading an interesting book.’

We notice that the lexical elements in the structures (12a&b) are encliticized with nunation. If nunation were absent from these elements, it would result in ill-formed structures, at least in SA.

To reiterate, this section argues against the idea that classifies nunation as a linking element that connects nouns to adjectives. I have shown that nouns and adjectives can be coordinated in the definite DPs without the need for nunation. I also argued against Fassi Fehri’s (2012)

<sup>6</sup>There is one exception to this claim; it is the CS structure. I have argued in §4 that an indefinite CS forms only one indefinite DP that has only one indefinite determiner, nunation.

proposal that assumes nunation is analogous to Ezafe in Persian. I have shown how nunation radically has different distributions from Ezafe. The examples introduced in the course of the discussion illustrate that [Fassi Fehri](#)'s proposal is unsound. There are major differences between the two elements. That is, Ezafe is required to link lexical elements of Persian definite determiner phrases whereas nunation cannot appear in the definite constructions since it is in complementary distribution with *?al*. Evidently, nunation cannot be equivalent to Ezafe since the latter can be encliticized to some prepositions whereas it is impossible for nunation to appear with prepositions. The resistance of prepositions and verbs to encliticize with nunation leads me to assume that nunation is an indefinite enclitic that has a limited number of elements that can host it. The limitation in selecting hosting stems (words) is a salient feature of clitics ([Zwicky and Pullum, 1983](#)). Finally, Ezafe cannot appear with the lexical element that occupies a final position in a DP. Inversely, nunation is always present in Arabic indefinite DPs.

### 2.3 Non-indefinite article

The third view puts the Arabic language among the languages that have no indefinite article. This proposal has been advanced by [Lyons \(1999\)](#). He believes that nunation is not a real indefinite article. [Lyons](#)'s argument follows from the idea that the definite article *?al* and the plural morpheme *ēn*, he believes *ēn* is nunation, are simultaneously present in the definite structure (13a) as exemplified below.

- (13) a. *?al-mudarris-ēn*  
           the-teacher-*MS-ACC.PL*  
           'the (male) teachers'
- b. *mudarris-ēn*  
           teacher-*MS-ACC.PL*  
           '(male) teachers'

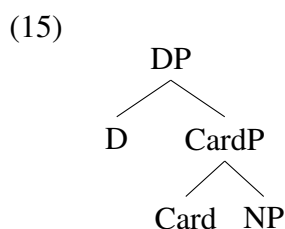
Lyons assumes that the morpheme *-ĕn* appearing with the indefinite plural noun *mudarris-ĕn* ‘teachers’ in (13b) is nunation. Therefore, he argues if nunation is an indefinite marker, it should not appear with the definite plural noun in (13a). Based on his observation, he states:

- (14) *"This analysis of nunation and the dual and plural endings differs from the accounts usually given in the manuals. But I believe it is plausible, and if it is correct, it puts Arabic among the languages which have a definite, but no real indefinite article."*

(Lyons, 1999, p.94)

I argue that Lyons’s assumption articulated in (14) is not on the right track and I will explain why. Prior to providing my analysis of nunation, I would like to sketch his argument of (in)definiteness.

Lyons (1999) advances the proposal that a DP is a definite phrase rather than a determiner phrase. He also proposes that the indefiniteness of a phrase is not a result of the presence of an indefinite article. Rather, it stems from the absence of the definite one. He theorizes that indefinite articles are cardinals that occupy a syntactic position lower than the  $D^0$  position; he nomenclatured the proposed position *Cardinal Phrase* (CardP). In other words, the cardinal phrase in Lyons’s view is dominated by the definite phrase; see (15) for the syntactic representation of his idea.



What follows from Lyons’s argument is that if a language uses an indefinite article, the article indicates a number rather than indefiniteness. For example, the English article *a* can act as a cardinal number in the same way like the numeral *one*.

- (16) a. a book  
 b. one book  
 c. \*a one book

The ungrammaticality of (16c) results from the coexistence of the article *a* and the numeral *one*. Therefore, Lyons argues that indefinite articles can be treated as cardinals. Lyons's argument might be successful for languages that might have indefinite articles that are diachronically derived from the numeral *one*, but I believe that it may not work for Arabic since nunation cannot express cardinality.<sup>7</sup> It is not my intention to entirely argue against Lyons's (1999) theory of *Definiteness*, rather I want to show that nunation is an indefinite marker. However, it cannot be explicated within Lyons's proposal simply because nunation cannot be used as a cardinal number.

### **Nunation vs. $\tilde{e}n/\tilde{o}n$**

There is a common misconception that the morpheme  $\tilde{e}n/\tilde{o}n$  suffixed to plural nouns is assumed to be nunation rather than being a plural morpheme. This misconception springs from the idea that indefinite masculine sound plurals do not accept nunation. Additionally, these nouns, when employed in CS structures, lose the  $\tilde{e}n$  morpheme. The loss of this morpheme in such an environment leads to the proposal that  $\tilde{e}n$  is nunation. I argue that this morpheme and nunation are completely different entities.

To begin the discussion, I will argue that the indefinite masculine sound plurals do take nunation, but it can be suppressed in some environments and realized in others. In other words, I assume that nunation is phonologically unrealized '*suppressed*' in indefinite sound plurals; this assumption holds true for SA only. However, I claim that there are instances where nunation can be realized with indefinite sound plurals; this claim might seem striking, but I will provide evidence, from SUD and from different Arabic dialects, that shows the realization of nunation.

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<sup>7</sup>Lyons (1999) indicates that the idea that nunation is not able to express cardinality is noticed by Haywood and Nahmad (1962) and Tritton (1977).

### Realization of *ĕn* in Arabic dialects

In this section, I argue that *ĕn* that follows indefinite sound plurals is a plural morpheme; it is not nunation. I will first begin the argument by providing examples from SUD that show how *ĕn* and nunation appear simultaneously. The SUD examples in (17) illustrate that indefinite masculine sound plurals *externally* take nunation.<sup>8</sup>

- (17) a. muḥagig-ĕn-n            muḥtarf-ĕn-n  
 detective-*MS-PL-NUN*    professional-*MS-PL-NUN*  
 ‘professional detectives’
- b. muzārġ-ĕn-n            məḥtādġ-ĕn-n  
 farmer-*MS-PL-NUN*    needy-*MS-PL-NUN*  
 ‘needy farmers’
- c. lāġb-ĕn-n            kaslān-ĕn-n  
 player-*MS-PL-NUN*    lazy-*MS-PL-NUN*  
 ‘lazy players’

Interestingly, if these nouns are definite, they cannot take nunation. In other words, if they are preceded by the definite article *ʔal*, nunation cannot appear.

- (18) a. \*ʔal-muzārġ-ĕn-n    ʔal-məḥtādġ-ĕn-n  
 farmer-*MS-PL-NUN*    needy-*MS-PL-NUN*  
 \*‘needy farmers’
- b. \*ʔal-lāġb-ĕn-n            ʔal-kaslān-ĕn-n  
 the-player-*MS-PL-NUN*    the-lazy-*MS-PL-NUN*  
 \*‘the lazy players’
- (19) a. ʔal-muzārġ-ĕn    ʔal-məḥtādġ-ĕn  
 farmer-*MS-PL*    needy-*MS-PL*  
 ‘needy farmers’
- b. ʔal-lāġb-ĕn            ʔal-kaslān-ĕn  
 the-player-*MS-PL*    the-lazy-*MS-PL*  
 ‘the lazy players’

<sup>8</sup>By ‘externally’ I mean that nunation is added after the masculine plural morpheme *ōn/ĕn* (i.e., nunation is encliticized to the entire morphological combination ([stem + [Case and plural morpheme] + nunation]: mudarris+ĕn+NUN)).

The ungrammaticality of (18a&b) results from the cooccurrence of the definite article *ʔal* and the nunation morpheme *-n* that follows the plural nouns *muzāʔr-ēn/lāʔb-ēn* and the adjectives *məḥtād-ēn/kaslān-ēn*. By contrast, the structures in (19a&b) are grammatical because only one determiner (*ʔal*) appears at a time. The presence of nunation with the indefinite plural nouns in (17) and the inability of such nouns to take the definite article as exemplified by (18) put Lyons's (1999) proposal at risk (see (14) above). That is, the examples provide strong evidence that the *ēn* morpheme that directly follows the plural nouns is a plural morpheme; it cannot be nunation.

It is generally assumed that indefinite sound plurals lose the ending *ēn/ōn* when they become head nouns of CS structures. This assumption is true as far as SA is concerned. It can be noticed that the nasal sound part */n/* of the plural morpheme *ēn* is usually dropped when the noun becomes the head (NP<sub>1</sub>) of the CS structure as illustrated in (20).

*Standard Arabic:*

- (20) a. muhandis-ē    ʔaf-ʔarikat-i  
 engineer-*MS-PL* the-company-*GEN*  
 'the company's engineers'
- b. muʔallim-ē    ʔal-madrasat-i  
 teacher-*MS-PL* the-school-*GEN*  
 'the school's teachers'

We notice that the plural morpheme (*ēn*) of the CS head nouns is missing the nasal part */n/*. The absence of */n/* is the motive behind Lyons's proposal that *ēn* is nunation.

Here, I present examples from different Arabic dialects that threaten Lyons's proposal. Unlike the CS structures in (20), the CS structures illustrated in (21-24) show that the entire plural morpheme is preserved.

*Jordanian Arabic:*

- (21) a. fallāḥ-ēn    ʔal-qarjiah  
 ranch-*MS-PL* the-village

‘the village ranchers’

- b. mhandis-ēn      ʔaf-ʃarikah  
 engineer-*MS-PL* the-company  
 ‘the company’s engineers’

(Ekab Al-Shawashreh, pers. comm.)

*Lebanese Arabic:*

- (22) a. məθl-ēn                      l-ḥakōmah  
 representative-*MS-PL* the-government  
 ‘the representatives of the government’

- b. muṭrib-ēn      l-ḥamra  
 singer-*MS-PL* the-Hamra  
 ‘Al-Hamra singers’

(Nahed Mourad, pers. comm.)

*SUD:*

- (23) a. ʔabbāx-ēn      ʔal-malak  
 chef-*MS-PL* the-king  
 ‘the chefs of the king’

- b. lāʔb-ēn              ʔan-nādi  
 player-*MS-PL* the-club  
 ‘the club players’

*Tunisian Arabic:*

- (24) a. fannān-ēn      el-masrah  
 actor-*MS-PL* the-stage  
 ‘the stage actors’

- b. mutardžim-ēn      el-ktāb  
 translator-*MS-PL* the-book  
 ‘the book translators’

(Myriam Dali, pers. comm.)

The ability of the dialectal sound plurals to take the full form of the plural morpheme in CS structures provides us with good evidence that the ending morpheme *ēn/ōn* is a plural morpheme, not nunation. In fact, nunation is not attested in the Jordanian, Lebanese and Tunisian dialects. Thus, we do not expect these dialects to exceptionally express nunation in CS environments.

Based on this evidence, it is plausible to argue against the idea that assumes the morpheme  $\tilde{e}n/\tilde{o}n$  is nunation. More evidence comes out from the SUD examples presented in (17) wherein indefinite sound plurals admit nunation after the plural morpheme. If the plural morpheme  $\tilde{e}n/\tilde{o}n$  were *real* nunation, we would not expect the plural nouns to accept *doubled* nunation. Before I end this subsection, I would like to argue that the sound plurals in SA, have nunation but it is suppressed. My argument departs from Hudson's (2013) and Zwicky's (1987) discussion of the possessive 's suppression in English which I will sketch below.

### Suppressing the possessive 's

Regular English plurals may not accept the addition of the possessive 's, thus it is phonologically mute and orthographically satisfied by adding the apostrophe. The resistance of taking the possessive morpheme might be attributed to the phonological environment. That is, the regular English plurals terminated by a sibilant suffix (the plural morpheme /s/ and its variant allomorphs) may not accept the possessive morpheme. Hudson (2013) and Zwicky (1987) assume that the inability of the English plurals to take the possessive 's is not due to phonological reasons; instead, it is morphologically conditioned.

- (25) a. the cats' favourite place  
 b. \*the cats's favourite place  
 c. the dogs' kennel  
 d. \*the dogs's kennel

- (26) a. the fuzz's old cars; at Buzz's  
 b. the bus's doors; at Cass's

(Zwicky, 1987, p.140)

Hudson and Zwicky argue that the possessive 's is suppressed in (25a&c) by the plural morpheme. By contrast, it is phonologically realized (i.e., it is not suppressed) in the examples (26). Observe that the nouns in (25b&d) and the nouns in (26) have the same phonological environment in the final position, a sibilant sound /s/. Based on this observation, Hudson and Zwicky argue that if

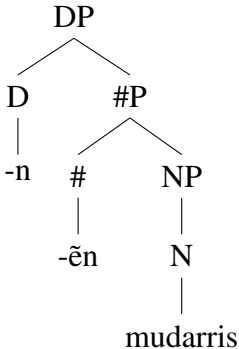
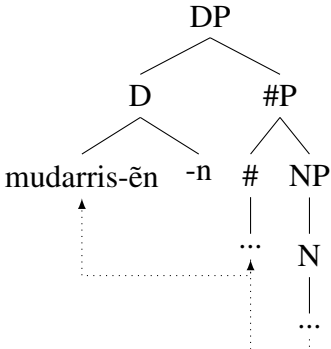
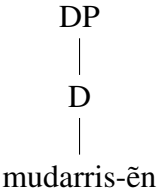
the possessive 's suppression were due to a phonological rationale, it should not appear with the nouns in (26). Therefore, they assume that the two morphemes (plural; possessive) are combined into one morpheme by the morphological merger in (25a&c).

### Suppressing nunation

Following Hudson (2013) and Zwicky (1987), I argue that the sound plural nouns take nunation in the dialectal Arabic and SA. The difference is that nunation is realized in the former but suppressed in the latter. I will show that nunation and the plural morpheme  $\tilde{o}n/\tilde{e}n$  are combined together by the morphological merger.

- (27) mudarris- $\tilde{e}n$   
 teacher-*MS-ACC.PL*  
 '(male) teachers'

I argue that the morpheme  $\tilde{e}n$  is a combination of two different morphemes (plural; nunation) that have been fused into one morpheme. I propose the following structures for the derivation of the indefinite plural *mudarris- $\tilde{e}n$* :

- (28) a.  ⇒ b.  ⇒ c. 

It can be noticed that there is a difference between the surface linear order of *mudarris- $\tilde{e}n$*  in (27) and the proposed analysis in (28a&b). In other words, via successive cyclic head movement (N-#-D), the syntax proper manages to place the syntactic objects (elements) in the correct order; however, these elements (*mudarris +  $\tilde{e}n$  + n*) cannot be merged as they are. If the syntactic merger

combines these elements, it will produce an ill-formed structure (*\*mudarris-en-n*).<sup>9</sup> Therefore, we should find a tool that can combine (i.e., fuse) the plural morpheme and nunation together. I assume that the morphological merger is a suitable tool specifically the *fusion* operation. Fusion operates when two different morphemes need to combine into a single morpheme, ‘*a portmanteau realization*’ (Embick, 2015, p.213). This operation fuses nunation with the plural morpheme *ēn* spelling out the correct phonological realization as illustrated in (28c).

In summary, the presented discussion tries to find differences between nunation and the sound plural morpheme. I have shown that they are distinct morphological entities. I have argued that indefinite sound plurals take nunation. However, the lack of phonological realization of nunation is a result of fusing it with the plural morpheme into one morphological unit. I also argue against Lyons’s (1999) proposal that nunation is not a real indefinite marker since it cannot be used as a cardinal number. I contend that the inability of nunation to express cardinality does not necessarily invalidate nunation’s role as an indefinite marker in Arabic.

### 3 Distribution of nunation

In this section, I would like to touch on three issues of concern. First, I will show that nunation is well attested in Arabic dialects specifically in the dialects of the Arabian Gulf countries.<sup>10</sup> Second, I want to show that nunation is always in complementary distribution with the definite article *ʔal*. Third, I want to show that nunation cannot coexist with the non-standard definite

<sup>9</sup>It should be noticed that the syntactic merger can be used to merge the indefinite sound plural in SUD because nunation need not merge with the plural morpheme as illustrated by the examples in (17).

<sup>10</sup>Elramli (2012) indicates that nunation is used in the dialects of the tribes living in the East of Libya. Here is an example from Elramli’s thesis that shows that nunation is used in the said dialects.

- (1) ʔaamin awwil  
 year-*NUN* first  
 ‘a previous year’ (Elramli, 2012, p.74)

I do not have a direct contact with people from this area; therefore, I cannot provide more examples.

article *ʔim*.

### 3.1 Nunation in Arabic dialects

Some studies claim that nunation is not widely attested in the contemporary Arabic dialects (e.g., Alghamdi, 2015; Biadisy et al., 2009; Dryer, 2013; Habash, 2010; Versteegh, 2014; Watson, 2000). They have argued that nunation is an article that is used to show indefiniteness in SA. With regard to the Arabic dialects, these studies have indicated that the presence of nunation is very limited to some urban and Bedouin dialects. I agree with these studies on the idea that nunation is an indefinite article; in fact, I adopt this view in my current analysis with some limitations. However, I want to argue against the claim that underestimates the presence of nunation in Arabic dialects. The following examples from the dialects of the Gulf countries show that nunation is not only limited to SA but also remarkably present in the contemporary dialects.

*Emirati (UAE) dialects :*

- (29) a. bajein ʔalaih rajiāli-n ʔajib  
 look-like on-him man<sub>NUN</sub> decent  
 ‘He looks like a decent man.’<sup>11</sup>
- b. binti-n ḥilwah  
 girl-<sub>NUN</sub> beautiful-<sub>FM</sub>  
 ‘a beautiful girl’

*Kuwiati Dialect:*

- (30) a. kalba-n abyad  
 dog-<sub>NUN</sub> white  
 ‘a white dog’
- b. ala qalba-n kāfir  
 with hear-<sub>NUN</sub> unfaithful

<sup>11</sup>In some gulfian dialects, including the Emirati dialect, the sound /dʒ/ is usually pronounced /j/.

‘with unfaithful heart’

(Corriente, 1977, cited in Brustad, 2000, p.29)

*Qatari Dialect:*

- (31) a. kunnā tākēn maʿa ʕijjāli-n ʕajibēn  
 were-us sitting with lads-*NUN* decent-*PL*  
 ‘We were sitting with decent lads.’
- b. ʕift li ktābi-n ʕaʕdʕabni  
 saw for-me book-*NUN* admired-me  
 ‘I saw a book which admired me.’

*SUD (Southern Dialects):*

- (32) a. ʕarēgi-n miltujah  
 road-*NUN* curved  
 ‘a curved road’
- b. ʕawlādi-n ʕālhēn  
 boys-*NUN* well-brought-up-*PL*  
 ‘well-brought-up children’
- c. saʕānti-n ʕālijah  
 watches-*NUN* expensive  
 ‘expensive watches’

*SUD (Najdi Dialect):*

- (33) a. ja-na wlidi-n harbiyyi-n tuwil  
 came-(he)-us boy-*IND* Harbi-*IND* tall  
 ‘There came to us a tall Harbi lad.’
- b. wallah ligē-t bēti-n  
 well found-I house-*IND*  
 ‘Well, I found a house.’

(Ingham, 1994, p.48-49)

*SUD (Eastern Dialects):*

- (34) a. rēʿna biʿīri-n ʿōdi-n  
 saw-we camel-*IND* old-*IND*  
 ‘We saw an old camel.’<sup>12</sup>

<sup>12</sup>IND: indefinite.

- b. ligēna sāygi-n  
 found-we driver-*IND*  
 ‘We found a driver.’

(Ingham, 1994, p.50)

These examples show how the use of nunation is widely attested not only in SUD but also in dialects of the Gulf countries. Nunation is transparently used in the daily life tokens, poetry and low-register writing. Note that in SA nunation is not orthographically dictated (only represented by diacritic marks), but it is phonologically pronounced. By contrast, in these dialects, nunation is always phonologically pronounced and sometimes orthographically represented by the letter *-n* instead of the diacritic marks.<sup>13</sup>

### 3.2 Nunation vs. *ʔal*

Nunation is in complementary distribution with the definite article *ʔal*. The following examples show that nunation and the definite article *ʔal* can appear alternatively but they cannot appear simultaneously with the same noun.

- (35) a. *ʔal-kitāb-u*  
 the-book-*NOM*  
 ‘the book’
- b. *kitāb-u-n*  
 book-*NOM-NUN*  
 ‘a book’
- c. \**ʔal-kitāb-u-n*  
 \*the-book-*NOM-NUN*

The coexistence of *ʔal* and nunation results in the ungrammaticality of (35c). This distribution provides strong evidence that nunation is an indefinite article. It also indicates that the two articles compete for the same syntactic position,  $D^0$  position. Therefore, only one article should appear at the  $D^0$  position. We can also notice that the two articles do not compete for the same phonological

<sup>13</sup>I have noticed that nunation is represented by the letter *nōn* as in *رجال : رجالين*, *a man* in low register writing.

environment since *?al* is a proclitic and nunation, by contrast, is an enclitic. The idea that the two articles do not coexist can be taken as a strong argument against proposals that claim that the presence of nunation is phonologically based (Almansour, 2012; Miller, 2014; Owens, 2006). If the purpose of nunation were *really* phonologically based, it would not be affected by the presence of *?al*.

### 3.3 Nunation vs. ?im

I provide another piece of evidence that supports the idea that nunation is an indefinite article. The non standard definite article *?im*, used in the dialects of the South-West regions of Saudi Arabia, cannot appear with nouns in the presence of nunation.<sup>14</sup> These dialects express the definiteness by using the article *?im* instead of *?al*.

*Assir dialects:*

(36) a. im-taalib  
the-student  
'the student'

b. im-hawa  
the-air  
'the air'

(Assiri, 2014, p.92)

(37) a. im-brat  
the-girl  
'the girl'

b. im-maḥāll  
the-houses  
'the houses'

(Asiri, 2008, p.73)

*Faifi dialects:*

<sup>14</sup>The article *?im* is used, for example but not limited to, in the dialects of Asir, Faifi, Qahtan tribes living in the lowlands (Tehāmah), Ridḡāl-?almaḡ tribes and the people living on the South-West coast of the Red Sea. Some of the Arab grammarians named this article as *?im ?al-ḡimjariah: the Himyarite im*.

- (38) a. ?im-rabā  
the-boy  
'the boy'
- b. ?im-riḏḏāl  
the-men  
'the men'

(Hasan AlFaifi, pers. comm.)

*Qahtan (lowlands) dialects:*

- (39) a. ?im-yanam  
the-sheep-*collective noun*  
'the sheep'
- b. ?im-sajjārah  
the-car  
'the car/ the truck'

The examples (36-39) show that the article *?im* is procliticized to nouns in order to render them definite. These nouns cannot take nunation in the presence of *?im*. To make the argument clear, let us try to encliticize nunation to the nouns in the example (38), repeated below as (40), from the Faifi dialect.

- (40) a. ?im-rabā  
the-boy  
'the boy'
- b. rabāi-n  
boy-*NUN*  
'a boy'
- c. \*?im-rabāi-n  
\*the-boy-*NUN*
- d. ?im-riḏḏāl  
the-men  
'the men'
- e. riḏḏāl-n  
men-*NUN*  
'men'

- f. \*ʔim-riḏʒāl-n  
\*the-men-NUN

The ill-formedness of the structures (40c&f) is a result of the cooccurrence of the definite and indefinite determiners with the same noun. Only one of the determiners either *ʔim* or nunation, should appear with the noun. This restriction on the distribution of nunation in the presence of *ʔim* provides more evidence that the role of nunation is to mark indefiniteness in Arabic.

Before I proceed to the syntactic/PF analysis of nunation, I would like to summarize the discussion of nunation in the previous sections. I have argued that nunation cannot be considered as a full indefinite determiner since it cannot give a full determination in certain environments. Instead, I propose that it can do a half determination whereas the other half is given by lexical elements (e.g., nouns or adjectives). I have also argued against the accounts that analysed nunation as a linking element or as a non-indefinite article. I have shown that the presence of nunation is widespread in the dialects of Gulf Arabic. Finally, I have argued that when nunation is encliticized to Arabic nouns it makes them indefinite; nunation being in complementary distributions with the definite articles *ʔal* and *ʔim* supports such an argument.

## 4 Indefinite enclitic

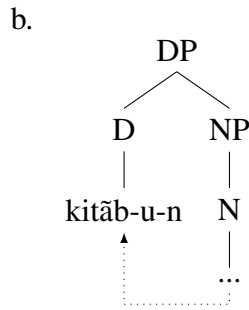
Berendsen (1986) assumes that clitics are generated in their respective syntactic positions in the syntax proper. Subsequently, when they transfer to the phonological component, they become floating elements. What follows from this assumption is that the placement of clitics in the right position might need a special treatment. If this is the case, I argue that nunation is a *phrasal enclitic* that is posited to the right edge of the indefinite DP.<sup>15</sup> I will provide an analysis

<sup>15</sup>Please note that the term *phrasal enclitic* in this analysis is limited to indefinite determiner phrases. The idea is that, the encliticization of nunation to indefinite phrases differs from the encliticization of the English possessive 's. The list of examples in (1) shows that the possessive 's can be encliticized to determiner phrases, prepositional phrases, pronouns and verb phrases.

(1) a. The Queen of England's hat.

that accounts for the linguistic derivation of nunation in two different levels, namely the syntax proper and the phonological component. Syntactically, I argue that nunation acts as an indefinite determiner that comes to fill the  $D^0$  position.

- (41) a. kitāb-u-n  
 book-*NOM-NUN*  
 ‘a book’



We notice that the surface order of (41a) is achieved by the syntactic N-to-D movement. This movement suffices to derive simple indefinite DPs such as (41a); no further movements are required either in the syntax proper or at PF. However, this is not the whole story. There are instances where the syntactic N-to-D movement cannot spell out the correct phonological form of complex DPs, specifically, CS structures.

I assume that the best linguistic environment where we can test the linguistic behaviour of nunation is the indefinite CS structure. The set of indefinite DPs illustrated in (42) shows how nunation floats in order to encliticize to the rightmost noun.

- (42) a. kitāb-u-**n**  
 book-*NOM-NUN*
- b. kitāb-u walad-i-**n**  
 book-*NOM* boy-*GEN-NUN*
- c. kitāb-u walad-i ṣamēd-i-**n**  
 book-*NOM* boy-*GEN* dean-*GEN-NUN*

b. Someone I know's brother.

c. The boy opposite me's sister.

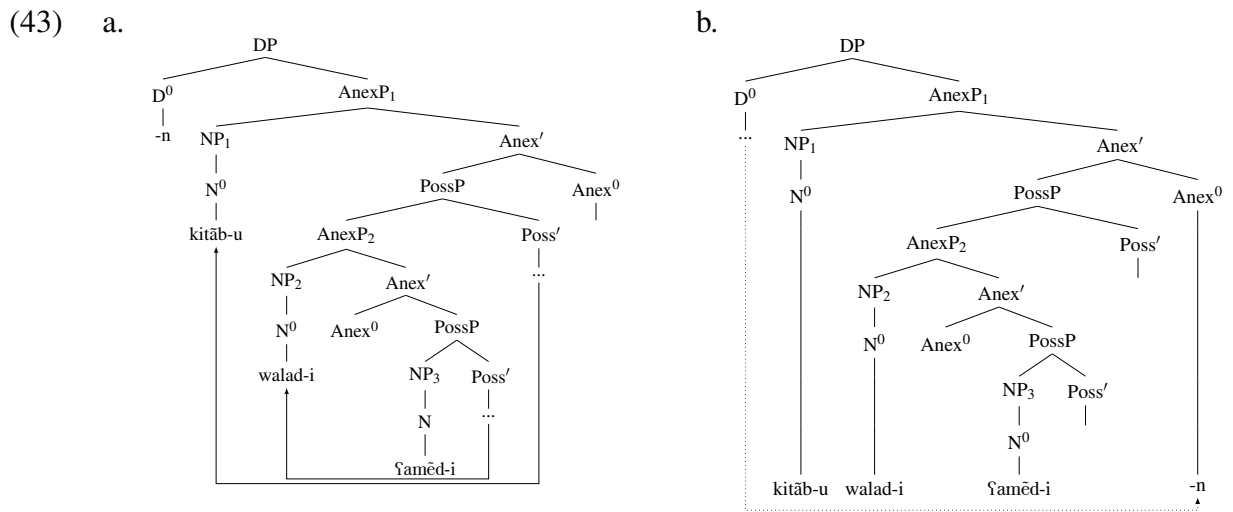
d. The man I live with's girlfriend.

(Lowe, 2015, p.211)

Nunation cannot appear with prepositions, pronouns or verbs. It can only appear with nouns, adjectives and adverbs.

- d. kitāb-u walad-i ṣamēd-i kulijeit-i-n  
 book-NOM boy-GEN dean-GEN faculty-GEN-NUN  
 ‘a book of a Faculty dean’s son’

Depending on the complexity of the indefinite DP, nunation can stay in situ ( $D^0$ ) in the case of simple indefinite phrases like (42a); the correct surface order is achieved by raising the noun to the  $D^0$  position wherein the encliticization of nunation to the noun can be processed. By contrast, in the event of complex DPs such as CSs, the derivation becomes more complex. The idea is that, nunation must be lowered to the head of the immediate complement of D. However, before lowering takes place, the lexical items must be coordinated in the correct order by means of phrasal movement. The number of the required phrasal movements depends on the number of the lexical nouns included in the CS structure. For the purpose of clarity, let me analyse the CS structure in (42c) to show how nunation is encliticized to the right edge of the rightmost NP.



Recall that I have argued that the derivation of CS structures takes place in the syntax proper and at PF. The schematic (43a) shows how the phrasal movement puts the lexical elements  $N_1$ ,  $N_2$  and  $N_3$  in the correct linear order. However, the ultimate correct surface order of the structure (42c) has not been reached yet; nunation is still in its base-generated position,  $D^0$ . It must be encliticized to the rightmost NP, *ṣamēdi* ‘dean’. The syntax proper cannot perform the

encliticization of nunation in such environments. Therefore, the possible candidate is the PF movement operation, *Lowering*, in the sense of [Embick and Noyer \(2001, 2007\)](#). This movement deploys nunation from the  $D^0$  position and encliticizes it to the right edge of the rightmost  $NP_3$  as illustrated in (43b). It can be noticed that nunation closes off the CS structure; nothing can *penetrate* the phrase. The idea that nunation does not allow for any additional morpheme comes on a par with [Zwicky's \(1985\)](#) distinction between affixes and clitics in which he argues that clitics close off combinations to any further cliticization. This behaviour of nunation supports the argument that classifies it as an indefinite enclitic. Additionally, I assume that nunation shares most of the salient properties of functional categories discussed by [Alexiadou et al. \(2007\)](#). They suggest that functional categories:

- (i) constitute closed classes.
- (ii) are generally phonologically and morphologically dependent and stressless.
- (iii) can be clitics or affixes or phonologically unrealized.
- (iv) are usually inseparable from their complement.
- (v) lack descriptive content. ([Alexiadou et al., 2007](#), p.15)

To recap my discussion of nunation as an enclitic, I have argued that nunation is an indefinite enclitic that has a syntactic and a semantic role. Syntactically, it occupies the  $D^0$  position. From a semantic point of view, nunation indicates indefiniteness. At the morphological level, nunation comes to seal off indefinite determiner phrases.

## 5 Nunation in proper names

One of the major problems that makes nunation difficult to investigate is its appearance with proper names specifically in SA. Before I get into the discussion of nunation's appearance with proper names in SA, I should point out that, unlike common nouns which remarkably take nunation in the gulfian dialects, proper names tend to lose it in such dialects. Therefore, the focus of this section centres on proper names in SA.

The problem is that, proper names, which are assumed to be definite entities, take the indefinite marker, nunation.

- (44) a. moḥammed-u-n  
 mohammed-*NOM-NUN*  
 'Mohammed'
- b. ʔali-u-n  
 ali-*NOM-NUN*  
 'Ali'
- c. saʔēd-u-n  
 saeed-*NOM-NUN*  
 'Saeed'

The phenomenon that proper names can take an indefinite article is not striking. It has been argued that when the speaker and the listener do not share the common background about an uttered name, the referent for the name may remain indefinite (Alansary, 2013; Allerton, 1996; Marmaridou, 2014; Meyer, 2008).

- (45) a. John Carpenter arrived in a limo.  
 b. I knew a John Carpenter at school. (Marmaridou, 2014, p.69)

Marmaridou (2014) argues that it is not always the case that proper names primarily indicate specific referents as shown by (45a). There are instances where they can refer to more than one entity. The example (45b) shows that the speaker knew more than one person who has the name *John Carpenter*, thus s/he tends to indefinitize the referent by adding the indefinite article.

In the same way, the examples in (44) show how the proper names take nunation. These names taking nunation is not a puzzle by itself. The puzzle is that when these names are made more specific, they lose nunation.

- (46) a. moḥammed-u   ʔibn   ṣāleh  
 mohammed-*NOM* son-of saleh  
 ‘Mohammed, the son of Saleh’
- b. ʔali-u   ʔibn   ʔabi-ṭālib  
 ali-*NOM* son-of abi-talib  
 ‘Ali, the son of Abi-talib’
- c. saʔēd-u   ʔibn   hādi  
 saeed-*NOM* son-of hadi  
 ‘Saeed, the son of Hadi’

Notably, when the father’s name is added to the first name as illustrated by the examples in (46), nunation is deleted. In fact, if nunation is preserved with these names, it will render the structures ungrammatical.

Similarly, when proper names are made more specific by adding additional information such as career/profession names, they lose nunation.

- (47) a. moḥammed-u   ʔal-qāḏi  
 mohammed-*NOM* the-judge  
 ‘Mohammed, the judge’
- b. ʔali-u   ʔal-kātib  
 ali-*NOM* the-writer  
 ‘Ali, the writer/clerk’
- c. saʔēd-u   ʔal-ḥaddād  
 saeed-*NOM* the-blacksmith  
 ‘Saeed, the blacksmith’

The examples in (47) show how proper names lose nunation when they receive more specification. The career/profession name (NP<sub>2</sub>) added to the proper name (NP<sub>1</sub>) positively contributes to the identification of the referent of NP<sub>1</sub>. By Occam’s razor, the expression *ʔaliu ʔal-kātib* ‘Ali, the

writer' is more specific than the expression *ʕaliu-n* 'Ali'. Notice that the added information to the proper name might improve the shared background knowledge between the speaker and the listener. In other words, the referent of the name talked about becomes clearer to the listener. The absence of nunation in such structures might be attributed to the reason that the referent of the name is properly identified.

Proper names used in vocative structures tend to lose nunation. The vocative particle and nunation cannot coexist in the same name/noun.

- (48) a. *jā moḥammed*  
       hey mohammed  
       'Hey, Mohammed!'  
       b. \**jā moḥammedu-n*  
       hey mohammed-*NUN*
- (49) a. *jā radʒul*  
       hey man  
       'Hey, man!'  
       b. \**jā radʒulu-n*  
       hey man-*NUN*
- (50) a. Hey, man!  
       b. \*Hey, a man

We can notice that the presence of the indefinite articles (nunation and a) in the examples (48b, 49b, 50b) results in the ungrammaticality of these structures. Vocatives are used to directly address a specific person such as addressing second person (*You, come here!*; Lyons, 1999, p.152). If this is the case, I argue that proper names in vocative structures cannot take nunation because they are properly identified. There is a zero probability that the proper names in vocative structures are non-specific definite. Therefore, they do not take nunation.

Before I conclude this section, I would like to provide one more piece of evidence that shows how nunation can be used with proper names to signal non-specificity. The conversation scenarioed in (51-54) illustrates my claim.

*Speaker:*

- (51) hal qābalt moḥammed?  
 Q-*OP* meet<sub>PS</sub>-you mohammed  
 ‘Did you meet Mohammed?’

*Addressee:*

- (52) ʔeju moḥammed-i-n taʔni?  
 which mohammed-*GEN-NUN* mean-you  
 ‘Which Mohammed do you mean?’

*Speaker:*

- (53) ʔaʔni moḥammed ʔal-Qahtani  
 I-mean mohammed al-qahtani  
 ‘I mean Mohammed AlQahtani.’

*Addressee:*

- (54) naʔam qābalta-hu  
 yes I-met-him  
 ‘Yes, I met him.’

We notice that the proper name *Mohammed* takes nunation in the structure (52). This implies that there is more than one person (referent) named *Mohammed* in the addressee’s world. Therefore, the addressee tends to underspecify the definiteness of the proper name by adding nunation. There are similar cases where definite nouns can be non-specific. [Ionin \(2006\)](#) indicates that not all definite nouns are specific.

- (55) a. The reporter would like to interview **the winner of this race**-whoever that happens to be.  
 b. **The murderer of Smith** (whoever that is) must be insane. ([Ionin, 2006](#), p.257)

[Ionin](#) argues that the bold-typed DPs are definite, but they are not specific since the speaker has no particular referent in mind to refer to. Analogously to some extent, the proper name *Mohammed*, at least in this context, might be definite but not specific thus it takes nunation. I should point out that nunation cannot be encliticized to the proper name *Mohammed* in the structure (53). The resistance to taking nunation could be attributed to the presence of the tribe name *AlQahtani* which might render the first name more specific.

To conclude this section, I cannot claim that the current analysis provides a comprehensive review of the linguistic relations between nunation and proper names, specifically the semantic ones. Rather, it establishes a tentative proposal that can be a window into further investigation.

## 6 Conclusion

This chapter has investigated the linguistic status of nunation. I have shown that nunation has a syntactic and a semantic role. Syntactically, it comes to fill the  $D^0$  position; it works as a syntactic head of the indefinite phrases. Semantically, it marks indefiniteness. I have argued that nunation is a half determiner since it cannot fully license indefinite phrases in preverbal subject positions without the aid of lexical elements which supply the other half of determination. I have also argued against different proposals that classify nunation as a linker or a non-indefinite article. The distribution of nunation in SA and the gulfian dialects was discussed. It was shown that nunation is in complementary distribution with the standard definite article *?al* and the non-standard definite article *?im*. Using a CS structure, I have proposed that the derivation of nunation is split between the syntax proper and the PF component. I have shown that nunation seals off indefinite DPs to any further morphologicalization. Finally, I have suggested that when nunation appears with proper names, it seems to underspecify their definiteness.

# Chapter 6

## Experimental Studies

### Overview

The aim of this chapter is to investigate the preference and processing of two different clause structures in Arabic, namely Verb-Subject-Object (VSO) and Subject-Verb-Object (SVO) by two different groups. The first group are native speakers (NSs) of Arabic; they are from Saudi Arabia. The second group are heritage speakers (HSs) of Arabic whose dominant language is English. They are citizens of Canada living in Ottawa.

The current chapter is divided into two parts. The first part includes the primary study which investigates the NSs' preference and processing of VSO/SVO orders. The second part includes the preliminary study which is set for the same purpose, but the participants are HSs.

### Part I: Primary Study

#### 1 Introduction

Declarative clauses in SA and in a variety of regional dialects in the Arab world can be formed in two different word orders as illustrated by (1) for VSO and (2) for SVO.

- (1) kataba ?al-waladu ?al-wadziba  
wrote the-boy the-homework  
'The boy wrote the homework.'
- (2) ?al-waladu kataba ?al-wadziba  
the-boy wrote the-homework  
'The boy did the homework.'

The two examples differ in the placement of the subject *ʔal-walad-u* ‘the boy’. That is, the subject in the example (1) is placed postverbally whereas the subject in the example (2) is placed preverbally. The subject being in different syntactic positions implies that the subject or the verb (or both) has (have) undergone some sort of syntactic movements. The VSO structure is derived by the head movement (V-to-T movement). The schematic in (3) illustrates the proposed movement.

(3) [TP [T' kataba [VP ʔal-walad-u [V' .... ʔal-wādzib-a]]]].

For the SVO structure, one additional movement (phrasal movement) is required: the subject needs to move from [Spec: VP] to [Spec: TP] as shown below.

(4) [TP ʔal-walad-u [T' kataba [VP .... [V' .... ʔal-wādzib-a]]]].

The difference between the schematics (3) and (4) lies in the number of syntactic movements that derive the correct linear order of each clause. It can be noticed that the V-to-T movement is required in both orders. This is due to the strong V-features on T. Thus, I will not focus on this movement since the verb needs to move to T<sup>0</sup> despite the difference in the word order. Instead, I will only focus on the subject movement, the phrasal movement. The idea is that, I will assume that the subject in VSO order does not move, but, by contrast, the subject in SVO order moves from [Spec: VP] to [Spec: TP]. If this is the case, I argue that the subject in SVO order will require more processing time than the subject in VSO order.

The outline of *Part I* (the primary study) proceeds as follows: section 2 discusses the theoretical background and reviews some literature related to word order processing; section 3 illustrates the methodology used in the study; section 4 presents the results of the study and section 5 discusses the results and concludes this part.<sup>1</sup>

<sup>1</sup>Throughout this chapter, the words *subject* or *subjects* are used to refer to the syntactic subjects. They will NOT be used interchangeably with the word *participants*.

## **2 Background**

This section aims to provide theoretical and experimental backgrounds for the current study. Theoretically, I review the proposals that discuss the syntactic derivation of declarative clauses that show a different word order in Arabic. Recall that the syntactic derivation of these clauses has been discussed in §2. However, I should briefly sketch the discussed proposals in this section for two reasons. First, the discussion forms the theoretical background for the current experimental studies. Second, I will explain that each different word order is spelled out by different syntactic movements. Experimentally, I review some studies that have investigated different word order processing.

### **2.1 Subject distribution in Arabic clauses**

The syntactic subject position determines the type of word order in Arabic. If the subject appears preverbally, it gives an SVO order. By contrast, if the subject is placed postverbally, it gives a VSO order. The subjects being in different syntactic positions is a result of syntactic movements by which the subjects are moved depending on the type of the spelled out word order. Taking this into consideration, I believe that if the derivation of a certain word order requires fewer movements, it indicates that it is easy to process. By contrast, if more movements are required, more processing is required as well.

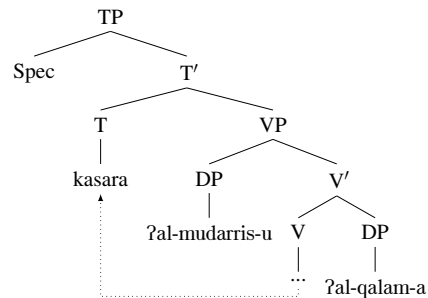
#### **2.1.1 Subjects in VSO order**

Several proposals have been suggested to account for the distribution of subjects in VSO orders in Arabic. Syntactic movements, agreement and canonicity (the canonical position) of subjects and verbs form the fundamental argument of these proposals.

Having discussed the positions of subjects in Arabic, among other languages, [Koopman and Sportiche \(1991\)](#) conclude that the Arabic clause structure can offer two syntactic positions to host the subject. These positions are the *thematic subject position* [Spec: VP] and the *grammatical subject position* [Spec: TP]. They argue that when the subject occupies [Spec: VP], it results in VSO order; this means that, V-to-T movement is required; however, the subject stays in situ. [Aoun et al. \(2010\)](#) investigated the subject position in Arabic. As far as the VSO order is concerned, the authors argue that the subject originates in [Spec: VP]. [Spec: TP] may be left empty as shown by (5b) which is the syntactic representation of (5a).

- (5) a. kasara ?al-mudarris-u ?al-qalam-a  
 broke the-teacher-NOM the-pen-ACC  
 ‘The teacher broke the pen.’

b.



This proposal assumes no overt movement of the subject; it remains in situ. In (5a), the linear word order, VSO, is achieved through the head-movement of the verb from V-to-T resulting in the correct order as argued by [Aoun et al. \(2010\)](#) and [Koopman and Sportiche \(1991\)](#). Similarly, [Fassi Fehri \(1993\)](#) proposes that the subject in Arabic originates in [Spec: VP]. The VSO order is a result of raising V-to-T whereas the subject remains in situ.

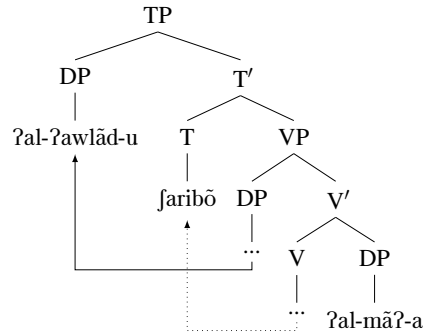
### 2.1.2 Subjects in SVO order

The distribution of preverbal subjects is an intriguing topic among contemporary linguists. Two different views are proposed for SVO derivation in the literature, namely *structural subject view* and *topic view*. I have argued against the topic view in §2. I have established the difference

between topics and preverbal subjects. Therefore, I argue that the DPs that occupy [Spec: TP] are subjects. They are initially generated in the thematic subject position [Spec: VP] then they move higher up into [Spec: TP] as a result of XP movement.

- (6) a.  $\text{ʔal-ʔawlād-u}$   $\text{ʔaribō}$   $\text{ʔal-māʔ-a}$   
 the-boys-*NOM* drank the-water-*ACC*  
 ‘The boys drank the water.’

b.



In the previous example, the subject  $\text{ʔal-ʔawlād-u}$  ‘the boys’ moves from [Spec: VP], the thematic position, to [Spec: TP], the structural position. This idea is acceptable by the vast majority of studies that have investigated word order in Arabic.

### 2.1.3 The Derivational Theory of Complexity

The proposal of the current study assumes that more syntactic movements require more processing. The idea is that, I will assume that the subject words in VSO order stay in situ whereas the subject words in SVO order move from [Spec: VP] to [Spec: TP]. If this is the case, I propose that subjects in SVO require more processing than subjects in VSO due to the syntactic movement, phrasal movement, that raises the subject from [Spec: VP] to [Spec: TP]. This idea is supported by the *derivational theory of complexity* (DTC) (Miller and McKean, 1964; Fodor et al., 1974) that claims that the more complex the derivation of a structure is, the more processing it requires. This theory can be used to help find out if SVO order requires more processing than VSO order by using two different tasks, a sentence reordering writing task and an online

self-paced reading task. It is a fruitful idea to make use of experimental data to help crystallise theoretical assumptions. [Marantz \(2005\)](#) states:

- (7) *"Embracing the DTC in its most general sense should help linguists demystify the nature of linguistic representations and computations. In addition to making predictions about complexity, linguistic theories make claims about similarity and identity between representations and between their constituent pieces."* (p.439)

Building on [Marantz's](#) idea, I propose that the subject words in SVO order may require more processing time than the subject words in VSO order. The more processing time that is required by subject words in SVO order might stem from the syntactic movement that raises the subject from [Spec: VP] to [Spec:Tp].

## 2.2 Word order processing cross-linguistically

There is a cross-linguistic variability in sentence word order. World languages are classified depending on the word order they follow. According to [Fromkin et al. \(2007, cited in Tabullo et al., 2012\)](#), SOV languages come in first place (45%), followed by SVO languages (42%), then VSO languages (9%), OVS languages forming (1%), and finally OSV (0.5%). The formation of the preferred word order (canonical) takes place in the early stages during first language acquisition wherein language-specific parameters are set. Universal Grammar assumes, for example, that a transitive sentence, cross-linguistically, consists of at least (Subject, Verb and Object). Nevertheless, languages vary in subject and head parameters ([Chomsky, 1995](#)). For example, in Arabic, subject parameters can be set preverbally in SVO or postverbally in VSO; there can also be prodrop subjects. By contrast, in English, subject parameters are set preverbally and there are no prodrop subjects. Subjects with different parameters might result in processing conflict when two different languages with different word orders come into contact. Below, I introduce some of the studies which have investigated processing of word order crosslinguistically.

Thompson and Werfelli (2012) investigated processing of VSO and SVO structures in spoken Saudi Arabic. The authors examined the processing times associated with the VSO versus SVO constructions. The authors use evidence from processing time to determine whether one structure of the two (SVO or VSO) is the basic word order and the other is the alternative one. They reported that VSO order takes less time than SVO. I assume that faster processing of VSO is not because VSO is the basic order; rather, due to fewer syntactic movements, VSO order might be easier to process than SVO order.

Kiyama et al. (2013) investigated the effect of animacy on word order processing of Kaqchikel (a Mayan language spoken in Guatemala). The researchers tried to determine whether animate/inanimate nouns that were used as objects affect word order processing when they appear in a different word order, VOS or SVO. Unexpectedly, they reported that there was no significant difference between processing of the two word orders when animacy is controlled for. However, when they controlled for the different word order, they reported that, in a listening comprehension semantic-judgement task, the results showed that VOS order was processed faster than SVO order. They attributed the fast processing shown by VOS to the idea that Kaqchikel's word order parameter is set to VOS. Additionally, SVO and VSO are attested in the language. Having assumed that VOS is the canonical word order, the authors concluded that slow processing of SVO structures might be due to the subject moving from its canonical position (sentence final position) to the initial position of the sentence.

As far as Kaqchikel is concerned, Koizumi et al. (2014) investigated processing of different word orders in Kaqchikel speakers. A sentence plausibility judgement listening task was administered in the study. Participants were asked to semantically judge the uttered sentences. Only the RT of the semantically appropriate sentences was calculated. Their results showed that VOS, which is the syntactically parametrized word order, requires less processing time than SVO

and VSO. Based on their findings, [Koizumi et al.](#) argue against the idea that there is a universal preference for SO order, though this SO order is more prevalent across languages. Their study indicated that OS word order requires less processing than SO in Kaqchikel. They argue that less processing of VOS shown by the participants indicates that this order is the basic syntactic structure in Kaqchikel.

Using functional MRI, [Saura et al. \(2009\)](#) investigated word order processing in French-German bilinguals. Based on the onset age of acquisition, the participants were assigned to three groups: those who acquired either French or German after the age of 10 formed two groups, L2-German and L2-French; those who acquired both languages before the age of 3 formed the third group. Looking at word order, higher activation was seen in the frontal and inferior parietal cortex when VS order was compared to SV order. [Saura et al.](#) assume that VS order requires more processing since it is the less frequent and a non-canonical structure. Late bilinguals showed higher activation in their L2 during grammatical processing than L1. However, early bilinguals did not show different activation across their two languages. The study concluded that the age of acquisition might have an effect on grammatical processing of different word order either in French or German. These findings may support the notion of canonicity.

What follows from these studies is that if the surface word order differs from the syntactic (canonical) word order, it may indicate that more processing is required to spell out the surface order. If this proposal is on the right track, I argue that the Arabic SVO structure requires more processing than the VSO structure since the derivation of SVO structure requires more syntactic movements.

## 2.3 Questions and hypotheses

Departing from the assumption that VSO order is derived by V-to-T head movement whereas the derivation of SVO order requires two movements: V-to-T head movement and phrasal movement [Spec: VP] to [Spec: TP], the current study attempts to answer the following research questions:

- (i) Which word order (VSO or SVO) do NSs prefer when performing a sentence reordering writing task?
- (ii) Will NSs employ indefinite DPs in preverbal subject position?
- (iii) When performing an online self-paced reading task, will NSs show a significant difference in reaction time (RT) when processing subject words in VSO compared to SVO order?

To answer the first question, I hypothesize that NSs performing the sentence reordering writing tasks may show a tendency toward using the VSO order more than SVO order.

The NSs' performance on the writing task will also be used to answer the second question. Recall that indefinite DPs are not allowed to appear in preverbal subject positions unless they are licensed by a licenser such as modification.<sup>2</sup>

To answer the third question, in an online self-paced reading task, RT taken to process the subject nouns in three different syntactic distributions, namely preverbal definite subjects, postverbal definite subjects and postverbal indefinite subjects will be calculated. The RTs will be compared in order to show which subject requires more processing (long RT). I hypothesize that if fewer syntactic movements reflect easy processing, NSs may process VSO faster than SVO.

<sup>2</sup>The example in (1) can be grammatically fixed by adding a post-modifier to the subject noun. For example, when the adjective *momtaaz*; 'excellent' was added to the subject *walad-u-n*, it rendered the sentence in (2) grammatical as follows:

- (1) \*walad-u-n      kataba ?al-wadʒib-a  
       boy-NOM-NUN wrote the-homework-ACC  
       'lit: A boy did the homework.
- (2) walad-u-n      **momtaaz**-u-n      kataba ?al-wadʒib-a  
       boy-NOM-NUN **excellent**-NOM-NUN wrote the-homework-ACC  
       'An excellent boy did the homework.'

## **3 Methodology**

### **3.1 Participants**

Thirty-six Saudi students (N = 36; 30 male and 6 female) voluntarily participated in the study. They are graduate and undergraduate students enrolled in different academic programs at the University of Ottawa and at Carleton University. They range in age from 19 to 40 years old with an average of 27.5 years. The length of their stay in Canada approximately ranges from three months to six years. They were born and raised in Saudi Arabia and completed their primary and secondary education in Saudi institutions. Therefore, it is assumed that their native language is not affected by L2, English. Prior to participating in the study, signed consent was obtained from each participant.

### **3.2 Stimuli**

The study used two different tasks: a sentence reordering writing task and an online self-paced reading task. The following two subsections discuss the experiment tasks in detail.

#### **3.2.1 Sentence reordering writing task**

Participants were given 24 sentences. Each sentence was scrambled into randomly ordered words. The participants were required to rewrite them in the correct order. Three different types of sentences, eight of each type, were generated. Eight sentences were designed to be compiled as interrogative sentences; they were used as distractors. Whether the participants compiled them in the correct order or not, they were not included in the analysis since their role was simply to distract participants from the experimental targeted stimuli. The second type of eight sentences

were declarative wherein the subjects of these sentences were indefinite. The participants were expected to place indefinite subjects postverbally using VSO order. Recall that indefinite subjects cannot occupy preverbal subject positions without being licensed by a licensing element (see footnote (2) above). I should point out that I avoided including any licensors (e.g., adjectives) in the scrambled sentences. If adjectives were supplied, they would allow the participants to place indefinite subjects preverbally. Therefore, the lack of licensors (e.g., adjectives) left the participants with only one correct option which was the VSO order. The third eight sentences were declarative wherein the subjects were definite. The declarative sentences had a twofold purpose. Both definite and indefinite sentences checked for the preferred word order, VSO or SVO. Additionally, indefinite sentences (sentences where subjects were indefinite) checked if indefinite subjects were incorrectly employed in SVO structures by the participants.

The 24 sentences were carefully designed. For example, the first eight sentences included an equal number of definite and indefinite sentences infused with two or three distracting interrogative sentences; the same procedures were applied to the second and third eight sentences. Three different versions of this task were produced: A, B and C where the last eight sentences in version A are the first eight sentences in version B, but the second eight sentences in version C (see appendix (A)). This division insured that if some participants decided not to complete the task, there were still enough samples of all targeted sentences.

### **3.2.2 Online self-paced reading task**

The self-paced reading task was used to record reading time spent to read a word, a phrase or a sentence. The reading task used in this study was an online computer-based task. This task is called self-paced because the time spent to read a segment is under the control of the participant being tested (Jegerski, 2014). A self-paced reading task can be cumulative or non-cumulative. In

the cumulative type, when participants start reading, a reading segment appears on the screen, it remains visible to the reader and the next segment appears and remains visible and so on until the entire sentence is visible. Then, the participant can proceed to the next sentence. In the non-cumulative type, each reading segment appears one at a time then it disappears as the participant advances in reading and a new segment replaces the previous one. Usually, the segment being read appears in the centre of the display screen. I used the non-cumulative model because there seems to be some concerns on the cumulative one. [Ferreira and Henderson \(1990\)](#) and [Just et al. \(1982\)](#) reported that in the cumulative model, participants can reveal more segments before they finish reading the previously revealed segments as they advance in reading (cited in [Jegerski, 2014](#)), which might lead to incorrect calculations of RTs. In such cases, a participant might go back and reread what has been already read. By contrast, the non-cumulative model does not allow for such cases because every read segment disappears as the participant advances to the next one. Therefore, the current study used the non-cumulative model (see appendix (B) for a sample).

A self-paced reading task consisting of 80 sentences was administered in the current study. The task was designed to include: 20 interrogative sentences, 20 definite SVO declarative sentences, 20 definite VSO declarative sentences, and 20 indefinite VSO declarative sentences. The targeted sentences were definite SVO, definite VSO and indefinite VSO. To be precise, the time taken to process the word that occupies the subject position is recorded and considered as the RT. The interrogative sentences were used as distractors thus they were not considered for any measurement. When designing the task, the targeted words (words that occupy subject positions in any word order) were selected based on the length of their roots. To clarify, if the subject noun is a tri-consonant root word in the VSO order, its counterpart in SVO must be a tri-consonant root as well. For example, if *?ar-radʒul* ‘the man’, a tri-consonant root word CVCVC, is a subject in

VSO, the subject in SVO must be a tri-consonant root word such as *?an-nemer* ‘the tiger’; see the examples below.

- (8) a. *?ar-radʒul-u qatala ?al-ʔazāl-a*  
 the-man-*NOM* killed the-gazelle-*ACC*  
 ‘The man killed the gazelle.’
- b. *qatala ?an-nemer-u ?al-ʔazāl-a*  
 killed the-tiger-*NOM* the-gazelle-*ACC*  
 ‘The tiger killed the gazelle.’

The subjects in the previous examples occupy different positions (preverbal in the former and postverbal in the latter). Both words have the same root length; the word *radʒul* has three consonants /r-dʒ-l/ and the word *nemer* has three consonants /n-m-r/. I assume, when processing the two words, if a difference in RTs is discovered between them, it cannot be attributed to phonological reasons since both have the same root length. Instead, it can be attributed to processing effects.

### 3.3 Procedures

#### 3.3.1 Sentence reordering writing task

This task was a paper-based task. The participants were provided with a two-page writing task. As described above, it consisted of 24 sentences. The constituents of each sentence were presented in random order. Below each sentence, there was an empty line where the participants re-wrote the sentence in the correct order. Some of the participants asked whether they could just number the words according to their correct order. They were told that the sentences should be re-written in full form. Although there was no time limit to perform the task, the participants took an average time of 15-20 minutes to complete the task.

### 3.3.2 Self-paced reading task

The software called Presentation (Neurobehavioural System) was used to design the task. To begin the experiment, a participant was debriefed on how to advance during reading by using preset keyboard keys. Prior to starting the experiment, two declarative sentences and one interrogative sentence were used as practice. They were used to train the participants on how to advance during the experiment. After the practice period was over, participants began the experiment. The RT taken from the onset appearance of the word until the participant pressed the space-bar (a key assigned to advance through reading) was calculated and considered to be the RT. Three versions of this task were produced by randomizing the order of the stimuli of the basic version. In other words, the contents of the three versions were the same; however, they were presented in different and random sequences.

## 4 Results

This section presents the results of the two tasks that have been administered in the study. Recall that the current study has three main goals. Two goals are associated with the writing task and one goal is associated with the reading task. The writing task checks for participants' preferred word order. It also checks for the use of the indefinite DPs in the correct syntactic position: the postverbal subject position. The online self-paced reading task tries to find out whether processing of the subject words differed when they appeared in pre- or postverbal syntactic positions (SVO/VSO). Two different measures of analyses were conducted. Measure one probed the preferred word order by the NSs. Measure two checked if there were a difference in RTs when processing pre- and postverbal subjects. Prior to administering measure two analysis, outliers were removed using Excel's Thompson Tau's modified table. Tau's modified table

determines outliers as follows: The standard deviation (STD) is calculated then it is multiplied by Tau's value; the product, ( $t$ ), is compared to Delta ( $\Delta$ ).  $\Delta$  is the absolute value of the difference, in millisecond (ms), between the Mean RT and the RT of an individual item. If  $\Delta > t$ , the item is considered as an outlier like item (19) shown by a cross-sectional example of real data in the table below. If, by contrast,  $\Delta < t$ , the item is not considered as an outlier like item (1).

Item No.	RT	Mean	STD	Tau-value	$t$	Delta
1	603	773.47	156.44	1.15	180.00	170.47
19	1311	773.47	156.44	1.88	294.11	537.53

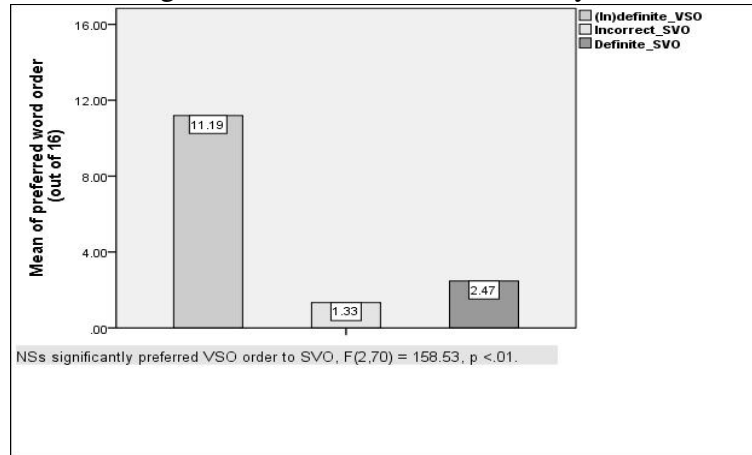
The removal process was performed before transferring the data from an Excel file into SPSS.

#### 4.1 Analysis of the sentence reordering writing task

A General Linear Model (GLM), repeated measures, was administered to investigate the preferred word order: definite SVO, definite VSO and incorrect SVO<sup>3</sup> by NSs. A one-way repeated measures analysis of variance ANOVA on the data produced a significant result,  $F(2,70) = 158.63, p < .01$ . There was significant variability in the preference for each word order. That is, NSs showed a significant preference for the VSO order; see Figure 6.1 for an overview.

<sup>3</sup>It is important to set the incorrect SVO as a separate condition. This condition is expected to help in finding out how much indefinite subject parameters, in Arabic, are violated by the participants.

Figure 6.1: Preferred word order by NSs



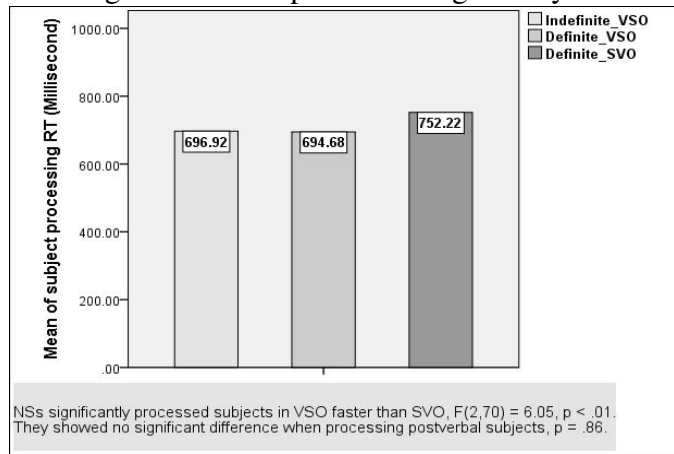
A subsequent pairwise comparison of the different word orders by NSs was administered to investigate the differences between the word orders. First, the pairwise comparison revealed a statistically significant difference between VSO and definite SVO, mean difference = 8.72,  $p < .01$  in favour of VSO order. Similarly, the comparison also revealed a significant difference between VSO and incorrect SVO, mean difference = 9.86,  $p < .01$ . The preference for VSO order might indicate that it is the dominant word order among Arabic speakers. Equally important, NSs did not employ indefinite subjects in the preverbal subject position. This supports the idea that indefinite subjects cannot occupy the preverbal subject positions unless they are licensed by a licensing element. Examination of Figure 6.1 reveals that NSs produced a very small number of incorrect SVO structures.

## 4.2 Analysis of the online self-paced reading task

A one-way repeated measures ANOVA (comparing RTs to subjects in SVO/VSO) conducted on the NSs data revealed a statistically significant main effect of word order,  $F(2,70) = 6.05$ ,  $p < .05$ ; overall results are illustrated in Figure 6.2. Subsequent pairwise comparisons of the three orders indicated the following:

- when comparing SVO with definite VSO, NSs processed definite subjects in VSO order faster than subjects in SVO, mean difference of 57.54 ms,  $p < .05$ .
- when comparing SVO with indefinite VSO, NSs processed indefinite subjects in VSO order faster than subjects in SVO, mean difference of 55.30 ms,  $p < .05$ .
- no significant difference in processing RT of postverbal subjects (definite and indefinite) in VSO order was found, mean difference of 2.23 ms,  $p = .86$ .

Figure 6.2: Self-paced reading task by NSs



These results have important implications. It can be argued that subjects in VSO orders are easier to process than subjects in SVO order. Recall that one main argument of this paper is that VSO is used more than SVO because the former might be easier to process than the latter.

### 4.3 Interim conclusion

In general, the analysis of the sentence reordering writing task data revealed that NSs showed a significant preference for VSO order to SVO order. It can be noticed that they produced a significantly higher number of VSO structures than SVO structures. Interestingly, data showed that NSs avoided using indefinite subjects in preverbal subject positions. As far as the online

reading task is concerned, NSs processed subjects in postverbal position significantly faster than preverbal subjects. For subjects in postverbal positions, NSs showed no significant difference in processing time between definite and indefinite subjects. I assume that because definite and indefinite postverbal subjects occupy an identical syntactic position [Spec: VP], NSs were expected to show similar processing time when processing subjects in postverbal position. The proposal that more syntactic movements may require more processing time is supported by the current results. I have argued that the preverbal subject that occupies [Spec: TP] has undergone a phrasal movement that raises it from [Spec: VP], the canonical position. It seems that this movement requires more processing time. The longer RT spent by NSs when processing preverbal subjects supports the claim.

## 5 Discussion and conclusions

In general, the results show that NSs have a stronger preference for VSO order than for SVO order. Further, results indicate that NSs processed subject words in VSO order significantly faster than subject words in SVO order. Answering the study's first research question, *which word order do NSs prefer when performing a sentence reordering writing task?* results show that NSs had a significantly stronger preference for VSO order. These results validate the hypothesis that predicts that NSs show a tendency toward using the VSO order more than SVO order when performing the sentence reordering writing task. Another important finding answers the study's second question, *will they employ indefinite DPs in preverbal subject position?* results show that the grammatical restrictions on the preverbal subject positions were maintained. In other words, NSs avoided using the indefinite subjects in preverbal subject positions. Only a few indefinite subjects were misplaced in preverbal subject positions.

I turn now to the online reading task, which also revealed interesting trends. Answering

the study's third question, *when performing an online self-paced reading task, will NSs show a significant difference in reaction time (RT) when processing subject words in VSO/SVO?* NSs processed subjects in postverbal positions, *definite VSO and indefinite VSO*, significantly faster than subjects in preverbal positions, *definite SVO*. Specifically, NSs processed definite VSO subjects faster than definite SVO subjects; they also processed indefinite VSO subjects faster than definite SVO subjects. However, when comparing definite VSO subjects with indefinite VSO subjects (both are postverbal subjects), they showed no significant difference in RTs. This finding augments two main issues. First, I, and many other have argued that VSO order is syntactically easier to derive than SVO order. This is due to the subject remaining in situ in [Spec: VP] and the verb moving from V<sup>0</sup> to T<sup>0</sup> resulting in VSO order. Notice that there is only one syntactic movement (head movement), which is the V-to-T movement. This sole movement might be the reason behind fast processing (short RT) of subjects in VSO order. By contrast, slow processing (long RT) of subjects in SVO order might be due to two syntactic movements, namely, an XP movement (the subject moving from [Spec: VP] to [Spec: TP]) *and* a head movement (the verb moving from V-to-T). Thus, it can be argued that the number of syntactic movements may indicate fast processing of subjects in VSO order and slow processing of them in SVO order. Notice that, in Arabic, subject parametric features are flexible; they allow for alternative orders, SVO or VSO. Therefore, I assume that the NSs' choices of VSO order was not spontaneous; instead, it was, I believe, the subconscious easiness of processing that dictated them to choose VSO order instead of SVO order. The alternation between SVO and VSO is assumed to be a result of different syntactic movements. The difference in processing time between SVO subjects and VSO subjects is likely to be attributed to the different syntactic movements that are required to derive the subjects.

In conclusion, the study showed that NSs preferred VSO order to SVO order. This preference

was reflected by their performance in the writing and the reading tasks. When performing the writing task, NSs reordered the scrambled sentences in the VSO order significantly more than SVO. They also avoided initiating the SVO sentences by indefinite subjects. In the reading task, NSs processed postverbal subjects faster than preverbal subjects. They showed no difference in processing time between definite and indefinite postverbal subjects. The findings of the study support two main ideas. First, the preference for VSO order shown by the writing task and the fast processing of the postverbal (VSO) subjects might justify the widespread use of this structure (Abdul-Raof, 1998; Al-Jarf, 2007; Althwaini, 2008; Fassi Fehri, 1993; Friedmann and Costa, 2011; Hewitt, 2006; Ingham, 1991; Kramer, 2009; Tucker, 2007, and studies cited therein). Second, it is argued that VSO order is derived by fewer syntactic movements than SVO order. If this is the case, I speculate that the fast processing of VSO order and the slow processing of SVO order might be attributed to the difference in the number of syntactic movements used to derive each word order.

## Part II: Preliminary Study

### 1 Introduction

The aim of this study is to investigate the preference and processing of VSO/SVO orders by heritage speakers of Arabic (HSs) living in Ottawa, Canada. It also aims to find out if English (L2) as a dominant language affects the heritage language, Arabic (L1). The structure of the present study follows that of the primary study reported in *Part I* except that some sections or parts of them that seem to be redundant (e.g., the theoretical background, the stimuli and the procedures) will not be repeated in this preliminary study. The outline of this study proceeds as follows: section 2 reviews related background knowledge on heritage speakers and bilingualism; section 3 explains the methodology of the study; section 4 presents the results and section 5 discusses the findings and concludes the study.

### 2 Background

This section provides discussions on heritage speakers and bilingualism followed by the research questions and hypotheses of the study. For theoretical background, see *Part I*, section 2.1.

#### 2.1 Heritage speakers

The heritage speakers under investigation are Arabic speakers whose dominant language is English whereas Arabic, their native language, is less dominant due to its limited use. [Benmamoun et al. \(2010\)](#) define HSs as early bilingual speakers who are considered as speakers of minority languages; those speakers show different proficiency in their native language. Their proficiency

ranges from passive knowledge of the native language to balanced competence in both languages (ibid).

Heritage speakers use their native language in certain contexts, for example, when they communicate with their parents or when they attend culture- or religion-based events or activities (e.g., prayers and weddings) that require them to speak Arabic. However, they use English in most situations in their daily life activities such as in schools, the society and in the neighbourhood. Similar cases have been reported by [Albirini et al. \(2013\)](#), [Cook et al. \(2003\)](#) and [Montrul \(2010b\)](#) where the use of L2 becomes more dominant than the use of L1. This unbalanced use might affect their native language. Their competency in L2 might be gained at the expense of L1 attrition. HSs are considered to be bilinguals with balanced or unbalanced bilingualism. They are subject to the bilingualism criterion that [Lambert \(1974\)](#) points out. He contends that bilingualism can be additive or subtractive. In the case of additive type, a child/learner may master a native like level of the second language with preservation of his/her first language. By contrast, in the subtractive type, a child/learner may master a native-like proficiency of the second language but at the expense of the first language. Mastering the second language may result in the first language loss. [Fillmore \(1991\)](#) points out that when immigrant children learn English, the use of their native language changes at home. This change in the native language correlates negatively with their onset age of learning English. The earlier they learn English, the more change they show in their first language. Most of the studies that have been done concentrate on the effect of L1 on L2. Such studies have embarked investigations on the basis that L1 is the dominant language and L2 is dealt with as the less dominant one. Researches in second language acquisition ([Gass, 1996](#); [Grami and Alzughaihi, 2012](#); [Montrul, 2000](#); [Selinker, 1969](#), among others) came to a conclusion that L1 can positively affect L2 (positive transfer) or negatively affect L2 (negative transfer) in an indication that language interference could facilitate L2 acquisition/processing or hinder it.

L2 effects on L1 in general and speakers of heritage languages specifically have recently become a focus of attention by linguists and psycholinguists (Benmamoun et al., 2010; Brien and Sabourin, 2012; Cook et al., 2003; Licerias and Senn, 2009; Jarvis, 2003; Polinsky, 2009). In the same line, this preliminary study has two main goals: (a) *it checks for the preferred word order by HSs* and (b) *tries to find out if L2 affects L1 syntactic processing*. As a matter of fact, English and Arabic have different syntactic word orders. The former has a rigid word order, SVO, whereas the latter can be SVO or VSO with a noticeable preference to VSO order (Abdul-Raof, 1998; Al-Jarf, 2007; AlQahtani and Sabourin, 2015; Althwaini, 2008; Fassi Fehri, 1993; Friedmann and Costa, 2011; Hewitt, 2006; Ingham, 1991; Kramer, 2009; Toker, 2007, and studies cited therein). In this study, I want to know if the difference in word order between the dominant language and the heritage language is reflected in HSs. The current study will contribute to the field of studies that have discussed minority languages versus dominant languages.

## **2.2 Bilingualism**

The field of studies that targets heritage speakers is relatively new and limited due the linguistic contexts and environments. A few studies have investigated this phenomenon (Albirini et al., 2011; Benmamoun et al., 2010; Cook et al., 2003; Licerias and Senn, 2009; Montrul, 2010a,b; Polinsky, 2009). These studies discuss different linguistic data ranging from morphological elements to syntactic ones. They tried to find out whether the dominant language's linguistic knowledge percolates or intrudes into the heritage language linguistic knowledge. Tackling this issue, Albirini et al. (2011) investigated Egyptian heritage speakers' linguistic knowledge of Arabic, they found that the SVO order was predominant, though the language allows for VSO as an alternative option. They claim that the prevalence of the SVO order could be due to transfer from English, but it could also be due to the complex syntax of the VSO order. They argue that

VSO derivation is more complex than SVO derivation.

With regard to the L2 effect on L1, [Harrington \(1987\)](#) found that Japanese participants who are L2 learners of English tend to adopt English word order Noun-Verb-Noun (NVN). They preferred NVN to NNV or VNN though the latter two as optional orders are available in Japanese. Additionally, they allow inanimate subjects to appear in NVN, a choice which is not acceptable in Japanese registers. It seems that the learners tend to exploit English word order. In a case study, [Jarvis \(2003\)](#) investigated Aino's, a Finnish girl, L2-L1 grammar system to see if L2 grammar (English) had affected her heritage language grammar. The author found no significant effects on the functional categories (tense, aspect, agreement or Case). However, he found that Aino has imposed English word order SVO on some Finnish sentences. Finnish has a relatively flexible word order (VSO, VOS, SOV, SVO, OVS). The rigidity of English was shown in Aino's knowledge indicating that her native language was affected by the dominant language. In another study, [Polinsky \(2009\)](#) compared English dominant heritage speakers of Russian to monolingual Russian speakers. The participants were asked to match pictures to either active or passive constructions. Russian can be SVO, VOS or VSO. The author found that heritage speakers have problems whenever the word order differs from the English word order, SVO. She concluded that the dominant language grammar might have affected the native language grammar. It can be argued that heritage speakers could have the necessary implicit knowledge of their heritage language but because of the effect of the dominant language, they cannot exploit it due to the limited use of their L1; the grammar of their native language may become merely passive knowledge.

In a lexical decision task performed by trilinguals (L1:Dutch, L2: English and L3: French), [van Hell and Dijkstra \(2002\)](#) investigated the effect of non-native language knowledge on the first language. They found that participants show faster processing when the presented L1 words are

cognates than non-cognates. They observed that fluency in the non-native language played a role in processing. That is, Dutch words with their cognates in English were processed faster than their French cognates; it was reported that the participants who showed this difference are more fluent in English than French. [van Hell and Dijkstra](#) concluded that the L1 presented words to native participants resulted in activation of knowledge of the foreign languages.

As far as the effect of L2 on L1 is concerned, it has been suggested that the improvement of linguistic literacy in L2 learners may help them improve their native language linguistic knowledge. [Abu-Rabia and Bluestein-Danon \(2012\)](#) conducted a study to find out whether the improvement (in different skills such as reading and writing) shown by L2 English learners, whose L1 is Hebrew, advances their linguistic knowledge of L1. [Abu-Rabia and Bluestein-Danon](#) introduced a hypothesis which they called "*The Cognitive-Retroactive Transfer (CRT) hypothesis of linguistic skills.*" The participants were subjected to a five-week program in order to improve their English. Two pretests were administered, English and Hebrew. Following the English intervention program, two post-tests were administered in each language. Results showed that there was a significant improvement in the linguistic knowledge (phonological, morphological and syntactic aspects) of both languages. Also, a significant improvement in reading comprehension was noticed in both languages. They concluded that the English intervention program leads to an improvement not only in English linguistic knowledge but also in Hebrew linguistic knowledge. That is, the effect of L2 linguistic literacy was transferred to L1. [Abu-Rabia and Bluestein-Danon](#) argued that their CRT hypothesis is an extension or development of [Cummins's \(1991\)](#) "*Linguistic Interdependence Hypothesis*". [Cummins's](#) hypothesis, suggests that if adequate stimuli are available to the first language, the exposure to a second language will result in a bilingual development; this development will not have any negative impact on the first language even if the exposure to L2 is intensive. He also argued that effective teaching of a certain language will not

only improve literacy in this language but it also improves the other language. In other words, the transfer of gained linguistic knowledge from L1 to L2 will take place.

[Kecskes \(2008\)](#) argues that languages affect each other in bilingual settings. He claims that the effect varies according to the language being first or second. In other words, [Kecskes](#) differentiates the effect of L1 on L2 from the effect of L2 on L1 and indicates that they differ significantly. He explains that the L2 influence on L1 is a cognitive-pragmatic based effect; it is neither syntactic nor lexical. By contrast, the influence of L1 on L2 is phonological, syntactic and lexical. The bidirectional influence between L1 and L2 takes place at different stages specifically for L2 late learners. [Kecskes](#) suggests that there are two stages. The *additive* stage, when two languages interact, L1 is dominant thus its sound patterns, syntactic structures and lexical items effects are transferred to L2. The effect of L2 is hardly attested. Later on, when the second stage (termed *synergic* by [Kecskes](#)) begins, knowledge and skills acquired by one language are mixed with the existing knowledge. This mixed knowledge becomes accessible to both languages. At this point, the effect of L2 on L1 becomes cognitive and pragmatic (*ibid*).

[Tsimpli et al. \(2004\)](#) conducted an experimental study on near-native L2 learners of English. The participants were native speakers of two different languages (Greek and Italian) who were L2 English learners. Two monolingual groups from each language formed the control group. Focusing on the syntax of subjects in both languages, they predicted syntactic attrition of both L1s under investigation. Greek and Italian allow for preverbal (SVO) and postverbal (VSO) subjects as the case in Arabic. The results of a production and interpretation task administered to probe participants' performance on null and overt subjects and preverbal and postverbal subjects revealed a significant difference. Specifically, attrition effects were detected in the production of preverbal subjects in the Greek group; they produced SVO structures more than VSO. Italian speakers showed attrition effects in the interpretation of overt pronominal subjects. [Tsimpli et al.](#)

concluded that the noticeable tendency to using preverbal subjects is a result of attrition.

Examining Spanish heritage speakers living in Canada, [Valenzuela et al. \(2012\)](#) investigated gender agreement in two grammatical constructions in Spanish, namely, DP internal agreement (Determiner agreement with its noun) and Topic-comment external agreement (Topic DP agreement with its adjectival complement) which they termed copula constructions. Results showed that there was no significant difference between heritage speakers' and L1 speakers' treatment of masculine gender in both constructions. However, they found a significant difference between the two groups in treating feminine gender. For heritage speakers, when using feminine tokens, they were more accurate in the copula constructions than in the DP constructions. [Valenzuela et al.](#) concluded that the differences detected in the heritage group's performance on the two constructions might be attributed to the difference in the underlying representation of the two structures. It was concluded that, due to the significant difference between heritage speakers and L1 Spanish when performing the two structures, heritage speakers are not similar to monolinguals.

In conclusion, what follows from these studies is that L2 grammar as a dominant language may have effects on L1 grammar. In the current study, I want to know if the grammar of English, a dominant language, has affected the grammar of Arabic, the native language of the HSs participating in this study. The studies concerned with Arabic heritage speakers' linguistic knowledge are still required specifically studies that focus on language processing. The current study aims to fill this gap by investigating Arabic HSs' linguistic knowledge and probe their cognitive ability in processing subject words in different word orders.

### **2.3 Questions and hypotheses**

This study attempts to answer the following research questions:

- (i) Do HSs of Arabic, whose dominant language is English, prefer VSO or SVO order when using their native language?

- (ii) If a certain preference is found, is it affected by input received at home (parents' native language) or by the structure of the dominant L2?
- (iii) When performing an online self-paced reading task, is there a significant difference in RT when processing subject words in SVO versus VSO order?
- (iv) Does L2 grammar affect HSs' processing of L1?

To answer the first question, I administered a writing task (the sentence reordering task used in the primary study). I hypothesize that HSs may show a tendency toward using the SVO order when performing the writing task.

To answer the second question, if a certain word order is discovered to be preferred more than the other one (e.g., SVO over VSO or vice versa), it is important to know whether this preference is an effect of an L1 input or an intervening effect of the dominant language grammar. To determine the source of the effect, if there is any, ten parents were recruited to participate in the sentence reordering writing task. HSs parents' preference, when performing this task, will help in finding out whether the effect is input-based or L2-based. In other words, if there is a statistically significant difference between the parents' preference for a certain word order and their children's preference then it is assumed that the effect is not due to an L1-input; if on the other hand, the HSs and their parents statistically show the same preference to the same word order, then the HSs' performance might be affected by the L1 input and not the L2 effect.

To answer the third and the fourth questions, a centre non-cumulative self-paced reading task (the same task used in the primary study) was administered. The RTs for the target words (subjects in: definite SVO, definite VSO and indefinite VSO) were calculated and followed by two comparisons. The first comparison answers the third question by finding out if there is a difference in processing times between the three subject words. The second comparison answers the fourth question by comparing the results of the NSs and the results of HSs in this study. I hypothesize that if both groups show no significant difference when processing the target subject words, this indicates that L2 grammar does not affect L1 processing. If, on the other hand,

significant differences are discovered, this indicates that L1 processing might have been affected by L2 grammar.

### **3 Methodology**

#### **3.1 Participants**

Two groups participated in the current study. They were: **a)** heritage speakers and **b)** heritage speakers' parents. Prior to participating in the study, a consent form was obtained from all participants.

##### **3.1.1 Heritage speakers**

Nine heritage speakers of Arabic, who live in Ottawa, participated in the study. They were all undergraduate male students at the University of Ottawa and Carleton University. Their ages ranged from 20-25 years old with an average age of 21.33 years. Prior to performing the tasks, they completed a linguistic and biographical background questionnaire.

##### **3.1.2 Questionnaire**

Based on the information supplied in the questionnaire, I can ensure that all HSs participating in this study have similar backgrounds and linguistic environments. The items included in the questionnaire were: age, age of arrival if any were born outside Canada, language mainly used at home and the native language of both parents. Additionally, the questionnaire included an item that checked where HSs received their formal education (see appendix (C)).

##### ***Age/age of arrival***

There is a consensus among researchers who have investigated speakers of heritage languages that those speakers' dominant languages are not their native language. Instead, L2 is dominant. There were cases where balanced heritage speakers could be found; however, these cases were not the norm. For heritage speakers, age of L2 acquisition and age of arrival, if born outside the dominant language geolinguistic environment, are important. Prior to performing the experiment tasks, it was necessary to know whether the HSs were born in Canada or at least came to Canada at an early age (early childhood: age  $\leq$  4 years old) if they were born outside Canada.<sup>4</sup>

### *HSs' parents native language*

An inclusion criterion was that parents of heritage speakers were native speakers of Arabic. This was to insure that the input received at home from parents was balanced.<sup>5</sup> There might be cases where the father is married to a mother who is not a native speaker of Arabic and vice versa. It was important to have a monolingual input (Arabic) at home. The parents, both being native speakers of Arabic, assured that the HSs had a balanced, or at least similar, amount of the native language input. Recruiting participants who were from a similar background positively contributes to providing constant and reliable data.

### *HSs' formal education*

Heritage speakers participating in this study should have received their formal education at public schools where English was the medium of instruction. It is worth noting that there are approximately three Islamic schools where Arabic courses and religious courses are delivered in Arabic.<sup>6</sup> These schools are not monolingual (Arabic) schools; English is still the main language

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<sup>4</sup>In fact, there is no concise range of early childhood period. There are many conflicting opinions about when this period ends (i.e., does it end at the age of 4, 5, 6 or 7 years?) Therefore, I set the age of 4 years old as the cutoff number for the HSs who participated in the study.

<sup>5</sup>By *balanced* I mean that if the two parents are both native speakers of Arabic, the input is balanced. By contrast, if one of the parents were not a native speaker of Arabic, the input, in this case, is not balanced.

<sup>6</sup>The schools are: Ottawa Islamic School, AlAbraar School and Ahlul-Bayt Islamic School.

of instruction. However, Arabic courses, religious courses and Holy Quran receive noticeable attention. Thus, HSs who participated in the study received their formal education in Canadian Public Schools. This confirms that they did not receive any formal classes in Arabic. The aim of this item was to insure that all participants received a balanced linguistic input. This input is the parents' native language at home.

### ***HSs' proficiency in Arabic***

The questionnaire includes a self-reporting proficiency component. The participants were asked to rate their native language proficiency in each skill (see appendix (C)). This insured that the participants have a similar background in their native language in order to be able to perform the experiment tasks.

### ***HSs' Exclusion criterion***

Participants were screened based on their responses to the above-mentioned questionnaire. Participants, who were born outside Canada and immigrated to Canada after the age of four, were excluded from the experiment.<sup>7</sup> With regard to the parents' native language, the participants' parents were all native speakers of Arabic. As far as formal education is concerned, all the participants received their formal education in Canadian public schools. They did not enrol in any of the Islamic schools mentioned in footnote (6). This means that the participants' dominant language is English and the use of Arabic is limited to home context only.

### ***Parents of the HSs***

Ten parents (five of each gender) partially participated in the study. Their participation was limited to performing the sentence reordering task. This task was designed to investigate the

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<sup>7</sup>There was one participant who came to Canada after the age of four nevertheless he was included in the experiment because he was in the United States where he started acquiring English before the age of three.

parents' tendency toward the preferred Arabic word order. In other words, I wanted to find whether they prefer SVO or VSO order; subsequently, if both groups prefer a certain word order, we want to know if their preference significantly differs from each other. Based on their preference, input effect on the children (HSs) can be factored out. Specifically, if the parents prefer VSO, when performing the task and their children prefer SVO, it can be argued that the children's preference is due to L2 dominant language, English, word order affecting HSs' choice of their native language flexible word order VSO or SVO. If, on the other hand, the parents prefer SVO over VSO, then their children's preference (in the case that they preferred SVO) might be due to input from the parents and not due to the dominance of L2.

### **3.2 Stimuli**

The two tasks used in the primary study were used in the current study. The first task was a sentence reordering writing task. It required the participants to rewrite scrambled words in the correct order. The second task was a self-paced reading task which was designed to test the subject words processing in different word orders SVO/VSO (see section 3.2 in *Part I* for full details on both tasks).

### **3.3 Procedures**

The procedures used in the primary study were adopted in the current study (see section 3.3 in *Part I* for more explanations).

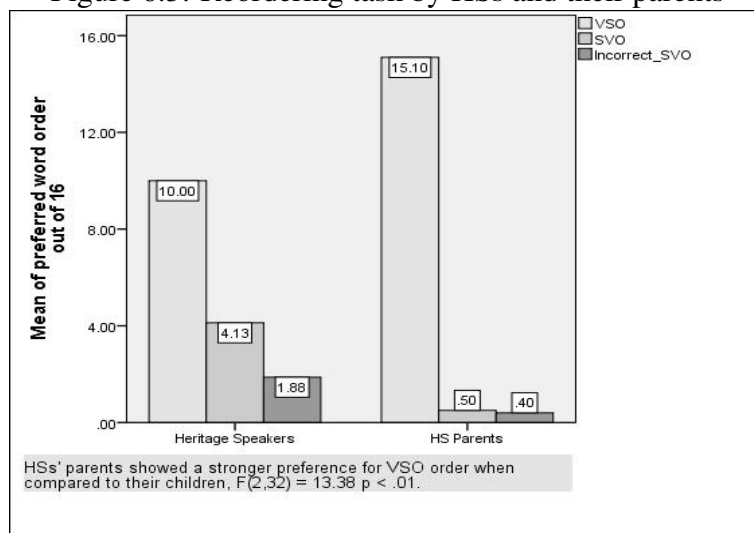
## 4 Results

Two different measures of analyses were conducted. In measure 1, to probe the preferred word order, the analysis was conducted on the two groups: HSs and the HSs' parents. In measure 2, the analysis checked if there were an effect of the dominant L2 on L1 syntactic processing of subject words in different word orders SVO/VSO. The RT spent processing subject words in each word order was measured. The analysis compares the results of this study with the results of NSs reported in the primary study in *Part I*.

### 4.1 Analysis of the sentence reordering task

A mixed-design ANOVA, used to investigate the preferred word order (Conditions: definite SVO, VSO and incorrect SVO) and the participating groups (HSs and their parents), revealed that there is a significant interaction between the word order and the groups,  $F(2,32) = 13.38$ ,  $p < .01$ . There is significant variability in the preference for each word order according to the group type. Results indicated that HSs' parents showed a significantly strong preference for VSO more than their children, HSs. By contrast, HSs showed a significant preference for SVO order when compared to their parents; see Figure 6.3 for an overview.

Figure 6.3: Reordering task by HSs and their parents



A subsequent pairwise comparison of the different word orders by each group was used to investigate the preferred word order. First, the comparison revealed a significant preference for VSO to SVO by HSs, mean difference = 5.87,  $p < .05$ . HSs' parents showed a strong preference for VSO over SVO, mean difference = 14.60,  $p < .01$ . In general, both groups preferred VSO to SVO. As far as incorrect SVO is concerned, HSs produced more incorrect structures than their parents; the GLM/univariate analysis revealed a nearly significant difference between the groups, mean difference = 1.47,  $p = .07$ .

A subsequent pairwise comparison of the same word order, specifically SVO order, between the HSs and their parents was administrated in order to find out if one group prefers the SVO order more than the VSO order. Interestingly, HSs significantly preferred SVO order more than their parents, mean difference = 3.62,  $p < .01$ . This difference warrants further investigation. That is, the purpose of including the parents in this task, the sentence reordering writing task, was to check if the preference for SVO order by HSs, if there were any, was a result of a native language input or by another factor, say, the dominant language effect. Based on the study's results, we can rule out the effect of the native language input. If there were an input effect, we would expect

HSs and their parents to show similar preferences for the same word order. However, the results showed that HSs' preference differed from their parents'. What follows from the difference in preference is that HSs seem to be affected by the grammar of the dominant language (L2).

## **4.2 Analysis of the online self-paced reading task**

The analysis of this task is two-fold: **(a)** an analysis of the interaction between the word order and the groups (HSs and NSs<sup>8</sup>); **(b)** a subsequent analysis of the three word orders (definite SVO, definite VSO and indefinite VSO) by HSs.

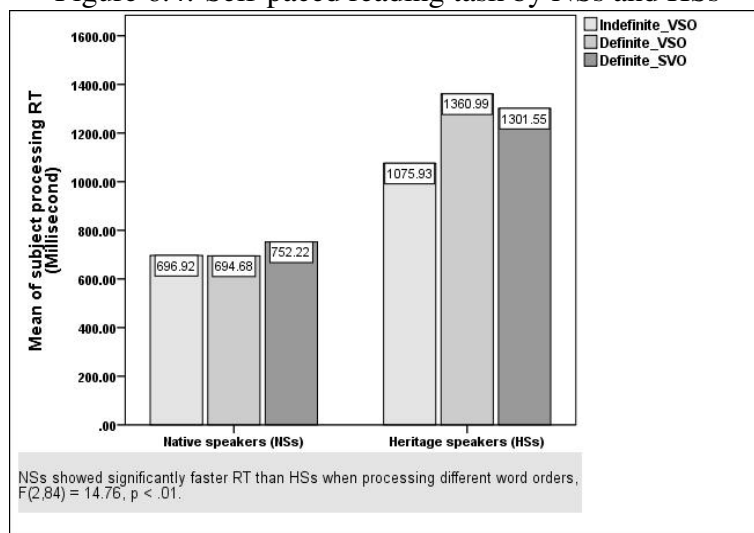
### **4.2.1 First analysis**

A two-way repeated measures ANOVA was used to investigate RT data of three different word orders (definite SVO, definite VSO and indefinite VSO) performed by NSs and HSs. The factors under investigation were: word order and the participating groups, NSs versus HSs. The repeated measures analysis of variance on these data produced a significant interaction between word order processing and the participating groups  $F(2,84) = 18.73, p < .01$ . NSs processed all word orders significantly faster than HSs; results are graphically represented in Figure 6.4. NSs' mean RTs ranged from 694.67 to 752.21 millisecond, whereas HSs' RTs ranged from 1075.93 to 1360.99 millisecond.

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<sup>8</sup>Notice that the HSs' results of the processing task are compared to the NSs' results presented in the primary study; see the discussion of NSs' results in *Part I*.

Figure 6.4: Self-paced reading task by NSs and HSs



Looking closely at Figure 6.4 and remembering what was found in *Part I*, it can be noticed that NSs processed subjects in VSO order faster than subjects in SVO order. HSs, by contrast, are inconsistent. In other words, they processed subjects in SVO faster than definite subjects in VSO but slower than indefinite subjects in VSO order. Overall slow processing shown by HSs was expected. Some factors that make them slower readers could be proficiency, writing system and literacy in Arabic. However, the crucial point was the trend they showed in processing. I will comment on the HSs' results in the discussion part. To sum up the first analysis, word order processing significantly interacted with the participating groups,  $F(2,84) = 18.73, p < .01$ .

#### 4.2.2 Second analysis

This subsection further investigated the word order processing by HSs. A one-way repeated measures ANOVA was conducted on the HSs data. The analysis showed a significant main effect of word order,  $F(2,14) = 7.56, p < .01$ . However, a subsequent pairwise comparison showed that HSs were inconsistent; see Figure 6.4 above.

The pairwise comparison revealed that, when comparing SVO with definite VSO, HSs

processed subjects in SVO faster than definite subjects in VSO. Nevertheless, the difference was not significant, mean difference of 59.44 ms.  $p = .39$ . When comparing SVO with indefinite VSO, HSs processed indefinite subjects in VSO order significantly faster than subjects in SVO, mean difference of 225.66 ms,  $p < .05$ . Finally, when comparing definite and indefinite subjects in VSO order, HSs processed indefinite subjects significantly faster than definite subjects, mean difference of 285.06 ms,  $p < .05$ .

## 5 Discussion and conclusions

The study found that there was a notable effect of the dominant language, English as an L2, on the heritage speakers' native language. HSs' performance in the two tasks administered in the study seemed to be affected by L2. Answering the study's first research question, *do heritage speakers of Arabic, whose dominant language is English, prefer VSO or SVO order when using their native language?* results showed that HSs had a significantly stronger preference for VSO to SVO order. This might indicate that the L2 has no effect on L1 since L2 word order, SVO, is not used in L1. However, evidence suggests that L2 word order affected HSs' L1 word order. First, when comparing HSs' preferred word order in the reordering task to parents' preferred word order, the study found that there was a significant difference between the two groups. HSs showed a significantly stronger preference for SVO order compared to their parents. Findings suggest an interesting followup question: *why did HSs show more preference for SVO order when compared to their parents' preference?* A plausible explanation to this significant difference is that there is a possible transfer effect from L2 to L1. Recall that English is an SVO language. Its rigid order seems to be reflected on the heritage language. This finding is important to the current study. That is, HSs' preference to SVO order might be attributed to the L2 effect; it may not be affected by L1 input since their parents significantly preferred SVO order much less than their

children. It was also found that HSs produced incorrect structures of SVO structures compared to their parents. In other words, HSs used indefinite nouns in preverbal subject positions, an attempt that is not acceptable by Arabic grammar. This violation of subject parameters in Arabic might be due to the effect of the dominant language in which indefinite subjects are acceptable in preverbal subject positions. These findings provide an answer to the second research question, *if a certain preference is found, is it affected by input received at home (parents' native language) or by the structure of the dominant L2 grammar?* Based on the two findings, it can be argued that HSs' performance might not be affected by their parents' input. Instead, they seem to be affected by their L2 grammar. A similar result has been reported by [Kaushanskaya et al. \(2011\)](#), who found that L2 knowledge can affect bilinguals' performance on administered vocabulary and reading tasks performed in L1.

Turning to the self-paced reading task's results, this task was administered to discover the RT required to process the syntactic subjects in three different word orders, namely, *definite SVO*, *definite VSO* and *indefinite VSO* performed by HSs. The study showed that HSs were inconsistent. In other words, they processed definite SVO subjects faster than definite VSO subjects. By contrast, HSs processed definite SVO subjects slower than indefinite VSO subjects. They were expected to process postverbal subjects with no significant difference since definite/indefinite postverbal subjects occupy the same syntactic position [Spec: VP]; however, this prediction was not supported. The inconsistency in the HSs' performance of the self-paced reading task might be attributed to the idea that they use one grammatical system to process two different types of grammar. In other words, HSs trying to process a structure, which they are not used to, resulted in a lengthened RT, which in turn slowed processing. Responding to the study's third research question, *when performing an online self-paced reading task, is there a significant difference in RT when processing subject words in SVO/VSO order?* The answer is that, there is a significant

difference when processing the subject words in the three positions despite the fact that their processing is not consistent.

In order to have a better understanding of the HSs' performance on the reading task, I used the NSs' results, presented in *Part I*, and compared them with the HSs' results. Data showed that NSs processed both SVO and VSO subjects much faster than HSs. NSs processed subjects in VSO order significantly faster than subjects in SVO order. HSs, by contrast, were inconsistent as explained above. HSs' slow processing was expected due to low proficiency in Arabic, lack of input and writing system. However, the striking fact is the pattern they showed. They were assumed to process the subjects that occupy the same syntactic position with no significant difference. However, they processed postverbal indefinite subjects faster than postverbal definite subjects. The difference in RTs shown by HSs' when performing the task might be due to the L2 interference. There is another piece of evidence that might support the assumption that L2 grammar affects L1 processing. HSs processed definite subject words in SVO order faster than definite subjects in VSO order. The faster processing of SVO subjects seems to follow from the idea that the SVO order is used by the two languages (the dominant and the heritage) which might result in the facilitation of SVO subject processing. If this interpretation is on the right track, the answer to the study's fourth question, *is HSs' L1 processing affected by L2 grammar?* is positive. It can be argued from the results that the slow processing shown by HSs when performing the self-paced reading task was affected by the dominant language.

To conclude, this study has important findings which contribute to the field of experimental syntax in general and for researches that study minority language speakers and heritage speakers. Findings revealed that HSs' native language might have been affected by L2 as a dominant language. The L2 effect on L1 found in this study conforms to the findings reported by previous studies ([Brien and Sabourin, 2012](#); [Cook, 2003](#); [Kaushanskaya et al., 2011](#); [Montrul, 2010b](#); [van](#)

Hell and Dijkstra, 2002). The fact that this study is a preliminary result based on a small number of HSs, this limitation of the study will be remedied in the near future where more HSs will be tested to determine if the findings remain unchanged.

## General conclusions

This chapter included two experimental studies which have investigated the preference and processing of SVO order versus VSO order by two different groups, NSs and HSs. The first study showed that NSs, when performing a sentence reordering writing task, significantly preferred VSO order to SVO order. Their performance of the task also showed that they did not use indefinite subjects in SVO order. As far as the self-paced reading task is concerned, NSs processed postverbal subjects faster than preverbal subjects. They showed no difference in processing time between definite and indefinite postverbal subjects. What follows from the study's results is that the preference for and the fast processing of VSO order might be attributed to the fact that VSO order is derived by fewer syntactic movements than SVO order. This supports that idea that the syntactic complexity could affect processing. The second study showed that HSs' native language (Arabic) seemed to be affected by their dominant language (English). Results of the writing task showed that HSs produced more SVO structures than their parents. They also produced incorrect SVO structures more than their parents. For the self-paced reading task, when compared to NSs, HSs showed a slower processing of different word orders. The slow processing might be attributed to the effect of their dominant language on the heritage language.

# Chapter 7

## Conclusions

The present thesis has discussed the syntactic structure and the distribution of DPs in SA and SUD. It focused on analysing the structure and distribution of DPs in the subject positions in SVO and VSO orders. I began the thesis by establishing the difference between subjecthood and topichood. I first provided an insightful analysis of the agreement system in Arabic. I have shown that the agreement system in Arabic is symmetric. In other words, full agreement and defective agreement can be used freely in any word order. There are no restrictions on the agreement distribution with regard to the type of word order. I have established the difference between preverbal subjects and topics. I argued that preverbal subjects and topics are different syntactic entities. I have shown that they occupy different syntactic positions (i.e, preverbal subjects occupy [Spec: TP] whereas topics occupy [Spec: TopicP]).

In chapter three, I argued that indefinite DPs cannot occupy preverbal subject positions unless they are licensed by an element. Building on the theory of syntactic visibility conditions (visibility of the specifier and the determiner) and the theory of Naked-noun Constraint, I discussed three licensing elements: adjectives, diminutives and CSs. I argued that indefinite DPs can appear in preverbal subject positions if two conditions are satisfied: (1) the presence of a licenser and (2) the presence of nunation. The licenser can be: an adjective, a diminutive or a CS structure. One of these elements satisfied the visibility requirement of the specifier and nunation satisfied the visibility requirement of the determiner. I have shown that the syntactic derivation of the licensed indefinite DP depends on the complexity of the DP. In other words, in the event of licensing by adjectives, the correct linear word order is achieved by the syntactic N-to-D movement which takes place in the syntax proper. This movement sufficed to derive the simple indefinite DPs.

However, the syntax proper failed to derive the correct linear order of complex DPs such as CSs. As a result, there was a mismatch between the syntactic spell out and the phonological form.

In chapter four, I proposed a novel syntactic/PF solution that accounts for the mismatches between the spell out of the syntax proper and the phonological form. I argued that the derivation of CSs is a shared process between the syntax proper and PF. I showed how the movement operations after-syntax in the sense of DM accounted for the mismatch between the syntactic spell out and PF. Two PF movement operations were used in the current analysis of diminutives and CSs, *Lowering* and *Local-dislocation*. I have shown how the *Lowering* movement has deployed nunation, or *?al* in the case of definite CS, from the  $D^0$  position to the head of the D complement. The deployment resulted in the correct phonological order of the indefinite diminutivized DP and the indefinite CS DP. The PF *Local-dislocation* movement which follows the *Lowering* movement has been used to complete the derivation of the definite CS. It shifts *?al* to the left edge of the rightmost NP of the CS.

In chapter five, I have investigated the linguistic status of nunation. I argued that nunation is an indefinite marker that performs half of determination whereas a lexical item satisfies the other half of determination. I provided sound arguments that showed that nunation cannot be a linker or a non-indefinite article. I have also argued that when nunation appears with proper names in SA, it might underspecify their definiteness. Further, I have shown that when proper names are made more specific by adding the family name, for example, they lose nunation. I also showed that nunation cannot appear with proper names that are employed in vocative structures.

Chapter six included two experimental studies that investigated the preference and processing of different word orders (SVO/VSO) by native speakers from Saudi Arabia and heritage speakers of Arabic (Canadian citizens) whose dominant language is English. The first study showed that NSs, when performing a sentence reordering writing task, significantly preferred VSO order to

SVO order. Their performance of the task also showed that they did not use indefinite subjects in SVO order. When performing the self-paced reading task, NSs processed postverbal subjects faster than preverbal subjects. They showed no difference in processing time between definite and indefinite postverbal subjects. The study's results supported the idea that the preference for and the fast processing of VSO order might be attributed to the fact that VSO order is easier to derive than SVO order. The second study showed that HSs' native language (Arabic) seemed to be affected by their dominant language (English). When comparing HSs' performance of the writing task to their parents' performance, results showed that HSs produced more SVO structures than their parents. They also produced incorrect SVO structures more than their parents. When comparing HSs' performance of the self-paced reading task to NSs', results showed that HSs were much slower in processing different word orders. The slow processing might be attributed to the effect of their dominant language (English) on their native language (Arabic).

There remain some issues that need further investigation. I have proposed that nunation is an indefinite marker in Arabic. This is clear when it appears with common nouns. I have also proposed that nunation seems to underspecify the definiteness of proper names. It will be appealing if a similar phenomenon is attested and investigated in other languages. I would like to point out another issue related to the experimental studies. I have investigated processing of the subject words in SVO/VSO order using the behavioural software (Presentation) which calculates the RTs. Although this technique has proven to be effective in measuring RTs, it will be interesting if more advanced methods such as an eye-tracker or an event-related potential (ERP) are used to confirm the findings reported in the experimental part of this thesis.

Appendix (A): Sentence reordering writing task (AA)

عزيزي المشارك(ة): التمرين التالي يحتوي على كلمات غير مرتبة. الرجاء إعادة ترتيبها لكي تصبح جملاً صحيحة.

You are, kindly, requested to rearrange the following words to make grammatical sentences.

NO:

—

NI:

—

١- الفصل، المدرس، دخل،.

.....

٢- كتب، متى، الطالب، الواجب،؟

.....

٣- من، المسجد، رجل، خرج،.

.....

٤- على، الطبيب، كشف، المريض،.

.....

٥- تسكن، المرأة، أين،؟

.....

٦- الباب، طالبة، فتحت،.

.....

٧- الفتاة، الآن، التلفاز، تشاهد،.

.....

٨- المحقق، على المجرم، كيف، تعرّف،؟

.....

٩- ولد، من، اقترب، السيارة،.

.....

١٠- بالعدل، القاضي، يحكم،.

.....

١١- سافر، كيف، محمد،؟

.....

١٢- صندوق، من السيارة، سقط، .

.....

١٣- تفلح، بعد عشر دقائق، الطائرة،.

.....

١٤- مكّة، كم، عن المدينة، تبعد، ؟

.....

١٥- لاعب، من الفريق، انسحب،.

.....

١٦- تأخر، عن الصلاة، الإمام، .

.....

١٧- عاش، كم سنة، خالد، في كندا؟

.....

١٨- مهندس، الخلل، أصلح، .

.....

١٩- الزوجة، زوجها، تطيع، .

.....

٢٠- الحادث، أين، وقع، ؟

.....

٢١- ساعد، الطفل، متطوع،

.....

٢٢- الماء، المريض، شرب

.....

٢٣- سافر، لماذا، أبوك، ؟

.....

٢٤- شيخ، كلمة، ألقى

.....

شكر الله لكم استجابتكم للمشاركة في هذا البحث

Appendix (A): Sentence reordering writing task (AB)

عزيزي المشارك(ة): التمرين التالي يحتوي على كلمات غير مرتبة. الرجاء إعادة ترتيبها لكي تصبح جملاً صحيحة.

You are, kindly, requested to rearrange the following words to make grammatical sentences.

NO:

—

NI:

—

١- المحققُ، على المجرم، كيف، تعرّف،؟

.....

٢- ولّد، من، يقترب، السيارة،.

.....

٣- بالعدل، القاضي، يحكم،.

.....

٤- سافر، كيف، محمد،؟

.....

٥- صندوقٌ، من السيارة، سقط، .

.....

٦- تقلع، بعد عشر دقائق، الطائرة،.

.....

٧- مكةُ، كم، عن المدينة، تبعد،؟

.....

٨- لاعبٌ، من الفريق، انسحب،.

.....

٩- تأخر، عن الصلاة، الإمام، .

.....

١٠- الفصل، المدرس، دخل،.

.....

١١- كتب، متى، الطالب، الواجب،؟

.....

١٢- من، المسجد، رجلٌ، خرج.

.....

١٣- على، الطبيب، كشف، المريض.

.....

١٤- تسكن، المرأة، أين،؟

.....

١٥- الباب، طالبةٌ، فتحت،.

.....

١٦- الفتاة، الآن، التلفاز، تشاهد،.

.....

١٧- عاش، كم سنة، خالدٌ، في كندا؟

.....

١٨- مهندسٌ، الخلل، أصلح، .

.....

١٩- الزوجة، زوجها، تطيع، .

.....

٢٠- الحادث، أين، وقع، ؟

.....

٢١- ساعد، الطفل، متطوعٌ، .

.....

٢٢- الماء، المريض، شرب

.....

٢٣- سافر، لماذا، أبوك، ؟

.....

٢٤- شيخٌ، كلمة، ألقى

.....

شكر الله لكم استجابتكم للمشاركة في هذا البحث

Appendix (A): Sentence reordering writing task (AC)

عزيزي المشارك(ة): التمرين التالي يحتوي على كلمات غير مرتبة. الرجاء إعادة ترتيبها لكي تصبح جملاً صحيحة.

You are, kindly, requested to rearrange the following words to make grammatical sentences.

NO:

—

NI:

—

١- مهندس، الخلل، أصلح، .

.....

٢- الزوجة، زوجها، تطيع، .

.....

٣- الحادث، أين، وقع، ؟

.....

٤- ساعد، الطفل، متطوع، .

.....

٥- الماء، المريض، شرب.

.....

٦- سافر، لماذا، أبوك، ؟

.....

٧- شيخ، كلمة، ألقى.

.....

٨- عاش، كم سنة، خالد، في كندا؟

.....

٩- ولد، من، اقترب، السيارة، .

.....

١٠- بالعدل، القاضي، يحكم، .

.....

١١- سافر، كيف، محمد، ؟

.....

١٢- صندوق، من السيارة، سقط، .

.....

١٣- تفلح، بعد عشر دقائق، الطائرة،.

.....

١٤- مكة، كم، عن المدينة، تبعد، ؟

.....

١٥- لاعب، من الفريق، انسحب،.

.....

١٦- تأخر، عن الصلاة، الإمام، .

.....

١٧- الفصل، المدرس، دخل،.

.....

١٨- كتب، متى، الطالب، الواجب،؟

.....

١٩- من، المسجد، رجل، خرج،.

.....

٢٠- على، الطبيب، كشف، المريض،.

.....

٢١- تسكن، المرأة، أين،؟

.....

٢٢- الباب، طالبة، فتحت،.

.....

٢٣- الفتاة، الآن، التلغاز، تشاهد،.

.....

٢٤- المحقق، على المجرم، كيف، تعرّف،؟

.....

شكر الله لكم استجابتكم للمشاركة في هذا البحث

### Appendix (B): Self-paced reading task (Sample)

During the experiment, only one word appears on the screen. The participant advances to the next word by pressing the Space-Bar key.

#####

1

قطع

المزارع

الشجرة

## Appendix (C): Language background questionnaire

*Dear participant*

You are, kindly, invited to respond to all items listed in this questionnaire. Please read them carefully and respond accurately. You may not respond to the item(s) that is/are optional unless you want to. Your responses and cooperation is highly valued and appreciated.

Please DO NOT use the below text-box. It's to be filled by the researcher. Proceed to section (1)

Participant information
Research Code: _____ Date: _____ Participant No.: _____

### *1. Participant's biography*

Date of birth: \_\_\_\_\_ (optional)      Gender:  Male  Female

Place of Birth:  in Canada       outside Canada (Please specify): \_\_\_\_\_

I was not born in Canada; I entered Canada when I was:

1-3 years old    4-6 years old    7-9 years old    other (Please specify): \_\_\_\_\_

Current educational status:

undergraduate student

graduate student

### *2. Native language information*

What language(s) were you exposed to from 3 years old or younger?

Arabic    English    French

If you choose a language from above, what is your current proficiency in each?

Arabic:

Level of oral comprehension:  low    intermediate    Advanced    native

Level of oral production:       low    intermediate    Advanced    native

Level of written proficiency    low    intermediate    Advanced    native

Level of reading proficiency    low    intermediate    Advanced    native

English:

Level of oral comprehension:  low  intermediate  Advanced  native

Level of oral production:  low  intermediate  Advanced  native

Level of written proficiency  low  intermediate  Advanced  native

Level of reading proficiency  low  intermediate  Advanced  native

French:

Level of oral comprehension:  low  intermediate  Advanced  native

Level of oral production:  low  intermediate  Advanced  native

Level of written proficiency  low  intermediate  Advanced  native

Level of reading proficiency  low  intermediate  Advanced  native

### *3. Language used at home*

Do you use Arabic at home? If yes, how often?

always  usually  sometimes  rarely

When I communicate with my parent at home, I use

Arabic  English  French

When I communicate with my siblings at home, I use

Arabic  English  French

When I communicate with my friends in the neighbourhood, I use

Arabic  English  French

### *4. Formal education information*

I received my elementary education at:

Public elementary schools

Public elementary schools (French immersion)

Ottawa Islamic School

AlAbraar School

I received my secondary education at:

Public high schools (English)

Public high school (French immersion)

Ottawa Islamic School

5. Parent's information

What is your father's native language?

Arabic  English  French  other (Please specify): \_\_\_\_\_

What languages does he speak?

Arabic  English  French  other (Please specify): \_\_\_\_\_

If he speaks a language(s), how would you rate his proficiency?

Language (1)  low  intermediate  Advanced  native-like

Language (2)  low  intermediate  Advanced  native-like

How old was he when he emigrated from his original country to Canada?

1-10 years  11-20 years  21-30 years  31-40 years  41-... years

What is your mother's native language?

Arabic  English  French  other (Please specify): \_\_\_\_\_

What languages does she speak?

Arabic  English  French  other (Please specify): \_\_\_\_\_

If she speaks a language(s), how would you rate her proficiency?

Language (1)  low  intermediate  Advanced  native-like

Language (2)  low  intermediate  Advanced  native-like

How old was she when she emigrated from her original country to Canada?

1-10 years  11-20 years  21-30 years  31-40 years  41-... years

Thank you very much for your responses!

Saleh AlQahtani.

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