

# Arabic Clauses and Subject Positions: Evidence for a Higher Ground

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## Abstract

Arabic, a VSO language, displays an agreement paradigm where subjects only trigger full morphological agreement on the verb when they appear to the left of the verb in a SVO word order variant. This thesis argues that the traditional view of the structure of the Arabic clause is insufficient insofar as it fails to capture facts which argue for subject raising to [Spec, T<sup>0</sup>]. The analysis advanced here utilizes the expanded left periphery of Rizzi (1997) (specifically FiniteP) and correctly captures generalizations in embedded clauses in which Arabic behaves like V2 languages. Using this structure, an analysis of the agreement asymmetry in Arabic is given, building upon the expletive insertion account of Mohammad (1999), augmented with notion of **Agree** as defined in Chomsky (2000). The free variation in word order between VSO and SVO in root clauses is accounted for using a concepts from Pesetsky and Torrego (2001), and the agreement asymmetry in Arabic is shown to be a consequence of the distribution of subject-agreement  $\phi$ -features over two functional projections: T<sup>0</sup> for person and gender, and Fin<sup>0</sup> for number.

# List of Abbreviations

*Abbreviation*    *Meaning*

1/2/3	Verbal person agreement
M(ASC).	Masculine gender
F(EM).	Feminine gender
SG.	Singular number
PL.	Plural number
PAST	Past tense
EXP	Expletive
COND	Conditional marker
FIN	Finite marker
NEG	Negation marker
SA/MSA	Modern Standard Arabic
RPA	Rural Palestinian Arabic
MA	Moroccan Arabic
GB	Government and Binding (Chomsky, 1981)
EPP	Extended Projection Principle
EH	Expletive Hypothesis (Mohammad (1999) and the present work)

# Chapter 1

## Introduction

### 1.1 The Syntax of Asymmetric Agreement

Within the Minimalist Framework for linguistic theory as introduced and developed in Chomsky (2000, 2001b,a, 1995), agreement and word order in natural language is thought to arise from the mechanism of *feature checking*, where features that come preselected on items enumerated from the lexicon form relationships with one another and drive movement within phrase markers. Certain features are said to be *uninterpretable* - that is, they must be deleted in order for the derivation to converge at either PF, LF, or both. Other features are said to be *interpretable* insofar as their existence can be understood - they are legitimate objects at one or another interface. As such, they do not need to be checked or deleted before the end of syntactic processing on a particular phrase marker.

What is more, the deletion of uninterpretable features must sometimes involve a local checking relation (the probe has an EPP feature). Other times, however, the derivation may not require such locality. It is also presumed in the framework of Distributed Morphology (Halle and Marantz, 1993) that it is these same syntactic features which trigger the presence or absence of particular overt morphology on terminal syntactic elements, possibly after processing or rearranging of these features in a separate (postsyntactic) morphological component. Thus, whether a verb displays

overt morphological agreement with a subject in its specifier depends upon the interaction between the features on the head bearing the verbal element and the morphological rules for the language in question. Typically, this same notion was captured in earlier work by positing an Agr(reement) head for positions in the syntax which displayed overt agreement morphology (Chomsky and Lasnik, 1993). This head also provided a landing site for A-movement and therefore allowed for capturing certain facts from languages, such as those which appeared to have evidence for multiple subject positions. However, in recent work this projection has been abandoned following the introduction of other mechanisms for dealing with agreement.

More concretely, recent work on the relationship between overt morphological agreement and the syntax (Iatridou, 1990; Chomsky, 1995) has criticized the idea that Agr<sup>0</sup> is a syntactic item *sui generis*. Instead, Chomsky (1995) has argued that only items which contribute directly to the semantics should be allowed the status of functional projections. Instead, the agreement and morphosyntactic exponence assumed to result from Agr<sup>0</sup>'s presence in the derivation was argued to result from the presence or absence of (un)interpretable features. The consequence of this innovation was the death of the idea that an element could bear a particular morphosyntactic form based solely upon its position in the government domain of the appropriate Agr<sup>0</sup> head. It also means that there are fewer A-positions in the syntax for movement of arguments out of the verbal (i.e., v/VP) layer.

Additionally, later work on agreement in minimalist syntax has argued for the separation of **Move** from **Agree** in the narrow computation of syntax (c.f. Chomsky (2000), *et seq.*). This entails that the Specifier-Head relationship established between a syntactic head H with an EPP feature and an active goal DP, K, by **Agree**(H, K) no longer has the theoretical primacy typically assigned to it under the previous Government and Binding (GB) approaches. That is, it is no longer considered explanatorily adequate to claim that a particular result obtains *because* a K is in [Spec, H]. Instead, it is assumed that the operation **Agree** may apply freely in the syntax, and any resultant movement is due to the assignment of an Extended Projection Principle (EPP) feature to the agreeing head (Chomsky, 2001a). One question raised immediately but not answered in this

work is how the assignment of the EPP feature relates to the (presumably triggering) operation of **Agree**.

This paper deals with a particular question raised by the interaction of these different ideas. Pretheoretically, data from Rural Palestinian Arabic and dialectal relatives raise the question of how to deal with VSO languages in a framework that lacks the  $\text{Agr}^0$  head as a second landing site for subject movement.<sup>1</sup> Moreover, these data appear particularly recalcitrant to the notion that the second-merged (specifier) position is not syntactically distinct from the first-merged (complement) position. I will argue from these facts for an analysis that preserves the major assumptions outlined above using Rizzi (1997)'s exploded left periphery, specifically the  $\text{Fin}(\text{iteness})\text{P}$  projection. I will then show that the agreement facts in Arabic can be accounted for by assuming that the  $\Phi$ -features of Arabic which control subject-verb agreement are distributed across two different heads, namely  $\text{T}(\text{ense})$  and  $\text{Fin}(\text{iteness})$ . With this assumption in mind, the agreement asymmetry in Arabic boils down to the presence or absence of a phonologically null expletive, as in Mohammad (1999).

### 1.1.1 Organization

This thesis is organized into six chapters. Section 2 of this chapter considers the data from Rural Palestinian Arabic and shows how it is problematic for standard accounts of phrase structure. The rest of the organization proceeds as follows: Chapter 2 examines the previous attempts within generative frameworks to account for the data in Arabic and shows why they are incomplete or unsatisfactory. Chapter 3 introduces more of the previous literature in the context of a discussion on the theoretical status of the subject position in VSO languages more broadly, as well as introduces the basics of the analysis presented here. Chapter 4 returns to Arabic, presenting empirical arguments for the positing of movement to a high functional projection for the verb, as well as the

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<sup>1</sup>This is presuming, as will be made clear below, that the Emonds (1981); Sproat (1985) hypothesis that VSO clausal order is derived by verb movement from an underlying SVO order is correct. This raises interesting questions, especially in light of the view advanced in McCloskey (1997) that VSO languages as a class are epiphenomenal. This work will be concerned only with VSO languages derived by verb-movement, assuming that McCloskey is correct. This notably excludes languages like Chamorro, which others (Chung, 1998) have argued to be formed by a different syntactic process.

inadequacy of current accounts of Arabic clausal architecture. Specifically, I will claim that the subject must vacate the  $\nu$ P before Spell-Out, moving to [Spec,  $T^0$ ], and that Arabic displays V2-like effects in root clauses. Next, Chapter 5 presents an analysis of the Arabic agreement asymmetries which updates Mohammad (1999) in light of a **Probe-Goal** theory of Agree. Finally, Chapter 6 presents sample derivations of sentences in Arabic as well as concludes the work.

## 1.2 Theoretical Problems and Data

### 1.2.1 $\phi$ -Features and Agreement

The set of features [Person], [Number], and [Gender] are assumed to comprise the set of  $\phi$ -features which are used as the basis for explanations of agreement relations between heads and agreeing DP's. In Chomsky's Minimalist Syntax (Chomsky, 1995, 2000, 2001b), these features are said to be uninterpretable on certain functional projections, and must delete before the interface to PF for the derivation to converge. In Chomsky (2000), these features on a head H are assumed to constitute a **Probe** which must search in the domain of H to find an appropriately matching **Goal**, where "domain" can be roughly equated with the c-command domain of H. When this match is made, a relation operation **Agree** is said to apply between H and the DP, marking the uninterpretable features on H for deletion, thereby allowing the derivation to converge at PF.

Many questions have been raised as to whether or not matching must be complete or partial in order to apply, as well as where in the derivation deletion of uninterpretable features takes place (c.f., Pesetsky and Torrego (2001); Ouhalla (2005), *inter alia*). In response to this questioning of the validity of the **Probe-Goal** relationship, Chomsky states: "...[W]e assume that only a probe with a full complement of  $\phi$ -features is capable of deleting the feature that activates the matched goal" (Chomsky, 2000). This idea is used to keep embedded subjects from checking their case features against a  $T_{def}^0$  in embedded clauses, and therefore keeping them from raising to [Spec,  $T_{matrix}^0$ ] in raising-verb subordinate clauses.

On a separate note, the notion of an Extended Projection Principle (EPP) has been used since

the principles and parameters theory to explain the need for sentences to have an overt left-edge subject in languages such as English. This feature, as it is typically instantiated, necessitates the raising of a subject in a  $vP$  - internal subject hypothesis, (assumed here following Kitagawa (1986); Fukui and Speas (1986); Kuroda (1988); Diesing (1990)). This raising is said to take place after the relation **Agree** is established between the head  $T^0$  and the subject in [Spec,  $v^0$ ]. EPP then applies, raising the subject to [Spec,  $T^0$ ].

The direct theoretical issue raised by this notion of EPP is whether or not the EPP is a feature *sui generis*, [EPP], as was typically assumed under earlier standard theory, or plausibly reduced to some other categorial selectional feature, such as [ $uD$ ]. The answer to this question hinges on the answer to another question, which asks what kinds of objects the EPP is intended to force of to [Spec,  $T^0$ ]. Classical GB assumed, following Chomsky (1981) that the EPP forced movement of a subject - in most cases headed by a determiner - to the specifier of the Tense projection. In this sense, it was not a feature, but rather a condition on the well-formedness of syntactic representations. In later work (Chomsky, 1995), this was formalized as an uninterpretable D feature ( $uD$ ) on  $T^0$ . Chomsky (2000) notes that this is not necessary, stating that an EPP feature may be assigned to a head H after it has entered into an **Agree** relationship with a matching goal DP. With this move, the definition of the EPP changed to make it responsible for movement of anything anywhere.<sup>2</sup>

This claim and its assumptions then lead directly to the notion expressed in minimalist work that the relationship Specifier-to-Head should not in any way be “special.” Since the domain of a **Probe** is assumed to be its c-command domain, the only substantive theoretical difference between a DP located in the c-command domain of a head and the specifier of that head is whether or not EPP has applied to move the DP to [Spec, H]. Since **Move** and **Agree** are assumed to be separate operations, as was stated earlier, the application of **Agree**(H, K) *does not* imply the checking of

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<sup>2</sup>One problem with this that is never discussed is how the notion of “assigning” an EPP, even to a Phase, can get around the minimalist assumption that no *new* features or syntactic objects may enter into a derivation after the enumeration from the lexicon. One could sidestep this problem by noting that items could receive their featural values (including the EPP) as they are enumerated from the lexicon. The Arabic data shown in this paper pose a problem for this recourse, however, since the only way to capture the optionality of subject movement to the left edge of a clause is by positing that the same functional projection can be valued both with and without an EPP feature. This is the route pursued in this work, though no attempt is made to overcome this problem.

[EPP] and the application of **Move**(K, Spec-H).

It should be clear from the preceding discussion that, were it to be demonstrated that a language had phenomena which appeared to rely on the notion of a specifier position as distinct from a complement position, this would pose a problem. Unfortunately for the standard theory, there are some possible counterexamples which seem to assert the primacy of Spec-Head relations. Specifically, there are languages in which the major constituent order varies freely from the base/unmarked VSO to derived/marked SVO, with a major shift in agreement patterns. In all these languages, the SVO word-order has more overt agreement than the VSO clause, which typically agrees only with a subset of agreement possibilities in the language. This is summarized below:<sup>3</sup>

**(1.1) Primacy of Spec-Head Agreement:** Let H be the head carrying  $\phi$ -features in a phrase, and K be a DP in the c-command domain of H. Then, if H agrees with a K for a feature F when H c-commands K, H also agrees for F with K when K is in [Spec, H].

This is a problem for **Agree** as expounded in Chomsky (2000), since there is no story as to why, in these cases, languages should seem to rely on the necessary assignment of an EPP feature to the head which hosts the relevant **Probe**. The next section will provide an overview of the data involved in this asymmetry as represented in one particular dialect of Arabic - Rural Palestinian.

## 1.2.2 Asymmetric Agreement Data

This section is an exposition of the data which comprises these asymmetric agreement processes in Arabic, specifically Rural Palestinian Arabic (RPA).<sup>4</sup> RPA is spoken in the rural areas in Northern Palestine surrounding the town of Jenin. This data is also shown to be problematic from the point of view of the standard theory of agreement.

<sup>3</sup>This generalization is adapted from Samek-Lodovici (1996).

<sup>4</sup>The data here comes from three sources: Benmamoun (2000); Samek-Lodovici (1996) and Mohammad (1999). Verification of the data and additional information is from Munther Younes (p.c.).

### Rural Palestinian Arabic (RPA)

Modern Standard Arabic and Modern Spoken Arabic differ with respect to the agreement asymmetries presented in this section (Aoun and Benmamoun, 1999; Benmamoun, 2000). Most notably, some modern spoken dialects do not exhibit the asymmetry at all, whereas MSA and the remaining spoken dialects do. Since this paper is only concerned with agreement asymmetries as they pertain to the narrow syntax, only RPA is considered here, though the analysis is extensible to spoken dialects which do not exhibit the asymmetry (see §5.3.1 for more on this).

In RPA, when the verb precedes the subject (a VSO clause), morphological number agreement on the verb is ungrammatical. This is evidenced below, and I will refer to this as partial or weak agreement:<sup>5</sup>

- (1.2) (a) *d<sup>f</sup>arab-at*                      *ʔal-bana:t zaid*  
 Hit-PAST-3.FEM.SG    the-girls    Zayd  
 “The girls hit Zayd”
- (b) \**d<sup>f</sup>arab-na*                      *ʔal-bana:t zaid*  
 Hit-PAST-3.FEM.PL    the-girls    Zayd  
 “The girls hit Zayd”

Benmamoun (2000) notes that there is no question for (1.2) that the subjects are syntactically plural. When the verb is preceded by the subject, however, full morphological agreement on the verb is mandatory. I call examples of this process in SVO clauses full or strong agreement:

- (1.3) (a) *l<sub>i</sub>-bana:t*    *d<sup>f</sup>arb-na*                      *l<sub>i</sub>-ʔavla:d*  
 The-girls    hit-PAST-3.FEM.PL    the-boys  
 “The girls hit the boys”
- (b) \**l<sub>i</sub>-bana:t*    *d<sup>f</sup>arb-at*                      *l<sub>i</sub>-ʔavla:d*  
 The-girls    hit-PAST-3.FEM.SG    the-boys  
 “The girls hit the boys”

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<sup>5</sup>Structural case is left unglossed in the examples since RPA does not mark case morphologically. Modern Standard Arabic does, however, and when reference to data in Modern Standard Arabic is given, it is safe to assume the case facts do not change the analysis, unless specifically noted.

Main verbs in Arabic can coexist with a number of auxiliaries. In these clauses, the auxiliary verb appears first, followed by the subject, and then the main verb. In these AuxSVO structures, predictably, the auxiliaries agree partially with the subject, and the main verbs agree fully with the subject:

- (1.4) (a) *ka:nat*                      *t<sup>f</sup>-t<sup>f</sup>a:liba:t*                      *ya-ʕkul-na*  
 be.PAST.3.FEM.SG    the-students.FEM    3-eat-FEM.PL  
 “The students were eating.”
- (b)                      *t<sup>f</sup>-t<sup>f</sup>a:liba:t*                      *kun-na*                      *ya-ʕkul-na*  
 the-students.FEM    be.PAST.3.FEM.PL    3-eat-FEM.PL  
 “The students were eating.”
- (c)                      *\*kun-na*                      *t<sup>f</sup>-t<sup>f</sup>a:liba:t*                      *ya-drus-na*  
 be.PAST.3.FEM.PL    the-students.FEM    3-eat-FEM.PL  
 “The students were studying.”
- (d) *\*t<sup>f</sup>-t<sup>f</sup>a:liba:t*                      *ka:nat*                      *ya-drus-na*  
 the-students.FEM    be.PAST.3.FEM.SG    3-eat-FEM.PL  
 “The students were eating.”

Finally, pronominal elements which are the subject of VSO clauses trigger full agreement on the verb:<sup>6</sup>

- (1.5) (a) *ʒa:ʔ-u:*                      *hum la: ʕixwatu-hum*  
 come.PAST-3.MASC.PL    they not brothers-their  
 “They came, not their brothers.”
- (b) *\*ʒa:ʔ*                      *hum la: ʕixwatu-hum*  
 come.PAST.3.MASC.SG    they not brothers-their  
 “They came, not their brothers.”

Fassi Fehri (1988) points out correctly that there is evidence that postverbal pronominals in (1.5) are not the true subject,<sup>7</sup> but instead an focused version of the “true” subject, a null pronom-

<sup>6</sup>This data is from Fassi Fehri (1988).

<sup>7</sup>It is worth pointing out that these focused elements are in fact still subjects, just not subjects in the traditional sense of the term. For more information on this, see Diesing and Jelinek (1995).

inal element.<sup>8</sup> Since I find Fassi-Fehri's arguments convincing, I will not pursue the topic of pronominal subjects here, but use this data to draw the following generalization about Arabic morphological number agreement:<sup>9</sup>

**(1.6) RP Arabic Number Suffix Distribution:** The number suffix is absent in RPA whenever the subject follows the verb (is in its complement).

### Other Languages

It should be noted that the VSO/SVO distinction with consequences for agreement as outlined in §1.2.2 is not confined to Arabic. Samek-Lodovici (1996) argues that the Arabic data is simply an instantiation of a larger generalization whereby no language displays *more* agreement between a head and a DP in its complement than it does between a head and a DP in its specifier. Kramer (2006) also argues for a similar asymmetry in Middle Egyptian. However, since this work is limited in scope, I focus only on the Arabic data. There is reason for this narrowness, at least superficially. For the Egyptian data presented in Kramer (2006), it is not clear that a parallel can be drawn, given that the SVO word order is only available in stative predicates. As for the other languages mentioned in Samek-Lodovici (1996), recent work (Belletti and Leonini, 2004; Lozano, 2006) has argued that this word-order variation might be overdetermined by unaccusativity of the predicate. Due to the presence of these confounding factors, I leave this matter open for future research.

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<sup>8</sup>While I use this analysis here, I am not wholly convinced it is the best route. A more interesting, and possibly more Minimalist assumption would be something along the lines of Ouhalla (2005), who claims that there is no theoretical significance for the major category features [N], [V], etc. Since this issue is tangential to the work presented here, I follow Fassi Fehri (1988) for clarity and simplicity. Combined with this analysis, it may be the case that no formal features exist in the syntax beyond agreement. Another route would be that taken in Bahloul and Harbert (1992); Harbert and Bahloul (2002), which holds that a Rouveret (1991)-style analysis is correct in claiming that for pronouns, the Num<sup>0</sup> head must incorporate to a higher projection, in this case, checking the *u*Num of the verb. Either of these alternatives, or the one adopted in the text from Fassi Fehri (1988) is amenable to this analysis. Since the matter is not of central importance, I leave the question of pronouns open.

<sup>9</sup>Harbert and Bahloul (2002) make the claim that this is an incorrect analysis because it misses cross-linguistic generalizations to languages such as Standard Arabic and Irish. While leaving the Irish question to future research, the Standard Arabic problem seems illusory upon closer inspection. The reason for this that Standard Arabic (SA) is not a language *sui generis* - most speakers grow up using a dialect which is only tangentially related to SA, both in terms of vocabulary items and syntactic structure. To take as an example of the former, SA fully inflects nouns for three cases: nominative, accusative, and genitive. RPA, on the other hand, inflects its nouns for no cases overtly. For more discussion of the diglossic situation in the Arabic-speaking world, see Holes (2004). For now, I set this question aside.

# Chapter 2

## Previous Analyses

This chapter provides an overview of the major previous analyses which I reject for use in explaining the data from Chapter 1. Each of these analyses attempts to deal with the asymmetric agreement problem in different ways, and many of them are successful within the framework they assume. Since I assume a minimalist approach, this section is meant as an overview of these works, and is not a comprehensive review, nor a sustained critique; in many cases, I reject an analysis on pretheoretical grounds. For a more thorough literature review, see Aoun et al. (1994); Harbert and Bahloul (2002).

### 2.1 Pronominal Incorporation

A widely used analysis in the literature on Arabic partial agreement is to treat either the partial or the full agreement as incorporation of a null pronominal element (Mohammad (1999); Fassi Fehri (1993), *inter alia*). Mohammad (1999) argues that a null-PF pronoun exists in the [Spec, TP] position in Arabic VSO clauses and is responsible for the default third-person masculine singular agreement in expletive clauses, as well as the default singular agreement in regular VSO clauses. Fassi Fehri (1993) claims the exact opposite in saying that there is a null pronominal in the lower projections in SVO clauses where the subject has been left-dislocated (LD). Mohammad (1999) argues convincingly against a LD account in his thesis, and Aoun et al. (1994) (see §2.4).

The driving idea behind the Mohammad (1999) analysis is that an incorporated null pronoun with the appropriate features is enumerated from the lexicon and generated in the canonical subject position,<sup>1</sup> which is then manifested on the verb morphologically as agreement markers. This pronoun then triggers agreement for number with the highest verbal projection (either an auxiliary or lexical verb). The other  $\Phi$ -features are then checked at LF following van Gelderen Elly (1996) Harbert and Bahloul (2002) point out that this does not account for the facts shown in double-subject constructions, where the verb agrees only with the first nominal instead of the entire subject DP.<sup>2</sup> This problem disappears, however, if a clausal conjunction analysis of coordinate subjects as in Aoun et al. (1994) (c.f. §2.4) is assumed. As such, this problem is not addressed here.

However, this concern is more symptomatic of a general problem with incorporation/pronominal accounts, which is shown by the data below:

- (2.1) (a) *dʕarab-at*                      *?al-bana:t zaid*  
 Hit-PAST-3.FEM.SG the-girls Zayd  
 “The girls hit Zayd”
- (b) *yi-dʕrab*                      *zaid ?al-bana:t*  
 3.MASC.SG-Hit.PAST Zayd the-girls  
 “The Zayd hit the girls”

As Benmamoun (2000) points out, in order for Mohammad (1999) to account for the data in (2.1), which displays agreement with different genders, he would have to posit two different *pro* elements. The first would agree with the standard *pro* supposed to be the expletive *pro* in Standard and dialectal Arabic. The other, however, would bear a feminine gender feature. Since Mohammad (1999) rests most of his argument on the idea that the expletive elements in Arabic are the same uniformly, this data appears problematic for the *pro* analysis. Similar arguments can be given for the analysis in Fassi Fehri (1993).

This analysis is not without its merit, however, and Chapter 5 will return to it in order to show that a **Probe-Goal** version of **Agree** manages to avoid (or provide answers to) the major criticisms

<sup>1</sup>In these analyses, as well as the analysis in this paper, the canonical base subject position is supposed to be [Spec,  $\nu^0$ ].

<sup>2</sup>This, predictably, only applies in Arabic dialects exhibiting weak inflection.

leveled against the pronominal account.

## 2.2 Minimalism and Feature Strength

One account of the Arabic data which works explicitly within the Minimalist Framework is that of Parkinson (1995), refined in Tucker (2005). This analysis asserts that the Arabic number asymmetry data in §1.2.2 can be accounted for by assuming a correspondence relationship between the presence of a [*uNum*] feature on  $T^0$  and the strength of the  $\phi$ -features as a whole. Specifically, [*uNum*] on  $T^0$  is a *strong feature*. Strong features require their **Goal** to exist in the specifier of the head in order to be marked for deletion. In this way, strong features avoid the principle of **Procrastinate** (Chomsky, 1995).

However, there are major issues with this analysis. The first comes from the theoretical notion of the principle of **Procrastinate**. As Collins (2001) notes, the theoretical role of **Procrastinate** may not be as valid as outlined in Chomsky (1995). If this is the case, then the theoretical significance of the notion of feature strength may disappear as well - no longer needed in order for the convergence of the derivation at PF. The second issue is an empirical one. This approach has no concrete way to account for the pronoun data from Arabic discussed in §1.2.2, even if these overt pronouns are truly focused copies of null-PF pronouns.

The other major problem for this analysis is its lack of an explanation as to why the *number* feature in Arabic should be strong, as opposed to all (or any) of the other  $\phi$ -features. That is, there is no principled answer in the feature strength account to the question of why another language does not exist which is exactly like Arabic, but with a strong *person* (or *gender*) feature, instead of *uNum*\*. Moreover, recent work in minimalist syntax (Chomsky (2000), *et seq.*) have done away with the notion of feature strength, in favor of the EPP approach to movement outlined in Chapter 1. Because of these criticisms, and the anachronistic nature of the notion of feature strength, this analysis is not pursued here.

## 2.3 Agreement under Government

Bahloul and Harbert (1992); Harbert and Bahloul (2002) advance an analysis which builds on ideas from McCloskey (1986b,a) and Emonds (1981). McCloskey claims that case assignment can occur in two ways in natural language: leftward and rightward. SVO languages, he claims, assign their case leftward under a Spec-Head agreement relation or rightward under Government. VSO languages, on the other hand, have the parameter set the other way and may only assign their case under government. This accounts for the licensing of a nominative subject which is supposed to stay in the specifier of one of the lexical verb's projections.

Bahloul and Harbert (1992); Harbert and Bahloul (2002) extend this idea to account for agreement facts as well. They claim that VSO languages are subject to agreement under government instead of agreement in a Spec-Head relation, as is the case for other word-order type languages. Along with this they propose the *Government Agreement Constraint*, which stipulates that: “only those features which originate on the Base of a Projection system are evaluated for agreement under government.” (pp. 46). In this theory, a Projection System is defined with a lexical head as its *base*, and extends all the way to the topmost functional projection upward. Since they also assume a DP structure along the lines of Ritter (1990), the [Num] feature does not originate in the base position, but instead originates a projection which dominates NP, introduced by the functional head Num<sup>0</sup>. In this case, number does not appear overtly on the morphology since it is not evaluated, given that it does not originate in the base of the nominal projection system. This approach accounts for a wide variety of data, as well as the cross-linguistic rarity of such an agreement phenomenon (since it allows both kind of agreement, Spec-Head and Government), which is presumably marked in the grammar.

This analysis is quite compelling under the GB approach it assumes, and Harbert and Bahloul argue convincingly for it. However, recent approaches in Minimalism have done away with the notion of Government as a syntactic relation. While this is not a particularly devastating move (one could appeal instead to a notion of minimal c-command), the loss of the theoretical weight of the Specifier-Head relationship is. If the Spec-Head relationship does not control morphosyn-

tactic agreement, then the Government approach has no explanation for agreement in the non-Government-agreeing languages. Because of this, I attempt to find a different approach in this work to account for the asymmetric agreement relationship.

## 2.4 Spec-Head Agreement and Right Node Raising

Aoun et al. (1994) (henceforth ABS) argue for an analysis of Arabic agreement asymmetries which relies heavily on the Specifier-Head relationship and looks to explain a particular kind of agreement pattern in conjoined subjects which they refer to as *First Conjunct Agreement* following Munn (1993). In addition to the basic facts outlined in §1.2.2, ABS are concerned with data like that in the following:

- (2.2) (a) *qaraʔa*                    *ʔomar wə ʔaliʔa* *l-qisʔa*  
 read.3.MASC.SG Omar and Alia the-story  
 “Omar and Alia read the story.”
- (b) *qaraʔat*                    *ʔaliʔa wə ʔomar* *l-qisʔa*  
 read.3.FEM.SG Alia and Omar  
 “Alia and Omar read the story.”

The data in (2.4) show that Arabic has first conjunct agreement with postverbal subjects - the verb only agrees with the first conjunct DP. ABS go on to reject the obvious analysis of these constructions as agreement under Government with a postverbal ConjP (following Munn (1992)) in favor an analysis which makes use of Right-Node-Raising (RNR) and Across the Board movement (ATB). The analysis goes like this: first two *clauses*, each with their own sentential subject, are conjoined together. RNR then applies to raise the predicate/direct object out of both clauses. Finally, ATB applies to gap the verb from both conjuncts. The final product of the derivation is a sentence with two subjects, a conjunction, a predicate/direct object, and a verb. This is schematized in figure 2.1.

ABS provide compelling data to support their analysis of first conjunct agreement in Arabic as clausal conjunction. Most of their data is semantic in nature and concerns syntactic items which

1. **Clausal Conjunction:** [ *Verb*<sub>1</sub> [ *Subject*<sub>1</sub> [ *Object*<sub>1</sub> ] ] ] & [ *Verb*<sub>2</sub> [ *Subject*<sub>2</sub> [ *Object*<sub>2</sub> ] ] ]
2. **RNR:** [ [ *Verb*<sub>1</sub> [ *Subject*<sub>1</sub> [ *t*<sub>O1</sub> ] ] ] & [ *Verb*<sub>2</sub> [ *Subject*<sub>2</sub> [ *t*<sub>O2</sub> ] ] ] *Object* ]
3. **ATB:** [ *Verb* [ [ *t*<sub>V1</sub> [ *Subject*<sub>1</sub> [ *t*<sub>O1</sub> ] ] ] & [ *t*<sub>V2</sub> [ *Subject*<sub>2</sub> [ *t*<sub>O2</sub> ] ] ] *Object* ] ]

Figure 2.1: Right Node Raising and ATB in Arabic

can only appear in the presence of plural subjects. Their hypothesis is that if the Arabic agreement patterns are truly clausal conjunction, they will not be able to appear with postverbal subjects. The data bears ABS out. Consider the example below:<sup>3</sup>

- (2.3) (a) *ʔomar wə saʔid məʔaw bi-ʒu:ʒ l-l-madrasa*  
 Omar and Said went.3.PL with-both to-the-school  
 “Omar and Said went to school together.”
- (b) \**məʔa ʔomar wə saʔid bi-ʒu:ʒ l-l-madrasa*  
 went.3.MASC.SG Omar and Said with-both to-the-school  
 “\*Omar and Said went to school together.”

(2.4) shows the behavior of the postverbal and preverbal subjects with respect to their syntactic plurality. ABS argue that (2.4b) would be good if true DP conjunction were in play, since the entire ConjP would be syntactically plural. However, the ungrammaticality of (2.4b) argues strongly in favor of the clausal analysis hypothesis (but see the counterarguments in Harbert and Bahloul (2002)).

This argument is further supported by the behavior of reflexives in Lebanese Arabic. The reflexive *baʔdʔu:n*, “each other,” requires a syntactically plural antecedent. However, this condition is not satisfied by postverbal subjects as seen in (2.4):

- (2.4) (a) *kari:m wə marw:an biʔib:o baʔdʔu:n*  
 Kareem and Marwaan love.3.PL each other  
 “Kareem and Marwaan love each other.”

<sup>3</sup>This data is ABS’ (35) and is from Moroccan Arabic. I will limit my discussion to just one example of the behavior of syntactic items which require semantically plural subjects - these arguments can be recreated for many others. I refer the reader to the original work for more information.

- (b) \**bifib*:            *kari:m*    *wə*    *marw:an*    *baʔdʕu:n*  
 love.3.MASC.PL    Kareem    and    Marwaan    each other  
 “\*Kareem and Marwaan love each other.”

Aoun et al. (1994) augment this RNR plus ATB analysis with the notion of the Specifier-Head relationship determining agreement for grammatical features (i.e., features introduced via functional projections).<sup>4</sup> Given the idea that number is introduced by a functional head within the DP layer, Num<sup>0</sup>, this feature cannot be retained in agreement patterns which are not mediated by a Specifier-Head relationship.

While I find the arguments which ABS provide for clausal conjunction compelling, I do not agree with the idea that the Specifier-Head relationship mediates morphological agreement. This is because I assume the general framework first outlined in Chomsky (1995). Therefore, in the work which follows, while I will assume the clausal conjunction analysis for first-conjunct agreement situations, I will attempt to outline a theory of verbal agreement which crucially does not rely on the Specifier-Head relationship.<sup>5</sup>

## 2.5 PF-Operations

Given a syntactic theory which makes reference to the interface of P(honetic) F(orm), one might be tempted to propose a solution to the Arabic asymmetric agreement problem which focuses on deriving the weak agreement during the derivation after the branching toward PF (in GB, after S-structure, in minimalism, after Spell-Out). Recently, a class of solutions to the Arabic weak agreement phenomenon have arisen which have targeted the PF interface as the locus for the operations which drive Arabic surface morphology. In particular, two analyses are present in the literature: Benmamoun (1998) argues for a process of PF-merger between the subject and verb in VSO clauses which makes spelling-out of the number feature on the verb redundant. I will

<sup>4</sup>For a recent exposition of Specifier-Head agreement, see Koopman (2005).

<sup>5</sup>For reasons of brevity, I will not show derivations involving clausal conjunction or first conjunct agreement, however, the analysis proposed in Chapter 5 is compatible with the RNR plus ATB approach, given that at the end of the computation, the verb will still be local to only one DP.

address this analysis second in section §2.5.2, even though it is historically prior, since it is the more convincing of the two accounts, though I will ultimately reject this approach. The second analysis, which I will reject outright, was proposed in Ackema and Neeleman (2003) and (Ackema and Neeleman, 2004, ch. 6), and argues for a rule of PF-weakening which deletes features under phonological adjacency. This analysis will be taken up in §2.5.1.

### 2.5.1 Phonological Weakening and PF-Adjacency

Peter Ackema and Ad Neeleman develop an analysis for the Arabic agreement problem in Ackema and Neeleman (2003) and further refine it in (Ackema and Neeleman, 2004, ch. 6). This analysis proceeds from a realization that prosodic word construction in Arabic matrix clauses produces a different constituency based on whether the clause is SVO or VSO ordered; in SVO clauses, the verb is not contained within the same intonational phrase as the verb, as is the case in the VSO constituent ordering. Specifically, the construction produces:<sup>6</sup>

(2.5) (a) **VSO:**  $[_{FP} [_F V^0] [_{TP} \text{subject } t_V [_{VP} t_V \text{object}]]]$

(b)  $\{\text{V subject}\}_\phi \{\text{object}\}_\phi$

(2.6) (a) **SVO:**  $[_{FP} \text{subject} [_F V^0] [_{TP} t_{\text{subject}} t_V [_{VP} t_V \text{object}]]]$

(b)  $\{\text{subject}\}_\phi \{\text{V object}\}_\phi$

These structures show the presumed clausal architecture in the case of each (a) structure, where FP stands for a functional projection of an unknown head. Given that the subject is contained in a different phonological phrase vis-á-vis the the verb in the two (b) PF-representations, Ackema and Neeleman (2003, 2004) propose the following weakening rule for Arabic agreement:

**(2.7) Arabic Agreement Weakening:**  $\{[_{V_{plural}} \dots] [_{D_{plural}} \dots]\}_\phi \rightarrow \{[_{V} \dots] [_{D_{plural}} \dots]\}_\phi$

<sup>6</sup>In this and what follows, I enclose a phonological phrase in brackets with a subscript phi immediately following. This discussion presupposes something like Truckenbrodt (1999) for the mapping of phonological phrases onto syntactic structures.

This rule accounts for the basic agreement facts shown for Arabic, and Ackema and Neeleman (2003, 2004) also apply a similar analysis to Dutch second person agreement and prodrop phenomenon, as well.

However, this solution is not satisfactory for several reasons. First, it relegates what is essentially a morphosyntactic problem - verb-subject agreement exponence - to a domain that is typically reserved for rules which assign tonal quality, stress, or accent (i.e., the phonological phrase). Even if one takes a more articulated theory of what constitutes a phonological phrase (such as assuming the entire prosodic hierarchy, from which a phonological phrase could be any subconstituent), if Ackema and Neeleman are correct, Arabic and Dutch would be atypical in allowing a morphosyntactic process to target a prosodic domain for application.

The second reason this analysis can be rejected is twofold, and outlined in Benmamoun and Lorimor (2006), who criticize Ackema and Neeleman (2003) on theoretical and empirical grounds. The theoretical critique proceeds much as above, where Benmamoun and Lorimor (2006) argue that the existence of VOS word orders in topicalization contexts belies the assumption that the relevant domain for number weakening is the phonological phrase.<sup>7</sup> The empirical argument proceeds from the realization that *wh*-constructions do not trigger weakening in relative clauses:

- (2.8) (a) *ʒaːʔa*                    *l-ʔavlaːd*    *llaðiːna*    *naʒafi-uː*  
           came.3.Masc.Sg    the-children    that/who    passed-3rd.Masc.Pl  
           “The children who passed came.”
- (b) \**ʒaːʔa*                    *l-ʔavlaːd*    *llaðiːna*    *naʒafi*  
           came.3.Masc.Sg    the-children    that/who    passed.3rd.Masc.Sg  
           “\*The children who passed came”

Benmamoun and Lorimor (2006) point out that for Ackema and Neeleman (2003, 2004), this is problematic since they would predict weakening to apply in these examples. For independent

<sup>7</sup>I will not draw this argument out in detail here, instead preferring the empirical criticisms. See the original for further comments, though the idea is that since VOS clauses, Ackema and Neeleman are not clear as to how a post-focused subject influences number agreement (c.f., their pp. 21). This is problematic because these VOS clauses in Arabic still show the post-verbal weak agreement phenomenon. However, these clauses come with a clear intonational boundary between the object and subject, and certainly between the verb and the subject, which is arguably postposed. In these examples, it is not clear how postsyntactic weakening is to apply given that the verb and subject are not contained within the same intonational phrase.

reasons in both works, Ackema and Neeleman (2003) presume that traces are present in the computation of prosodic domains (this is contra Truckenbrodt (1999)). If traces are present in the above derivation, the the null-PF copy (trace) of the *wh*-element in 2.8 residing in the [Spec, T<sup>0</sup>] position in the relative clause should be a licit trigger for the weakening operation. This would predict the inverse of the correct grammaticality judgments. Because this argument is compelling, and because of the other reasons discussed in this chapter, one should reject the analysis of Arabic weak agreement as given in Ackema and Neeleman (2003, 2004).

### 2.5.2 PF-Merger

Benmamoun (1998); Benmamoun and Lorimor (2006) provide an alternate account within a PF-targeting framework which accounts for the data in Arabic. They claim that in VSO clauses, the constituent which is immediately postverbal merges with the verb, making the spelling out of number agreement on the verb redundant, since number is inherently morphologically encoded in Arabic DP's.<sup>8</sup> The idea driving this analysis is that since the grammar has already taken the effort to morphologically encode the number feature inherent in the relation between verb and subject, it will not do so a second time on the verbal complex, presumably for reasons of economy. While it is not clear exactly what this notion of economy would be, we can see that it would be a principle something like “do not morphologically encode a the results of an Agree operation more than once.”

As hinted at above, there is reason not to accept Benmamoun (1998); Benmamoun and Lorimor (2006). Specifically, no claims are made in either work about the precise nature of the operation responsible for ensuring that merger takes place. While it is descriptively adequate to note that a postverbal merger could be taking place in Arabic VSO clauses, it does little to explain how this process is constrained. Specifically, as will be shown in Chapter 4, this process seems to ignore intervening adverbs and is limited to only heads. In this respect, the PF-process about which Benmamoun (1998) speaks appears a lot like **Lowering** as proposed by Embick and Noyer (2001).

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<sup>8</sup>In a sense, this analysis could be restated in terms of Rouveret (1991), as outlined above.

For this reason, I will adopt the latter mechanism, attempting to be as specific as possible about the operations involved.

Moreover, it is not totally clear how the process can be said to apply over intervening nonadjuncts. Benmamoun (1998) even notes the concern with data like (2.9):

- (2.9) (a) *ʔakala*                      *t-tuf:a:fata*    *l-avla:du*  
 eat.3.Masc.Sg.PAST    the-apple    the-children  
 “The children ate the apple.”
- (b) *ʔiltaqa:*                      *bi-l-muʕal:im*    *t<sup>ʕ</sup>-t<sup>ʕ</sup>ula:b*  
 met.3.Masc.Sg    with-the-teacher    the-students  
 “The students met with the teacher.”

The problem with these data is that the agreement weakening merger process seems to have taken place over an intervening nonadjunct. Benmamoun (1998) entertains two possibilities for an explanation: (1) excorporation in the sense of Roberts (1991) and (2) allowing the overt subject to merge with the null-PF copy of the verb left behind in a copy theory of movement. (1) does not seem like a preferable account because, as Benmamoun (1998) himself notes in describing the solution involving excorporation, the verb would have to merge with the subject at PF, *then continue to raise in the derivation*. Since the timing of this movement is unclear under a PF account, it does not seem satisfactory. (2), on the other hand, makes the presumption that PF merger, which is a phonologically-conditioned/driven process (in the sense that it must occur for PF-legitimacy of the derivation), can make reference to copies which lack phonological realization. Especially given a syntactic theory which assumes that Spell-Out deletes checked morphosyntactic features (assumed here, following Pesetsky and Torrego (2001)), it is not clear what features remain of the copy for the process to apply to in data such as (2.9).

Moreover, it is not entirely clear that a PF account is preferable for the data in (2.9). This is because the intonational phrasing of these data (as given by the placement of word stress and the computation of sentence-level prosody) is as below:

- {verb}<sub>ϕ</sub> {intervener}<sub>ϕ</sub> {subject}<sub>ϕ</sub>

Because these domains are disjunct, there is reason to believe that the structures in (2.9) result from a topicalization or focus structure to a projection in the exploded left periphery system of Rizzi (1997). This is in accord with native speaking intuition about phrasing, which places a larger intonational break between the second and third items than between the first and second. Given this, a more natural explanation of the weak agreement problem in Arabic would come from a solution which fixes agreement needs once, *derivationally*, such that they hold for the rest of the derivation.<sup>9</sup>

Finally, the other reason not to accept Benmamoun (1998) without modification is the predictions it makes concerning cross-linguistic applications. Specifically, if linear adjacency (or some syntactic version therefore) applies *whenever* economy would be violated in the redundant spelling out of agreement features, the question looms large of why this does not apply all the time. More concretely, it should be noted that *all* subject-verb agreement in natural language is redundant; DP's may encode any of the  $\phi$ -features, but the presence or absence of this encoding does not determine whether the verb agrees morphologically with any DP. To the extent that the verb displays this morphology in unambiguous syntactic frames (i.e., frames in which this agreement is not needed to distinguish theta-role assignment), it can be seen as redundant. For this reason, Benmamoun (1998); Benmamoun and Lorimor (2006) without modification can be seen to imply that any adjacency between subject and verb should mean a lack of agreement.<sup>10</sup> Since no explicit formulation of why most languages do not employ PF merger in this way is given, it is unclear how to properly extend this analysis to other languages.

This chapter has examined in some detail the major trends in the literature which propose to account for the Arabic weak agreement phenomena. In each case, it has been shown that acceptance of the proposal leads to either theoretical or empirical problems. For this reason, the next chapters point out some facts about Arabic which lend themselves to a novel analysis of the empirical facts

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<sup>9</sup>In a sense, this parallels the conclusion reached by Kramer (2006) that agreement takes place if a head and DP are in a Spec-Head relationship *once at any point in the derivation*. This can be seen as a similar conclusion using a different approach to licensing agreement.

<sup>10</sup>One could attempt to account for this problem by assuming that rightward adjacency is the only proper domain for this problem, but that only eliminates half the issue.

which accounts for the data given in Chapter 1, as well as salvages the Expletive Hypothesis (EH) of Mohammad (1999).

# Chapter 3

## The Status of Subject in Arabic

The next two chapters in this work are to be taken together, and provide arguments for the following two points concerning the major clausal architecture of Arabic, both of which have been overlooked in the literature to date:

1. The subject must vacate its  $\theta$ -position.
2. Arabic displays V2 effects with respect to verb position.

This chapter introduces the major arguments for the first point, while the second is treated in the subsequent chapter. The analysis advanced here will relate the problem of asymmetric number agreement in Arabic to the question of the subject position in VSO languages more generally. As such, a discussion of the status of VSO clausal architecture is in order.

### 3.1 Simple V-Raising

This section provides an overview of the history of the major clausal architecture of VSO languages. The discussion as to the nature of deriving the VSO language surface word order in generative syntax began with Emonds (1981). He proposed that, given the hypotheses being made at the time about the D-structure of Universal Grammar (UG), VSO word order could be derived from an underlying SVO structure by verb movement into the inflectional layer. This presented

an attractive way of relating a seemingly troubling word order to SVO languages via a similar underlying constituent structure. However, Emonds (1981) offered very little evidence from VSO languages in the way of demonstrating that this verb movement was indeed the proper analysis.

Next, Sproat (1985) provided the beginning of the necessary data. He showed via adverb placement, agreement facts, and the class of so-called Celtic Verb-Nouns that Welsh indeed had an underlying constituent which was similar to the VP in the better-studied SVO languages. He showed that the subjects in Verb-Noun constructions, which parallel most closely infinitives in other languages, marked the edge of what he called a  $V_{NP}$ , a verb phrase formed with the Verb-Noun as the head. This provided evidence for Emonds (1981)'s intuition that VSO word order could be derived by verb movement around the subject. Sproat (1985) also began to question the status of case assignment in VSO languages, which was argued to differ from SVO-surface word order languages in the directionality of its assignment: SVO languages were argued to assign case leftward, to the specifier of tense, whereas VSO languages assigned case rightward, under government. Furthermore, the EPP was assumed to be lacking in VSO languages, allowing the subject to remain *in-situ*, in the [Spec,  $v^0$ ] position.

McCloskey (1980, 1983, 1986b,a, 1996, 1997) provides a major body of work concerning the status of constituent order and agreement in VSO languages. He showed that not just Welsh, but all the Celtic languages have not simply a covert VP, but a surface VP as well. As outlined in §2.3, McCloskey also noted that case assignment in VSO languages operates to the right, licensing nominative case in the *in-situ* subject position, which at the time was assumed to be [Spec,  $v^0$ ].

Taken together, the proceeding paragraphs argue for the structure given in figure 3.1. This work will refer to this structure as the “simple V-raising analysis.”

In recent work, however, the simple V-raising hypothesis has been called into question. McCloskey (1996, 1997) later builds on work from Holmberg (1993); Jonas (1992); (*inter alia*) on Icelandic Transitive Expletive constructions (TEC's) to refine the notion of the surface subject position in VSO languages. The work on TEC's showed that there was evidence for more than one subject position above  $vP$ , as well as disputing the claim that the subject of VSO clauses could

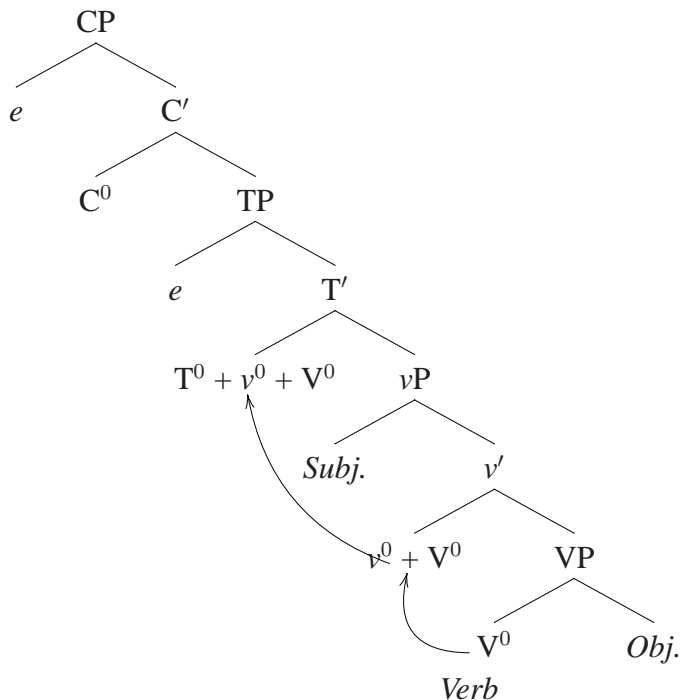


Figure 3.1: The Simple V-Raising Analysis

remain in [Spec,  $vP$ ]. McCloskey then introduces the same arguments, giving data from adverb placement and what he terms “Salient Unaccusatives”<sup>1</sup> to show that the subject of Celtic languages does not occupy the [Spec,  $vP$ ] position (and indeed cannot remain *in-situ*).

This argument is picked up in Bobaljik and Carnie (1996); Ouhalla (1994), both of whom present arguments for a second, supra- $vP$  subject position in both the Celtic languages and Arabic. Moreover, these authors also identify the projection as the subject agreement projection,  $Agr_s$ . Bobaljik and Carnie (1996) present an fully Minimalist approach insofar as they identify the mechanisms responsible for raising of the verb to  $Agr^0$  and  $T^0$  as the result of the strong/versus weak feature distinction. They show that this constituent structure both accounts for the already known Irish word order facts, as well as the subject *in-situ* problem discussed in the preceding paragraph. Ouhalla (1994) extends this structure to Arabic, introducing arguments which show that the subject cannot remain *in-situ* and that this problem was accounted for given the structure he proposed.

<sup>1</sup>These are unaccusatives which patently display this fact in both their surface semantics and syntax. The reader is referred to McCloskey (1996) for more information.

However these arguments rely crucially on a raising-to-Agr analysis, and therefore must be re-explored. However, these analyses remain convincing, except for the move in recent years away from agreement functional projections, since they do not contribute to semantic interpretation.

## 3.2 Subjects outside $\nu$ P

This section presents the data which shows that the Arabic subject is in [Spec, TP], even in VSO clauses (it must be outside of  $\nu$ P). In doing so, it accords with the conclusions reached in McCloskey (1996, 1997) that the simple V-raising analysis cannot be maintained. This will prove that Arabic *has* an EPP feature associated with  $T^0$ , as well as the need for a higher landing site for verbal movement. Here I will discuss three arguments for this position:

1. The position of ( $\nu$ P) adverbs (§3.2.1).
2. The position of sentential negation (§3.2.2).
3. The subject behavior in  $\nu$ P ellipsis processes (§3.2.3)

### 3.2.1 $\nu$ P Adverbs

This subsection and one in the following chapter relies on the kind of constituency test used in Pollock (1989) to determine the nature of the positions which house subjects and verbs in natural language. Specifically, for semantic compositionality reasons, it is typically assumed that certain adverbs adjoin to the highest verbal projection - in the framework assumed here, this is adjunction to  $\nu$ P. Given this idea, one can use the position of verb-phrase modifying adverbs to mark the left edge of the  $\nu$ P projection.

With this in mind, one can then evaluate the claim made by the analysis of VSO languages in works such as Emonds (1981); Sproat (1985), specifically the claim that the subject in VSO languages remains *in situ* in its  $\theta$ -position. If this were the case, one would expect the  $\nu$ P adverbs in these languages to appear between the subject, which remains in [Spec,  $\nu^0$ ], and the verb, which has

moved to  $T^0$ . Unfortunately for the simple analysis, this does not appear to be the case. Consider the following data from the Arabic manner adverb *ʕadīdan*, “often/frequently”:<sup>2</sup>

- (3.1) (a) *yī-dʕīrib ʕadīdan l-wəlad al-qādi*  
 3.MASC.SG.-hit the-boy often the-judge  
 “The boy hit the judge often.”
- (b) ??*ʕadīdan yī-dʕīrib l-wəlad al-qādi*
- (c) ??*yī-dʕīrib l-wəlad al-qādi ʕadīdan*

The data in (3.1) show that the most comfortable position for manner adverbs in Arabic is crucially *to the right* of the VSO subject. This accords with McCloskey (1996)’s similar observation for Irish, where he concludes that the subject cannot remain *in situ* in VSO constituent order. If the subject were in the [Spec,  $v^0$ ] position, one would expect the adverb to be able to appear in the position shown in (c), between the verb in  $T^0$  and the subject contained within the  $vP$  layer. Since this is not the case, and because this data is so robust with Arabic adverbs, it appears as though the traditional V-raising analysis as proposed by Emonds (1981); Sproat (1985), *inter alia* is too simplistic to be maintained.

### 3.2.2 Sentential Negation

Benmamoun (1992) provides an explicit argument that, for Arabic, sentential negation can be used to help further identify the left edge of the  $vP$  layer. This is because, as shown by Ouhalla (1994), the NegP which hosts sentential negation in Arabic must be situated between the TP and  $vP$  projections. Normally, in sentential negation contexts, the verb must successive-cyclically raise through this projection to  $T^0$ , picking up the negative clitic *ma* in the process. However, Arabic is like many languages in lacking a present-tense copular form. In present tense equative/copular sentences, then, the negative particle *ma* should remain in its base position within NegP, since no

<sup>2</sup>In this section and the one which follows, I give examples of only one adverb, with the understanding that the empirical facts are the same for other adverbs of the same class.

successive cyclic raising of the verb occurs. In these contexts, then, the position of subjects can be determined by their position vis-à-vis negation.<sup>3</sup>

It is in this spirit that Shlonsky (1997); Aoun and Benmamoun (1999) note the position of Arabic subjects with respect to negation in copular clauses is not what is expected given the V-raising analysis with *in situ* subjects. These data are shown in (3.3). The first pair gives an example of standard sentential negation with an overt predicate, while the second pair shows the same sentential negation in a present-tense copular frame:<sup>4</sup>

(3.2) (a) *omar ma-ʒa-f*  
 Omar NEG-come.3.SG.MASC.PAST-NEG  
 “Omar didn’t come.”

(b) *ma-ʒa-f omar*  
 NEG-come.3.SG.MASC.PAST-NEG Omar  
 “Omar didn’t come.”

(3.3) (a) *omar ma-fi fi-d:ar*  
 Omar NEG at/in-the.home  
 “Omar is not at home.”

(b) \**ma-fi omar fi-d:ar*  
 NEG Omar at/in-the.home  
 “Omar is not at home.”

The data in (3.3) show that the subject is not allowed post-negation in copular sentences. Shlonsky (1997); Aoun and Benmamoun (1999) conclude from this that the subject must not be located in its  $\theta$ -position in these clauses, thus explaining their appearance to the left of negation only - the only possible landing sites are to the left of this element, which directly selects for  $\nu$ P. This gives us another argument to the point that the subject must move to [Spec, T<sup>0</sup>], contrary to what the simple V-raising analysis would predict.

<sup>3</sup>This is assuming that negation does not move on its own. Given the assumption made throughout this work that the same features which drive phrasal movement drive head movement, one might expect negation to move independent of the verb. However, this is irrelevant, since negation certainly does not lower, and does start outside of  $\nu$ P.

<sup>4</sup>That this is sentential negation can be seen in fn. 6 of Aoun and Benmamoun (1999), where it is shown that it licenses NPI’s, which constituent negation cannot do in this dialect. Note that this dialect is Moroccan Arabic, not either of the dialects under consideration here. Munther Younes (p.c.) asserts that negation facts are the same in his dialect, which is the primary dialect under consideration in this work.

### 3.2.3 $\nu$ P Ellipsis

The simple V-raising analysis also makes predictions concerning what constituents may be left behind in ellipsis contexts. If we consider first the model with respect to SVO clauses, the simple V-raising approach predicts that both the verb and subject would remain overt in contexts where the  $\nu$ P constituent has elided. This prediction is born out (3.4).<sup>5</sup>

- (3.4) (a) *yasin ka:n ka:jlʕəb l-ku:ra wə yu:srə ka:n fiət:a hu:wa*  
 Yasin was playing the-football and Yourse was too  
 “Yasin was playing football and Yourse was too.”
- (b) *yasin ka:n ka:jlʕəb l-ku:ra wə yu:srə ma-ka:n-f*  
 Yasin was playing the-football and Yourse was not  
 “Yasin was playing football but Yourse was not.”

In (a), above, the  $\nu$ P has elided leaving the verb and subject behind. This is consistent with the simple V-raising approach, which could say that the verb is in  $T^0$  and the subject is in [Spec,  $T^0$ ]. However, this analysis makes the wrong predictions with respect to VSO  $\nu$ P elision constructions, which leave *both* the subject and verb:

- (3.5) (a) *ka:n yasin ka:jlʕəb l-ku:ra wə ka:n yu:srə fiət:a hu:wa*  
 was Yasin playing the-football and was Yourse too  
 “Yasin was playing football and Yourse was too.”
- (b) *ka:n yasin ka:jlʕəb l-ku:ra wə ma-ka:n-f yu:srə*  
 was Yasin playing the-football and was-not Yourse  
 “Yasin was playing football but Yourse was not.”

In (3.5), the simple V-raising hypothesis would have the subject eliding in these contexts. However, instead the subject remains. This data argues strongly for an analysis which has the sentential subject raising out of the [Spec,  $\nu^0$ ] position in order to account for the overt subject in  $\nu$ P ellipsis.

Given the arguments advanced in this chapter, it is clear that the simple V-raising analysis cannot be maintained with respect to the position of the sentential subject in Arabic VSO clauses. This is because the data introduced here shows that the subject must move out of its  $\theta$ -position

<sup>5</sup>This data is from Kortobi (2002)

to a higher position in the clause. Assuming that  $\text{Agr}^0$  is not present in the clause (see Chapter 1), this leaves  $[\text{Spec}, \text{T}^0]$  as the most logical landing site, since cross-linguistic evidence exists for the existence of a specifier position for this head. This is the hypothesis which will be assumed henceforth.

Note, however, that if one is assuming something like the Linear Correspondence Axiom (Kayne, 1994) to hold, there is an ordering contradiction at play now.<sup>6</sup> That is, this chapter has shown that the subject must raise *in addition* to the verb, as the simple V-raising analysis would hold. This means that there must be at least one more instance of verb raising in order to derive anything other than a VSO structure. That is, the minimal structure of Arabic clauses in the inflectional layer is at least that as given in figure 3.2.

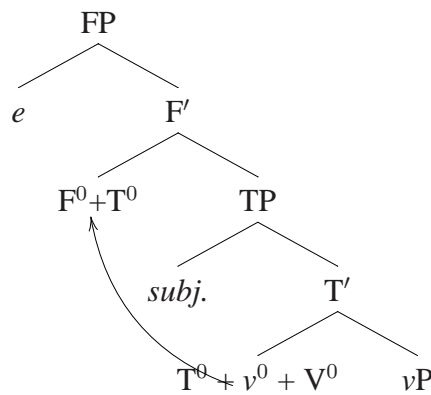


Figure 3.2: The Extended V-Raising Analysis

<sup>6</sup>It is not important for this argument that the LCA hold exactly as formulated in Kayne (1994), but rather that there exists something close to a one-to-one mapping between syntactic dominance and linear precedence, however this may be formulated. This weaker assumption is arguably less controversial than the LCA, and as such, this analysis presumes that it is correct.

# Chapter 4

## Data From Arabic

Given the arguments in the previous chapter, it is now necessary to provide an answer to the question of where the verb moves in Arabic clauses, both in VSO and SVO word orders. This chapter will first explore the simplest analysis, T<sup>0</sup>-to-C<sup>0</sup> raising (§4.1), and then provide a more articulated account utilizing the exploded left periphery advocated in Rizzi (1997) (§4.2). The latter analysis is preferred given facts concerning focus constructions in Arabic, as well as theory-internal considerations concerning the nature of functional projections capable of hosting verbal agreement.

### 4.1 T<sup>0</sup>-to-C<sup>0</sup> Raising

The simplest landing site one could posit for the Arabic verb would be the complementizer position, C<sup>0</sup>. This makes a number of predictions, two of which seem to be born out by the Arabic facts, at first glance. Specifically, this predicts that the Arabic verb should be concretely outside of TP at the end of the derivation, and further that Arabic should display V2-like effects in embedded contexts. The next two subsections explore why this seems corroborated by the facts surrounding TP adverbs (§4.1.1) and embedded clause word order (§4.1.2).

### 4.1.1 TP Adverbs

The assumption that the verb raises to C<sup>0</sup> predicts that anything which marks the left edge of the tense projection in the inflectional layer should intervene between the verb and subject in VSO clauses. Consider now the position of clausal adverbs which are typically assumed to adjoin to the maximal projection of T<sup>0</sup>. Below is an example with the Arabic adverb *kḏa:līka*, “also/too”:

- (4.1) (a) *ya-staʿīd: kḏa:līka zard ʔ-tasʿwi: fi:lm*  
 3.MASC.SG-Preparing.PAST also Zayd to-film film  
 “Zayd is also preparing to film the film.”

- (b) ??*kḏa:līka ya-staʿīd: zard ʔ-tasʿwi: fi:lm*

In (4.1a), *kḏa:līka* appears *between* the verb and the subject. No other position is possible, especially the one given in (b) which would be the predicted position of the adverb were the lexical verb to remain inside the tense projection. Given that these adverbs can be taken to mark the left edge of the tense projection, there are two conclusions to be drawn from these data. The first is that, as argued for in §3.2.1 and §3.2.2, the *in situ* status of the subject in VSO clauses cannot be maintained. The second conclusion to be drawn from the data in (4.1) is that the verb in Arabic VSO clauses cannot be within the TP. If C<sup>0</sup> is presumed to be the only projection dominating TP capable of hosting the verb, then these data accord with a T<sup>0</sup>-to-C<sup>0</sup> analysis of Arabic verb raising.

### 4.1.2 Embedded Selectional Restrictions

The second argument which seems to favor a T<sup>0</sup>-to-C<sup>0</sup> analysis for Arabic comes from embedded clauses. Mohammad (1999) notes that data from Arabic embedded clauses shows that complementizers in Modern Standard Arabic take different forms: *ʔana:a*, and *ʔma:a*, for realis clauses. In Arabic, complementizers appear only with SVO embedded word order:<sup>1</sup>

<sup>1</sup>Mohammad (1999) notes that dialects of spoken Arabic allow sentences where the complementizer appears to select for the verb. Munther Younes (p.c.), however, notes that the suffix on the complementizer, /-u/, in these cases is the same as the 3rd person singular masculine object agreement morpheme. To him and other speakers of Arabic, it is possible this suffix is analyzed as a subject morpheme which has undergone merger with the complementizer. I adopt this analysis here.

- (4.2) (a) *qa:lɑ*                    *ʔahmad ʔin:a ʕaliy: dʒa:ʔa*  
 said.3.SG.MASC Ahmed that Ali came.3.SG.MASC  
 “Ahmed said that Ali came.”
- (b) \**qa:lɑ*                    *ʔahmad ʔin:a dʒa:ʔa ʕaliy:*  
 said.3.SG.MASC Ahmed that came.3.SG.MASC Ali  
 “Ahmed said that Ali came.”
- (4.3) (a) *hasiba*                    *ʔahmad ʔan:a ʕaliy: dʒa:ʔa*  
 thought.3.SG.MASC Ahmed that Ali came.3.SG.MASC  
 “Ahmed thought that Ali came.”
- (b) \**hasiba*                    *ʔahmad ʔan:a dʒa:ʔa ʕaliy:*  
 thought.3.SG.MASC Ahmed that came.3.SG.MASC Ali  
 “Ahmed thought that Ali came.”

The data in (4.3) show that the highest position occupied by the embedded verb is still lower than the complementizer in Arabic. If a T<sup>0</sup>-to-C<sup>0</sup> analysis is adopted, then these facts are as expected. In embedded contexts, the verb cannot raise to C<sup>0</sup>, since this position is filled by the complementizer.

Fassi Fehri (1993) notes that one possible counterargument to the T<sup>0</sup>-to-C<sup>0</sup> analysis comes from the cross-linguistic behavior of other VSO languages. Specifically, McCloskey (1996) notes that T<sup>0</sup>-to-C<sup>0</sup> movement is not possible for Irish, given that objects which adjoin to TP (adverbs, heavy NP shift, etc.) surface *above* the complementizer. McCloskey takes this to be evidence that, instead of T<sup>0</sup>-to-C<sup>0</sup> raising, C<sup>0</sup>-to-T<sup>0</sup> lowering has applied. It is worth noting that, for Arabic, this argument is not valid, since the position of TP adverbs in embedded clauses is necessarily below that of the complementizer:

- (4.4) (a) *qa:lɑ*                    *ʔahmad ʔin:a ʕaliy: ʕadɪdan dʒa:ʔa*  
 said.3.SG.MASC Ahmed that Ali came.3.SG.MASC  
 “Ahmed said that Ali came.”
- (b) ??*qa:lɑ ʔahmad ʔin:a ʕadɪdan ʕaliy: dʒa:ʔa*
- (c) \**qa:lɑ ʔahmad ʕadɪdan ʔin:a ʕaliy: dʒa:ʔa*

Given these examples, the argument advanced against T<sup>0</sup>-to-C<sup>0</sup> movement in Fassi Fehri (1993) seem untenable. However, the next section gives evidence to believe that the simple analysis of verb raising to C<sup>0</sup> is incorrect, at least for the Arabic data.

## 4.2 Focus Constructions and FinP

While the arguments in §4.1 can be construed to mean that Arabic has T<sup>0</sup>-to-C<sup>0</sup> raising in root clauses, that is not the only interpretation which can be given to those facts. Another interpretation would hold that they simply show that the verb in VSO constructions in Arabic has moved *into the complementizer layer*, provided this layer consists of more than simply C<sup>0</sup> and its projection. This is the argument that this section advances.

### 4.2.1 Negative Contrastive Focus

The reason to doubt the simple T<sup>0</sup>-to-C<sup>0</sup> raising analysis for Arabic comes from negative contrastive focus constructions in embedded clauses. Consider the data below:

- (4.5) (a) *qa:la*                      *ʔahmad ʔin:a ma-zard ʔaliy: dʒa:ʔa*  
           said.3.SG.MASC Ahmed that NEG-Zayd Ali came.3.SG.MASC  
           ‘‘Ahmed said that Ali, not Zayd, came.’’
- (b) *qa:la*                      *ʔahmad ʔin:a ma-zard dʒa:ʔa ʔaliy:*  
           said.3.SG.MASC Ahmed that NEG-Zayd came.3.SG.MASC Ali  
           ‘‘Ahmed said that Ali, not Zayd, came.’’

These data pose two problems for the raising to C<sup>0</sup> analysis. (a) is problematic because it is unclear which positions are available for the two items which appear after the complementizer but before the verb: the negative contrastive element and the sentential subject. One of the two could presumably be hosted in [Spec, T<sup>0</sup>], but not both. (b) is similarly problematic. While it would be possible for *ma-zard* to reside in [Spec, T<sup>0</sup>], it is not clear that it should do so, given that it has a focus interpretation.

Consider, now, the data in (4.6):

- (4.6) (a) *yī-dʿrib ma-l-bint l-wəlad al-qaadi*  
 3.MASC.SG-hit NEG-the-girl the-boy the-judge  
 “The boy, not the girl, hit the judge.”

These data show that the position of negative contrastive focus in root clauses is *after* the lexical verb. This fact accords with the idea that the verb is in complementary distribution with the complementizer.

### 4.2.2 The Arabic Left Periphery

Given the arguments in §4.2.1, it makes sense to explore an extended version of the complementizer layer of Arabic clauses. The natural place to look is in the extended left periphery of Rizzi (1997), given in figure 4.1. This system provides two projections which could host the verb as it moves into the complementizer layer, FinP, the projection immediately dominating TP, and ForceP, the projection hosting the complementizer in embedded clauses.

It remains to be shown, however, exactly which projection it is that houses the verb and/or subject in Arabic clauses. A review of the literature gives two possibilities for the label of FP in figure 3.2:  $\Sigma$ P as proposed by Laka (1994), and FinP in the articulated theory of the left periphery as given above.

There are two reasons I believe the FinP projection to be a superior target for this verb movement. The first is pretheoretical:  $\Sigma$ P has been shown in the literature to be the landing site for many different kinds of movement which express different kinds of propositions. It is for this reason that Laka (1994) notes that the name  $\Sigma$ P comes from the idea of a functional head which helps regulate the Speech Act of the sentence. Because of this,  $\Sigma^0$  can be seen as a less restricted head in terms of the functions it controls and denotes. To the extent that FinP makes more restrictive claims about the kinds of movement we should see to that position, I consider it preferable.

The second argument comes from the character which the analysis will eventually propose for the Fin<sup>0</sup> head in terms of feature content. Chapter 5 will make a concrete proposal concerning the featural makeup of Fin<sup>0</sup>, arguing for the existence of an uninterpretable number feature on this

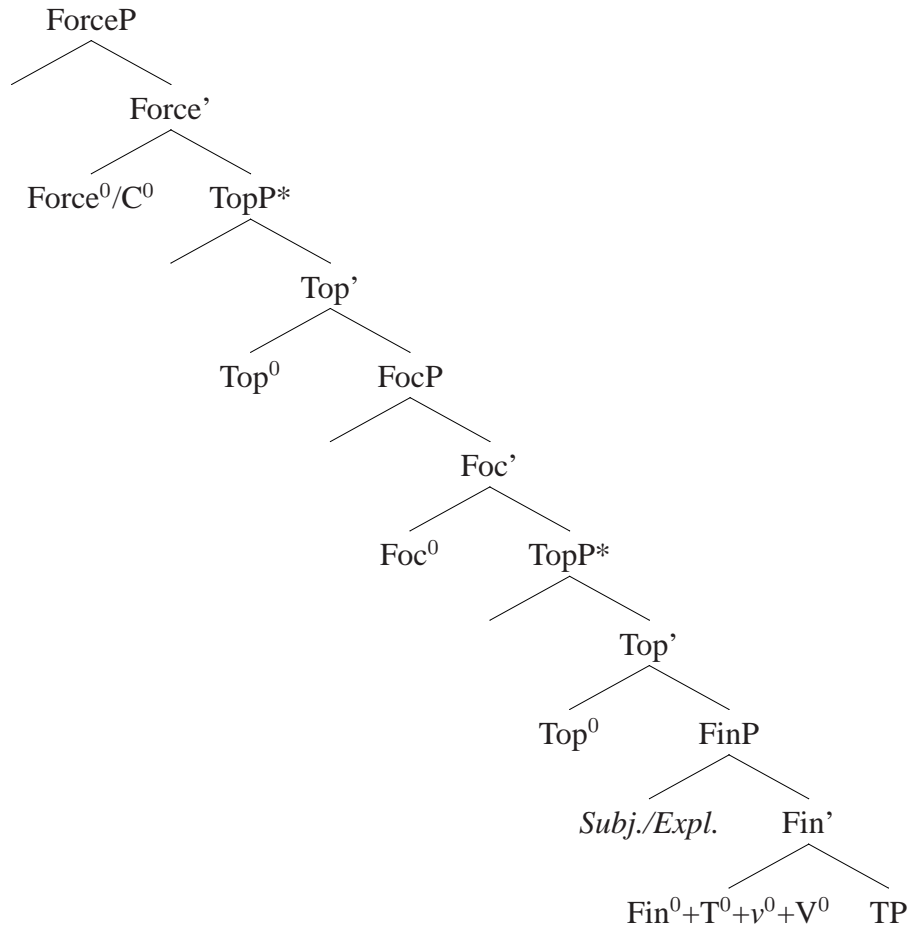


Figure 4.1: Rizzi (1997)'s Left Periphery

head. In this sense, the proposal advanced here accords more comfortably with the Rizzi (1997) idea that low projections in the left periphery (specifically, FinP) can be endowed with agreement features. Furthermore, the placement of this number feature on the  $\text{Fin}^0$  head will also make an explicit connection between the presence of number agreement and finiteness cross-linguistically. To put it another way, associating number with  $\text{Fin}^0$  in this way could possibly be used to explain the lack of number features in nonfinite contexts.

Given the arguments in this section and the articulated structure of the left periphery given in Rizzi (1997) (see fig. 4.1), we can now conclude that the FP in Benmamoun (2000)'s clause structure as shown in fig. 3.2 is the Rizzian Finite Phrase, given its position in the clausal architecture.

### 4.3 Cross-Linguistic Evidence for FinP

This section gives further arguments concerning the validity of positing FinP as a locus for subject and verb movement into the complementizer layer.

#### 4.3.1 Scandinavian Languages and FinP

The proposal made in the previous section is not new in VSO and verb-first phenomena analyses. Holmberg and Platzack (2005) argue that many cross-linguistic generalizations concerning the Scandinavian languages can be explained by utilizing FinP. They argue that data from Transitive Expletive Constructions shows that the difference between the Mainland Scandinavian languages (which lack TEC's) and Icelandic (which has TEC's) is reducible to a difference in the locus of a  $\mu\text{Fin}$  feature.

This feature is presumed to be the FinP counterpart to the Pesetsky and Torrego (2001) analysis of nominative case as  $\mu\text{T}$  on  $\text{D}^0$ . In Icelandic, they claim, the  $\mu\text{Fin}$  feature is present on person inflection generally, meaning that it can be checked by raising of the verb to the  $\text{Fin}^0$  head. In the Mainland Scandinavian languages, however, this feature exists on DP's as a whole (much like the  $\mu\text{T}$  feature for Pesetsky and Torrego). This forces the raising of the DP to the [Spec, FinP] position

in order to check its uninterpretable finiteness feature. They also argue that this analysis is capable of explaining certain facts concerning object shift, stylistic fronting, and embedded word order.

It is also worth noting that this data is confirmed by facts which Holmberg and Nikanne (1994); McCloskey (1997) note about colloquial Finnish:

- (4.7) (a) *sitå leik:i: lapsia kadl:*  
 EXP play children in-street  
 “There are children playing in the street.”
- (b) *sitå eivåt nåmå lapset olisi ikinå op:inet kåvelemå:n*  
 EXP NEG-P3 these children have [COND] ever learned walk [-FIN]  
 “These children would never have learned to walk.”
- (4.8) (a) *onko sitå leik:inyt lapsia kadul:a?*  
 have-Q EXP played children in-street  
 “Have there played children in the street?”
- (b) *nåmå lapset sitå elvåt olisi ikinå op:inet kåvelemå:n*  
 these children EXP NEG-P3 have [COND] ever learned walk [-FIN]  
 “THESE CHILDREN would never have learned to walk.”

The data in (4.8) are illustrative because they confirm a prediction made by utilizing FinP as a subject landing site: anything which appears overtly to the left of the expletive *sitå* should either be a complementizer or bear contrastive/focal stress. This is precisely what we see in the data from Finnish.

### 4.3.2 African American and Ulster English

Another important argument for verb raising to a high position as argued in the preceding sections comes from two non-standard varieties of English: African American Vernacular English (AAVE) and Ulster English (UE).<sup>2</sup>

African American Vernacular English shows a particular kind of negation/negative concord which shows the finite auxiliary in a high position to the left of the subject:

<sup>2</sup>The data for both these varieties comes from McCloskey (1997) and Alison Henry.

- (4.9) (a) Ain't nothin' happenin'  
 (b) Can't nobody say nothin' to dem peoples!  
 (c) Can't nobody hold me down.  
 (d) Didn't nobody see it.  
 (e) Ain't no other man like you.

What is particularly instructive about (4.9) concord is that it can occur in constructions in which  $T^0$ -to- $C^0$  movement is not allowed, namely, embedded clauses, where the Doubly-filled Comp Filter would rule inversion out:

- (4.10) (a) I know a way that can't nobody start a fight.  
 (b) It's a reason didn't nobody help him.  
 (c) I know ain't nobody leavin'.

Finally, and most importantly, this construction interacts with canonical VP-adverbs to show that the subject still occupies a high position, presumably [Spec, TP]:<sup>3</sup>

- (4.11) (a) I know a way that can't nobody fail that exam completely.  
 (b) \*I know a way that can't nobody fail that completely exam.  
 (c) \*I know a way that can't nobody fail completely that exam.  
 (d) I know a way that can't nobody completely fail that exam.  
 (e) \*I know a way that can't completely nobody fail that exam.  
 (f) \*I know a way that completely can't nobody fail that exam.
- (4.12) (a) I know ain't nobody leaving quickly.  
 (b) I know ain't nobody quickly leaving.  
 (c) \*I know ain't quickly nobody leaving.  
 (d) \*I know quickly ain't nobody leaving.

The conclusion that this phenomenon involves verb raising to FinP is supported by the data from UE, which allows an imperative verb to invert past a subject and/or shifted object:

- (4.13) (a) Throw us you that rope.  
 (b) Throw you us that rope.

---

<sup>3</sup>Which is what one would expect of English anyway, since  $T^0$  presumably has an EPP feature which must be checked. I would also like to thank Nathan Locke, a correspondent from Milwaukee, Wisconsin, for this data.

- (c) Bring them you over here to me.
- (d) Bring you them over here to me.

Most importantly, the subject *must appear below the verb but above the complements in nonfinite contexts*:

- (4.14) (a) Be picked yous for that team or I'll be furious.  
 (b) Have gone you out before I get back.

The data in this section show that FinP is a viable landing site for verb raising in Arabic and other languages, cross-linguistically, assuming it is the projection which immediately dominates TP. This solves the problem of where the subject lands in VSO clauses in Arabic - it can move to the specifier of the Fin<sup>0</sup> head housing the verb. However, it does not yet answer the question of how it gets there, or how its getting there causes number agreement to manifest itself on the verb. Those questions are the topic of the next section.

Concluding the discussion in this chapter concerning the Arabic clausal architecture, this analysis gives the Arabic clause as given in figure 4.2.<sup>4</sup> At this point we have an analysis of the structural position of Arabic arguments. What remains is to explain how, given the features and structural relations present in the structure as fed to Spell-Out, the Arabic verb comes to receive the overt morphological agreement it displays. This topic is the subject of the following chapter.

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<sup>4</sup>Asp(ect)P is included as the locus of lexical verb agreement in auxiliary constructions. In the case of auxiliary constructions like (1.4), the lexical verb raises as high as Asp<sup>0</sup>, which is endowed with a full set of uninterpretable  $\phi$ -features. This final raising to Asp<sup>0</sup> ensures full morphological expression of agreement between the lexical verb and the subject. The auxiliary is then enumerated in V<sup>0</sup> and raises to the left edge of the clause, to undergo the agreement asymmetry effects outlined in the next chapter.

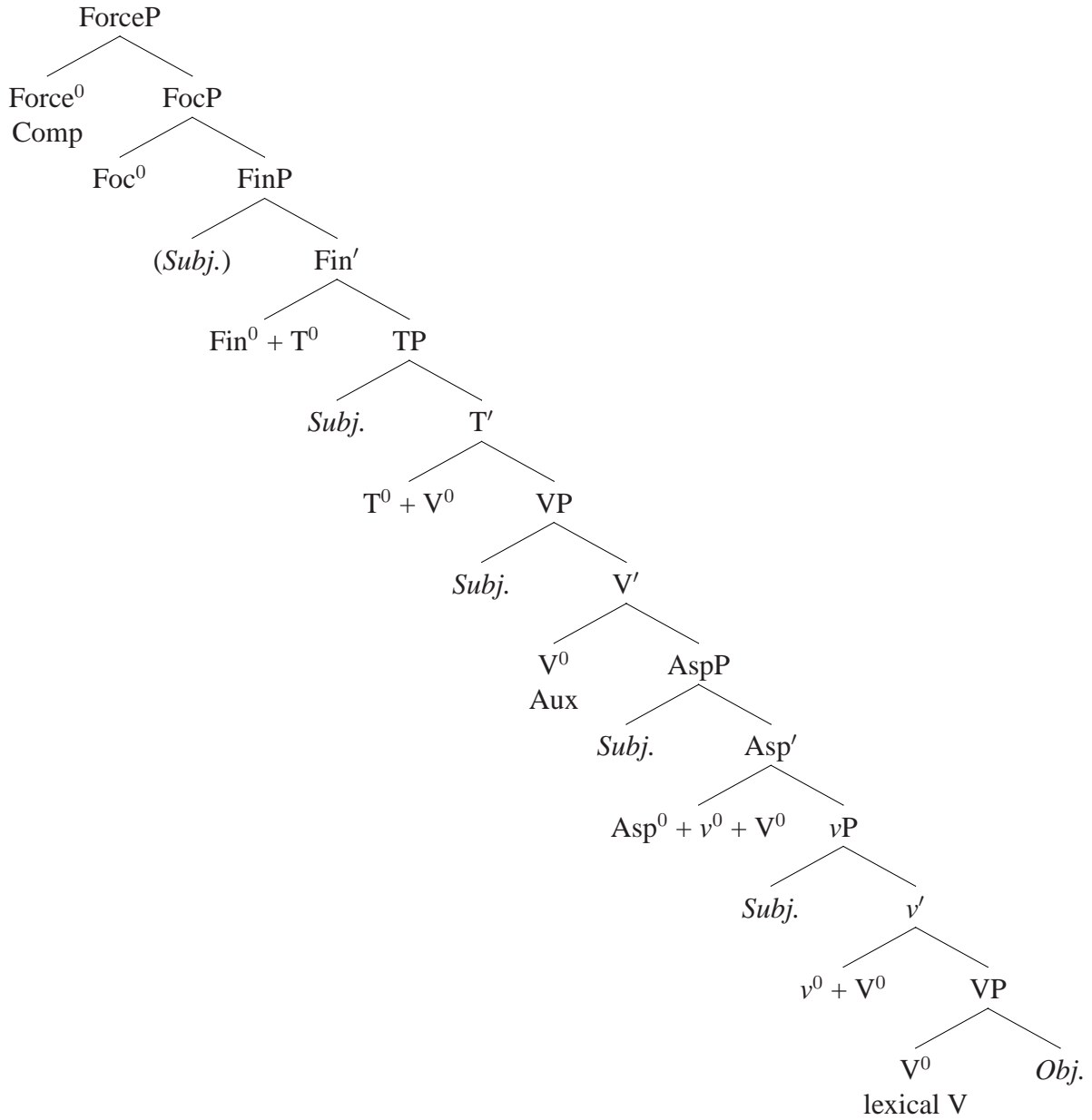


Figure 4.2: The Arabic Clause

# Chapter 5

## Arabic Agreement and Optionality

This chapter provides an account of the weak agreement paradigm as shown for Arabic in Chapter 1. Section 5.1 reviews the major theoretical assumptions used in this work which are beyond the basic minimalist architecture as outline in Chomsky (2000). It also outlines how the distribution of  $\phi$ -features across multiple heads can be responsible for weak agreement. Section 5.2 explicates the analysis of Arabic weak agreement which updates the expletive analysis from Mohammad (1999). Finally, section 5.3 discusses a variety of loose ends remaining the work, including possible parameterization and motivations for movement as evidenced by Arabic.

### 5.1 Formal Assumptions

#### 5.1.1 The Distribution of Features

Benmamoun and Lorimor (2006) argue that there are three possibilities to consider whenever morphophonological features are absent from expression in a language:

1. The feature was never generated.
2. The feature was generated but deleted later.
3. The feature was generated but can be realized in different ways.

(1), above, is clearly a stipulative account, and does not allow for explanation of *why* the specific feature was never generated, and why it is generated in other contexts. (2) is the argument that Aoun et al. (1994) pursue in their clausal conjunction analysis. As was noted in §2.4, however, this account relies on a notion of Spec-Head agreement, and is therefore untenable under current syntactic theory. This is also the route taken by Ackema and Neeleman (2003, 2004), and §2.5.1 argued against this account. (3) is closest to the account which will be pursued here, which will assume that weak agreement occurs when the  $u\text{Num}$  feature responsible for verbal agreement is generated on a higher projection than the one which hosts the verbal complex when the other  $\phi$ -features are checked. This claim means that something else can be responsible for the checking of  $u\text{Num}$  other than the lexical subject - in this case, an underspecified expletive.

### 5.1.2 Syntactic Closeness

In order to explain how a  $u\text{Num}$  feature which is generated on a higher projection (in this case,  $\text{Fin}^0$ ), there must be an account of how this feature comes to be on the verbal complex after Spell-Out. In order to do this, I appeal to a particular notion of syntactic closeness as outlined in Pesetsky and Torrego (2001). Consider the following claim:

**(5.1) Closeness:** Y is closer to K than X if K c-commands Y and Y c-commands X.

(Pesetsky and Torrego, 2001, pp.5) argue that since this notion involves c-command rather than “note counting,” it means that in a configuration such as 5.1, both XP and  $Y^0$  are the same distance from the head  $Z^0$ .

This means that it should be possible for either XP or  $Y^0$  to be the trigger for the **Agree** operation. If either option led to a successful (i.e., noncrashing) derivation, then we would predict that both options should be available in the grammar. Indeed, Pesetsky and Torrego write: “In embedded declarative clauses, C seems to be able to choose freely between TP and Spec, TP when it looks for a way to delete its  $uT$  feature. This is expected, since both TP and its specifier bear a tense feature (interpretable on TP, uninterpretable on its specifier) - and both are equally close to

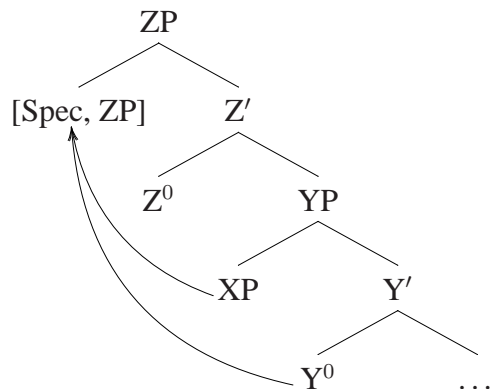


Figure 5.1: Syntactic Closeness

C.” Note that this is only possible on the assumption that  $D^0$  retains its  $uT$  feature, which should have been deleted once it enters into a checking operation with  $T^0$ . For this reason, Pesetsky and Torrego (2001) assume that while features may be checked at any time in the derivation, *they only delete during a Spell-Out cycle*. Under the rather conservative assumption that only  $vP$  and CP constitute phases, this is tantamount to retaining these features for computation until ForceP has been entered into the derivation. Carstens (2003) provides empirical support for this given data from complementizer agreement. Finally, it should be noted that having both  $T^0$  and  $D^0$  check the  $uT$  feature on  $C^0$  would be a minimality violation, given that a derivation where both elements of TP check against  $C^0$  involves two operations of **Agree** versus one in the two alternative derivations.

This analysis is the route I will pursue. The next section provides an analysis of the same sorts, replacing “C” in Pesetsky and Torrego’s work with  $Fin^0$ . In figure 5.1, this will amount to  $Z^0 = Fin^0$ ,  $XP = DP$ , and  $V^0 = T^0$ .

One last theoretical point is in order here. Pesetsky and Torrego (2001, 2004) also make the controversial assumption in their work, namely that the same features which drive phrasal movement drive head movement. In this, they follow Chomsky (1995) (c.f., Chapter 5 and the discussion concerning the formal features of  $C^0$ ) and others. While other ideas have been advanced in the literature, such as head movement as a PF phenomenon (Boeckx and Stjepanovic, 2001), I adopt the idea that the same features are responsible for both kinds of movement. This figures in the

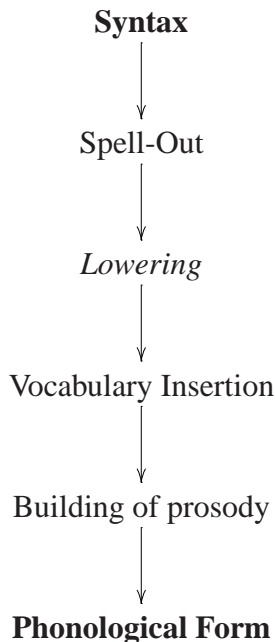


Figure 5.2: The Distributed Morphology Model

work by driving the assumption that *all feature checking relations involving a goal which is hosted on a head must be local*. What is important for our purposes here is that there is a biconditional implicating head movement as the only way to check syntactic features on heads. Concretely, the work here will assume that head movement occurs first by an **Agree** operation which relates the head containing the **Probe** to the head containing the **Goal**. This **Agree** relation necessitates a local relationship between the two heads, which is realized by head adjunction of the **Goal** to the **Probe**.

### 5.1.3 Distributed Morphology and Lowering

First, however, it is necessary to review one other theoretical assumption for clarity. This analysis also makes use of the theory of Distributed Morphology (Halle and Marantz (1993), *inter alia*), specifically as it is implemented in Embick and Noyer (2001). Distributed Morphology is a theory of the connection between the narrow syntax and the PF-Interface which is responsible for final manipulations of feature structures, movement, and other syntactic operations. Specifically, it

supposes a model of the phonological component as is figure 5.2.

What concerns us here is the italicized operation, *Lowering*.<sup>1</sup> This operation has a formalization as in 5.1.3.<sup>2</sup>

**(5.2) Lower:**  $[_{XP} X^0 \dots [_{YP} \dots Y^0 \dots]] \rightarrow [_{XP} \dots [_{YP} \dots Y^0 + X^0 \dots]]$

Note that this operation has a strict ordering relative to other syntactic and post-syntactic operations. Specifically, it must happen *after* syntax but *before* vocabulary insertion, taking as its argument the structure that is the output of syntax after all overt syntactic operations have occurred (pp. 567). This entails, given that Distributed Morphology proposes a model of the operational component separating the point of Spell-Out from PF, that the “Distributed Morphology Cycle” (i.e., 5.1.3) happens once for each syntactic cycle (or phase).

Specifically, Embick and Noyer (2001) propose that lowering accounts for *do*-insertion in English in applying whenever TP has an immediate *v*P complement to lower the tense features of  $T^0$  onto  $v^0$ . Moreover, this operation is not strictly local (and therefore, by extension, the operation **Lower** need not be). As Embick and Noyer (2001) put it, “because lowering involves adjunction of a head to a head, and these heads need not necessarily be linearly adjacent, Lowering has a (potentially) nonlocal, that is, nonadjacent, character.” The data from English *do*-insertion bears this out:

- (5.3) (a) Mary  $[_{TP} t_1 [_{vP} \textit{loudly play-ed}_1 \textit{the trumpet}]]$   
 (b) \*Mary did play the trumpet

The data in (5.3) show that the adverb *loudly* does not intervene on the operation of **Lower**, suggesting that the operation may skip intervening adjuncts (but presumably not intervening heads).

<sup>1</sup>I will not attempt to give here an overview of Distributed Morphology, as it is beyond the scope of this work. For this, see Halle and Marantz (1993, 1994); Harley and Noyer (1999); Embick and Noyer (2001, 2005); Embick and Marantz (2006), *inter alia*.

<sup>2</sup>Embick and Noyer (2001) revise this definition of **Lower** later in their work. My use of **Lower** is consistent with both their definitions, so I use the earlier one for simplicity. It is also worth noting that one need not necessarily adopt Distributed Morphology to have this account, as it is tantamount to Affix Hopping as used in McCloskey (1996). I adopt Distributed Morphology here since this model of morphology fits well with minimalist syntax.

Returning to the discussion in the previous section, it is possible for a lowering operation to take place, moving or copying the features of  $Z^0$  onto  $Y^0$ , which remains *in situ*, as sketched in (5.3).<sup>3</sup> Again, this is the analysis we will pursue, taking the relevant feature to be  $u\text{Num}[\ ]$ .

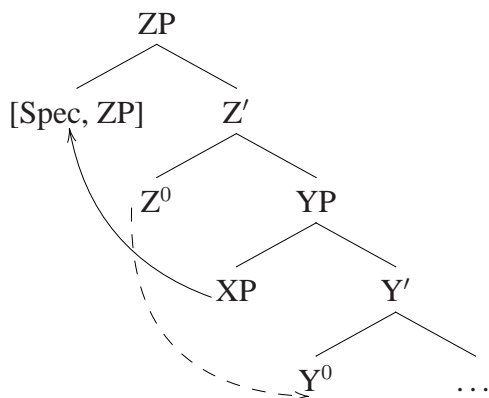


Figure 5.3: Closeness with Lowering

## 5.2 The Expletive Hypothesis

Given the notions of syntactic closeness and **Lower** as detailed in the previous section, there is now a possible novel analysis of the Arabic Expletive Hypothesis (EH) as given Mohammad (1999). In this analysis, an underspecified *pro* is responsible for checking the the  $u\text{Num}$  feature on  $\text{Fin}^0$ . In order to demonstrate the validity of this analysis, it is first necessary to discuss the feature makeup of the  $\text{Fin}^0$  and  $T^0$  heads in Arabic.

### 5.2.1 The Featural Makeup of $\text{Fin}^0$

This section proposes the featural makeup of  $\text{Fin}^0$  in this analysis, outlines the proposed clausal structure of Arabic VSO and SVO clauses, and shows how this analysis explains the Arabic facts.

More concretely,  $\text{Fin}^0$  is presumed to have the following features:

- $u\text{Num}$  - the verbal number agreement feature.
- $i\text{Fin}$  - the  $\text{Fin}^0$  head's semantic contribution to the clause.

<sup>3</sup>In this and future diagrams, I represent **Lower** as a dashed line.

- $\mu T$  - the selectional restriction/feature of  $\text{Fin}^0$ .

I also claim in this analysis that Rural Palestinian Arabic lacks an uninterpretable number feature on its  $T^0$  head, leaving its set of subject-agreement  $\phi$ -features distributed across the two heads,  $T^0$  and  $\text{Fin}^0$ .<sup>4</sup> This accounts for the rarity of this asymmetric agreement cross-linguistically, given that it is a marked option to distribute  $\phi$ -features responsible for one kind of agreement (i.e., subject or object agreement) across more than one functional head.

### 5.2.2 The New Expletive Hypothesis

One can almost immediately notice that there are two possible **Goals** for  $\text{Fin}^0$  to check its  $\mu T$  feature against given the notions of closeness adopted here:

1.  $\mu T$  on  $D^0$ : SVO order.
2.  $iT$  on  $T^0$ : VSO order.

(1) arises when the nominative case feature ( $\mu T$  on  $D^{05}$ ) enters into an **Agree** relation with the  $\mu T$  feature on  $\text{Fin}^0$ . Recall that this is possible because, as shown in §5.1.2, checked features do not delete from the syntax until the next cycle of Spell-Out (in this case, CP/ForceP). The subject then still bears a  $\mu T$  feature which may allow it to move to the specifier of  $\text{Fin}^0$  after entering into an **Agree** relationship with  $\text{Fin}^0$  (specifically, the  $\mu\{T, \text{Num}\}$  features on that head).

In this configuration, however, syntactic computation ends with the  $\phi$ -features which control verbal agreement spread out across two heads -  $\mu\text{Num}$  on  $\text{Fin}^0$  and  $\mu\{\text{Person}, \text{Gender}\}$  on  $T^0$ . Since the verbal complex remains in the Tense head, there must be a way to move the now checked  $\mu\text{Num}$  feature on  $\text{Fin}^0$  to  $T^0$ , so that when vocabulary insertion occurs on the verbal complex, a verb with overt number agreement is inserted. This is where **Lower** from §5.1.3 becomes important.

<sup>4</sup>See below for the implications of this for parameterization of the asymmetric number agreement

<sup>5</sup>This is a characterization of nominative case argued for in some detail in Pesetsky and Torrego (2001). I do not wish to review that work here, but only note that it is desirable insofar as it offers a measure of optionality in the checking of features and movement of DP's in the left edge of the clause - both necessary in any account of the Arabic facts.

Specifically, something like (5.2.2) is at play in Arabic. This condition requires the operation of **Lower** for convergence.

**(5.4) Arabic Lowering:** All the subject  $\phi$ -features present in the derivation must reside on a single head/complex at PF.

This results, then, in the configuration in figures 5.4 and 5.5.<sup>6</sup>

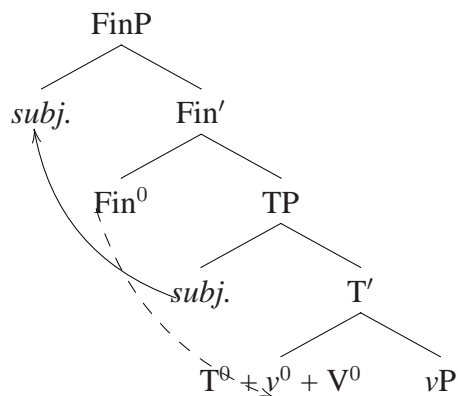


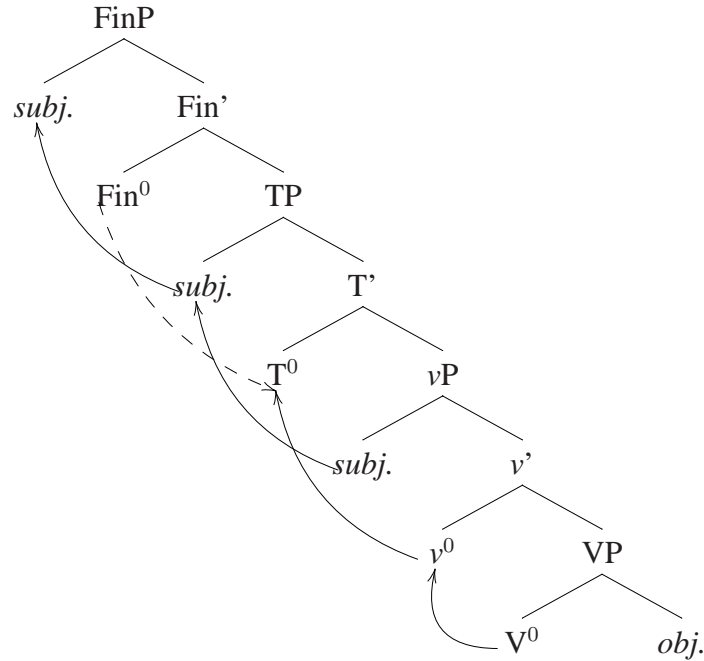
Figure 5.4: SVO Clauses in Arabic

(2) is the more interesting derivation from the point of view of the EH, and results in VSO order. In this case, the  $\text{Fin}^0$  head checks its  $uT$  feature against the  $iT$  feature on  $T^0$ . As per the mechanics of head movement adopted here following Pesetsky and Torrego (2001), head movement then results, moving the verbal complex in  $T^0$  to  $\text{Fin}^0$ . At this point,  $\text{Fin}^0$  still has a  $u\text{Num}$  feature which must be checked. Expletive insertion of a *pro* underspecified for all  $\phi$ -features except number then occurs, checking the  $u\text{Num}$  feature on  $\text{Fin}^0$  against the singular  $i\text{Num}$  of *pro*. This is all that is needed for convergence, since (5.2.2) is satisfied, and the structure in figures 5.6 and 5.7 results.

### 5.2.3 Evidence for *pro*

This section discusses the evidence for the existence of *pro* in Mohammad (1999), and shows that *pro* is needed in other default agreement contexts in Arabic.

<sup>6</sup>In the derivations in this chapter, I omit computation below the level of  $vP$ . For more on the interaction of auxiliaries with this structure, see §5.3.



1. **Merge**( $T^0, vP$ ) = [ $T'$   $T^0$   $vP$ ]
2. **Agree**( $T^0_{uPerson,uGender}, subj.$ ) = [ $T'$   $T^0_{uPerson,uGender}$   $vP$ ]
3. **Move**( $subj., T^0$ ) = [ $TP$   $subj.$  [ $T'$   $T^0$   $vP$ ]]
4. **Agree**( $T^0, v^0_{uTense}$ ) = [ $TP$   $subj.$  [ $T'$   $T^0$   $vP$ ]]
5. **Move**( $v^0, T^0$ ) = [ $TP$   $subj.$  [ $T'$   $T^0 + v^0$   $vP$ ]]
6. **Merge**( $Fin^0, TP$ ) = [ $Fin'$   $Fin^0$  [ $TP$   $subj.$  [ $T'$   $T^0 + v^0$   $vP$ ]]]
7. **Agree**( $Fin^0_{uT,uNumber}, subj.$ ) = [ $Fin'$   $Fin^0_{uNumber}$  [ $TP$   $subj.$  [ $T'$   $T^0 + v^0$   $vP$ ]]]
8. **Move**( $subj., Fin^0$ ) = [ $FinP$   $subj.$  [ $Fin'$   $Fin^0$  [ $TP$   $t_{subj.}$  [ $T'$   $T^0 + v^0$   $vP$ ]]]]]
9. **Lower**( $uNum, T^0$ ) = [ $FinP$   $subj.$  [ $Fin'$   $Fin^0$  [ $TP$   $t_{subj.}$  [ $T'$   $T^0 + v^0$   $vP$ ]]]]]

Figure 5.5: Arabic SVO Clauses

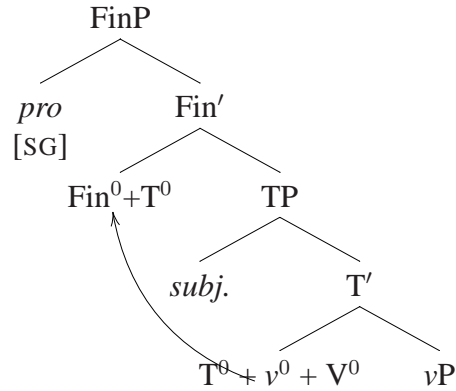


Figure 5.6: VSO Clauses in Arabic

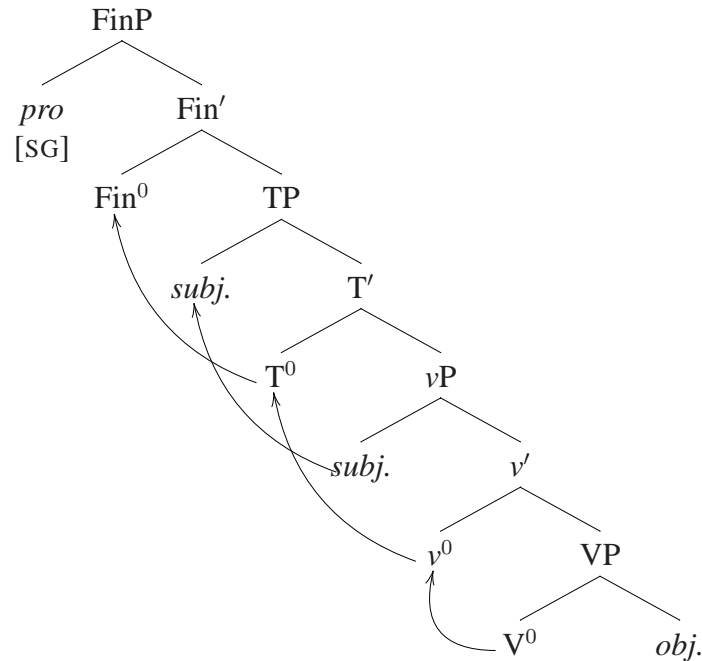
### 5.2.4 A Note about Pronouns

One of the major criticisms which is leveled against the EH as outlined in Mohammad (1999) is that it cannot account for the agreement facts which obtain with postverbal pronominals. Specifically, pronouns in Arabic dialects which have the agreement asymmetry still trigger full agreement, even postverbally:

- (5.5) 1. *d<sup>f</sup>arab-u: hu:m l-həmr̩*  
 hit.PAST-3.PL they the-donkey  
 “They hit the donkey”
2. *\*d<sup>f</sup>arab hu:m l-həmr̩*  
 hit.PAST-3.SG.MASC they the-donkey  
 “They hit the donkey”
3. *\*d<sup>f</sup>arab-at hu:m l-həmr̩*  
 hit.PAST-3.SG.FEM they the-donkey  
 “They hit the donkey”

(5.5) is unexpected in the EH as given in earlier works, since the EH predicts that no full agreement should obtain when any subject is postverbal.

There is a way out of this apparent dilemma, however. Mohammad (1999) notes that these postverbal pronouns can only occur with a fixed prosody - that of focus - since Arabic is normally a prodrop language. This generalization is typically captured by noting that pronouns, when used



1. **Merge**( $T^0$ ,  $vP$ ) = [ $T'$   $T^0$   $vP$ ]
2. **Agree**( $T^0_{uPerson,uGender}$ ,  $subj.$ ) = [ $T'$   $T^0_{uPerson,uGender}$   $vP$ ]
3. **Move**( $subj.$ ,  $T^0$ ) = [ $TP$   $subj.$  [ $T'$   $T^0$   $vP$ ]]
4. **Agree**( $T^0$ ,  $v^0_{uTense}$ ) = [ $TP$   $subj.$  [ $T'$   $T^0$   $vP$ ]]
5. **Move**( $v^0$ ,  $T^0$ ) = [ $TP$   $subj.$  [ $T'$   $T^0$  +  $v^0$   $vP$ ]]
6. **Merge**( $Fin^0$ ,  $TP$ ) = [ $FinP$   $Fin^0$  [ $TP$   $subj.$  [ $T'$   $T^0$  +  $v^0$   $vP$ ]]]
7. **Agree**( $Fin^0_{uT}$ ,  $T^0$ ) = [ $FinP$   $Fin^0_{uNumber}$  [ $TP$   $subj.$  [ $T'$   $T^0$  +  $v^0$   $vP$ ]]]
8. **Move**( $T^0$ ,  $Fin^0$ ) = [ $FinP$   $Fin^0$  +  $T^0$  +  $v^0$  [ $TP$   $subj.$  [ $T'$   $t_T$   $vP$ ]]]
9. **Merge**( $pro$ ,  $Fin^0$ ) = [ $FinP$   $pro$  [ $Fin'$   $Fin^0$  +  $T^0$  +  $v^0$  [ $TP$   $subj.$  [ $T'$   $t_T$   $vP$ ]]]]]

Figure 5.7: Arabic VSO Clauses

in Arabic, must be fronted, as they are a focus element. Mohammad (1999) also notes that these postverbal pronouns are not allowed in embedded contexts. This second observation is key, as, given the structure assumed for the Arabic clause in figure 4.2, it provides a solution.

The structure in 4.2 already provides for capturing V2 effects in Arabic by allowing the verb to raise to Force<sup>0</sup> in root clauses. Since the pronouns are focused, a natural positional interpretation for postverbal pronouns is in the [Spec, Foc<sup>0</sup>] position, where Foc<sup>0</sup> is a functional projection which hosts focalized elements. The generalization typically noted in the literature that “pronouns must raise in Arabic” can then be captured by noting that they *do* raise - twice. The first movement is to the [Spec, Fin<sup>0</sup>] position, as is in accord with SVO clauses and full agreement more generally. The pronoun then makes a second movement to [Spec, Foc<sup>0</sup>], allowing it to receive focus prosody. Finally, as is typically the case in root clauses in Arabic, the verb moves to Force<sup>0</sup>, creating the illusion of a VSO surface string. Taken together, these movements produce the structure in figure 5.8.<sup>7</sup>

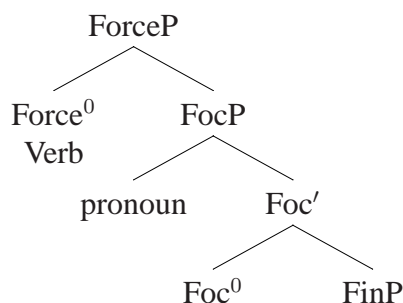


Figure 5.8: Arabic Postverbal Pronouns

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<sup>7</sup>This analysis does make a prediction concerning focused lexical DP's, which is that they should be allowed to surface between the verb and subject in root clauses, but not in embedded clauses. While I have no data which directly contradicts this prediction, I also have no attestations of it. Therefore, I leave this matter open for future research.

## 5.3 Loose Ends

### 5.3.1 Parameterization

The analysis here remains incomplete, however, unless it can be properly parameterized. As noted in §1.2.2, the modern spoken Arabic dialects vary with respect to the realization of the number agreement asymmetry. Specifically, this means that some dialects allow the previously assumed to be ungrammatical (5.6):

- (5.6) (a) *\*d<sup>f</sup>arab-at      ?al-bana:t    zaid*  
 Hit-PAST-3.F.Sg the-girls    Zayd  
 “The girls hit Zayd”
- (b) *d<sup>f</sup>arab-na      ?al-bana:t    zaid*  
 Hit-PAST-3.F.Pl the-girls    Zayd  
 “The girls hit Zayd”
- (c) *l-bana:t    d<sup>f</sup>arb-na      l-?avla:d*  
 The-girls hit-PAST-3.F.Pl the-boys  
 “The girls hit the boys”
- (d) *\*l-bana:t    d<sup>f</sup>arb-at      l-?avla:d*  
 The-girls hit-PAST-3.F.Sg the-boys  
 “The girls hit the boys”

In order to account for these dialects, I propose that the asymmetrically agreeing dialects (such as RPA) are innovative in distributing their  $\phi$ -features relating to subject agreement across two heads,  $\text{Fin}^0$  and  $T^0$ . Independent evidence for this comes from the relative rarity of weakly agreeing dialects. Most dialects in the Arabic continuum instantiate the optionally agreeing VSO clause (see below) or the fully agreeing option. The conservative dialects,<sup>8</sup> on the other hand, lack this distributed approach, and instead localize all their  $\phi$ -features on a single head,  $T^0$ . Looking back on the analysis proposed, we can see that this means that no matter the choice of SVO or VSO order, no new feature configuration arises on  $\text{Fin}^0$  in the movement to the  $\text{FinP}$  domain, re-

<sup>8</sup>These are dialects such as Urban Palestinian, Moroccan, and Iraqi Arabic.

ardless of the moved element (DP, T<sup>0</sup>). This means that no amount of movement will change the overdetermined outcome of a morphologically fully inflected verbal complex.

One could also ask if it would be possible to find dialects which exist in a state between the strongly agreeing dialects, which have all their  $\phi$ -features on the same head, and the weakly agreeing ones, which have number instantiated on Fin<sup>0</sup>. These dialects would allow *both* Fin<sup>0</sup> and T<sup>0</sup> to host the *u*Num feature, depending on lexical enumeration. I argue in the affirmative, given the existence of dialects such as Egyptian Arabic. These dialects are “mixed-agreement” dialects in that they can both exhibit the asymmetry and not exhibit it:

- (5.7) (a) *d<sup>f</sup>arab-at*            *?al-bana:t*    *zaid*  
 Hit-PAST-3.F.Sg    the-girls    Zayd  
 “The girls hit Zayd”
- (b) *d<sup>f</sup>arab-na*            *?al-bana:t*    *zaid*  
 Hit-PAST-3.F.Pl    the-girls    Zayd  
 “The girls hit Zayd”
- (c) *l<sub>i</sub>-bana:t*    *d<sup>f</sup>arb-na*            *l<sub>i</sub>-?avla:d*  
 The-girls    hit-PAST-3.F.Pl    the-boys  
 “The girls hit the boys”
- (d) *\*l<sub>i</sub>-bana:t*    *d<sup>f</sup>arb-at*            *l<sub>i</sub>-?avla:d*  
 The-girls    hit-PAST-3.F.Sg    the-boys  
 “The girls hit the boys”

Given this analysis, then, we can see the typological generalizations emerging for the Arabic dialects as given below:

Agreement	Num on T	Num on Fin	Dialect
Strong	Yes	No	Moroccan
Weak	No	Yes	RPA
Mixed	Yes	Yes	Egyptian

Table 5.1: Arabic Parameterization

### 5.3.2 EPP and Agree

Finally, it is interesting to note two trends in the Arabic data which shed light on the nature of the operations **Move** and **Agree**. The first of these concerns the relationship between the two as it pertains to the theory of movement. As noted in the theoretical discussion in Chapter 1, no proposals exist in the syntactic literature since the separation of **Agree** from **Move** (or the rejection of Spec-Head agreement) which relate the two operations in any serious way. However, the Arabic data and analysis advanced here, with its distribution of  $\phi$ -features across many heads suggests a connection between the checking of agreement features and movement like that in (5.3.2):

**(5.8) EPP Assignment:** If **Agree**( $X^0, \alpha$ ) applies for some **Probe**,  $X^0$ , and some goal,  $\alpha$ , and values *all* the  $\phi$ -features on  $X^0$ , then **Move**( $\alpha, [\text{Spec}, X^0]$ )

While this formulation of the EPP as a composite operation like **Move** would need to be parameterized for languages which allow long distance Agreement, it does make the correct predictions for the Arabic data. Specifically, its reference to only the  $\phi$ -features which exist on a head means that it will predict the movement to  $[\text{Spec}, \text{Asp}^0]$ ,  $[\text{Spec}, \text{T}^0]$ , and  $[\text{Spec}, \text{Fin}^0]$  in the analysis advanced here.<sup>9</sup>

(5.3.2) by itself is not sufficient, and indeed its introduction forces the introduction of another concept, an economy condition on the operation of **Agree** such as (5.3.2)

**(5.9) Full Application:** An operation of **Agree** targeting a head H against a DP X checks all features on H which have identical feature complements in X.

Given that identity is a sufficient condition for feature checking (Pesetsky and Torrego, 2001, 2004), the question remains as to why, for instance in Arabic SVO clauses, the  $\text{Fin}^0$  cannot use the sentential subject to check its  $u\text{T}$  feature, but not check its  $u\text{Num}$  feature in the operation, despite the presence of  $i\text{Num}$  on the DP. This would then require the insertion of *pro* for convergence. (5.3.2) disallows just this scenario by formalizing the notion of what Chomsky (1995) called a

<sup>9</sup>All the  $\phi$ -features on a head is given here in contrast to *all* of the  $\phi$ -features as a host-independent set, or any of the other features which can enter into checking relationships such as selectional features (e.g.,  $u\text{D}$ ).

“free-rider,” the idea that a feature which is not the primary target of an operation can be checked along with the feature which must be checked for the derivation to exit successfully.

This chapter has outlined how the Expletive Hypothesis of Mohammad (1999) can be updated using notions of syntactic closeness from minimalism and a morphological component such as Distributed Morphology which allows sharing of features between adjacent heads. If this approach is taken, then the weak agreement patterns exhibited by languages such as Arabic can be captured by the distribution of verbal agreement  $\phi$ -features over multiple heads. This approach is then easily parameterizable into the tripartite spectrum of agreement behavior in Arabic with respect to VSO clauses. Finally, this chapter showed that the Agreement facts in Arabic allow a unique approach to the relationship between **Agree** and **Move** which connect morphosyntactic exponence to syntactic movement, at least for Arabic.

# Chapter 6

## Derivations and Conclusion

### 6.1 Sample Derivations

This section concludes the discussion of optional agreement in Arabic with sample derivations of the sentences discussed in §1.2.2. For reference, I recapitulate the sample sentences below:

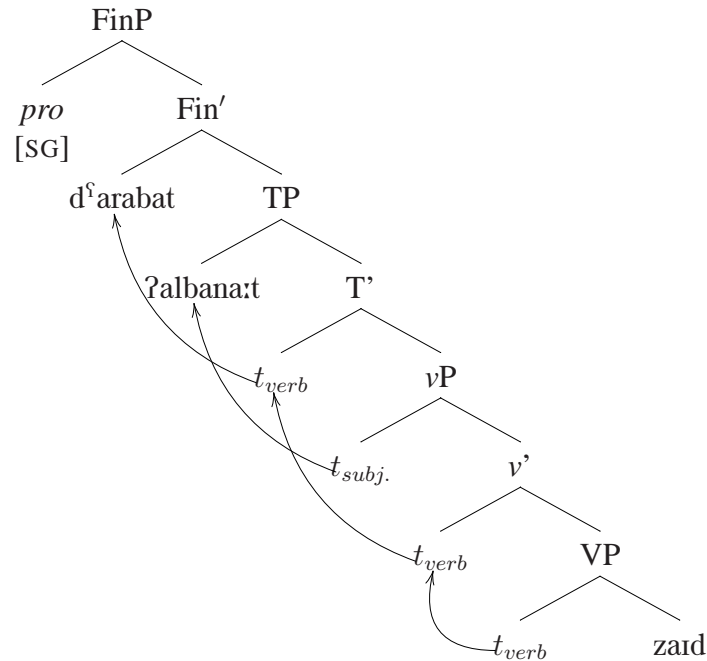
- (6.1) (a) *dʿarab-at*            *?al-bana:t* *zaid*  
Hit-PAST-3.F.Sg the-girls Zayd  
“The girls hit Zayd”
- (b) *l-bana:t*    *dʿarb-na*            *l-?awlad*  
The-girls hit-PAST-3.F.Pl the-boys  
“The girls hit the boys”

(6.1a) is an example of a VSO clause in a weakly inflecting dialect, and (6.1b) is an example of a SVO in the same dialect. Their derivations are given in (6.1 - 6.2), respectively.

In figure 6.1 we can see the derivation of the sentence (6.1a) from the introduction of  $T^0$  onward. The first step involves the merging of  $T^0$ . After this,  $T^0$  probes to check its two uninterpretable  $\phi$ -features,  $uPerson$  and  $uGender$ . It finds a suitable goal in the subject. Given our formulation of **EPP** in the previous chapter, step three results from the full valuation of  $T^0$ 's  $\phi$ -features. The verb in  $v^0$  then moves to  $T^0$  to check tense features.<sup>1</sup> Next the construction of FinP

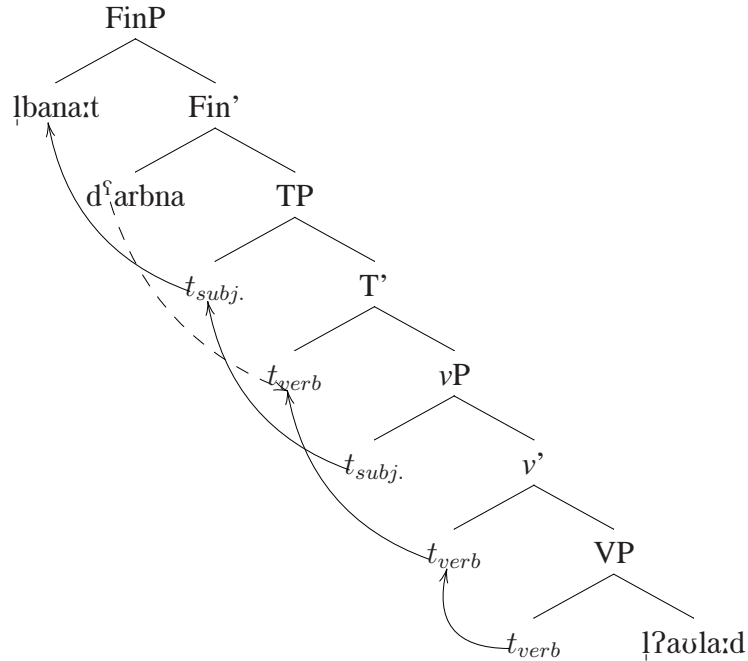
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<sup>1</sup>Note that strictly speaking, the temporal outline of subject movement as against verb movement is undetermined. See the previous chapter for discussion of head movement as triggered by feature checking.



1. **Merge**( $T^0$ ,  $vP$ ) = [ $T'$   $T^0$   $vP$ ]
2. **Agree**( $T^0_{uPerson,uGender}$ ,  $?albanat:t$ ) = [ $T'$   $T^0_{uPerson,uGender}$   $vP$ ]
3. **Move**( $?albanat:t$ ,  $T^0$ ) = [ $TP$   $?albanat:t$  [ $T'$   $T^0$   $vP$ ]]
4. **Agree**( $T^0$ ,  $d^s arabat_{uTense}$ ) = [ $TP$   $?albanat:t$  [ $T'$   $T^0$   $vP$ ]]
5. **Move**( $d^s arabat$ ,  $T^0$ ) = [ $TP$   $?albanat:t$  [ $T'$   $d^s arabat$   $vP$ ]]
6. **Merge**( $Fin^0$ ,  $TP$ ) = [ $FinP$   $Fin^0$  [ $TP$   $?albanat:t$  [ $T'$   $d^s arabat$   $vP$ ]]]
7. **Agree**( $Fin^0_{uT,uNumber}$ ,  $d^s arabat$ ) = [ $FinP$   $Fin^0_{uNumber}$  [ $TP$   $?albanat:t$  [ $T'$   $d^s arabat$   $vP$ ]]]
8. **Move**( $d^s arabat$ ,  $Fin^0$ ) = [ $FinP$   $d^s arabat$  [ $TP$   $?albanat:t$  [ $T'$   $t_T$   $vP$ ]]]
9. **Merge**( $pro$ ,  $FinP$ ) = [ $FinP$   $pro$  [ $Fin'$   $d^s arabat$  [ $TP$   $?albanat:t$  [ $T'$   $t_T$   $vP$ ]]]]]

Figure 6.1: VSO Clause with Weak Inflection



1. **Merge**( $T^0$ ,  $vP$ ) = [ $T'$   $T^0$   $vP$ ]
2. **Agree**( $T^0_{uPerson,uGender}$ ,  $l̥banat$ ) = [ $T'$   $T^0_{uPerson,uGender}$   $vP$ ]
3. **Move**( $l̥banat$ ,  $T^0$ ) = [ $TP$   $l̥banat$  [ $T'$   $T^0$   $vP$ ]]
4. **Agree**( $T^0$ ,  $d̥arbna_{uTense}$ ) = [ $TP$   $l̥banat$  [ $T'$   $T^0$   $vP$ ]]
5. **Move**( $d̥arbna$ ,  $T^0$ ) = [ $TP$   $l̥banat$  [ $T'$   $d̥arbna$   $vP$ ]]
6. **Merge**( $Fin^0$ ,  $TP$ ) = [ $Fin'$   $Fin^0$  [ $TP$   $l̥banat$  [ $T'$   $d̥arbna$   $vP$ ]]]
7. **Agree**( $Fin^0_{uT,uNumber}$ ,  $l̥banat$ ) = [ $Fin'$   $Fin^0_{uNumber}$  [ $TP$   $l̥banat$  [ $T'$   $d̥arbna$   $vP$ ]]]
8. **Move**( $l̥banat$ ,  $Fin^0$ ) = [ $FinP$   $l̥banat$  [ $Fin'$   $Fin^0$  [ $TP$   $t_{subj.}$  [ $T'$   $d̥arbna$   $vP$ ]]]]]
9. **Lower**( $uNum$ ,  $d̥arbna$ ) = [ $FinP$   $l̥banat$  [ $Fin'$   $Fin^0$  [ $TP$   $t_{subj.}$  [ $T'$   $d̥arbna$   $vP$ ]]]]]

Figure 6.2: SVO Clause with Strong Inflection

begins with the **Merge** of  $\text{Fin}^0$  with TP. This triggers a probe of  $\text{Fin}^0$ 's domain to check its  $uT$  feature. In this derivation,  $\text{Fin}^0$  chooses  $T^0$  (and its adjoined verb) as a Goal. This leads to the raising of  $T^0$  and the verbal complex to  $\text{Fin}^0$ . In this case,  $u\text{Num}$  on  $\text{Fin}^0$  remains unvalued, and singular *pro* is inserted to check  $u\text{Num}$ .

In the other derivation shown in 6.2, the derivation proceeds the same up through the merger of  $\text{Fin}^0$  in step six. At this point, as in the previous derivation, **Agree** searches  $\text{Fin}^0$ 's c-command domain for a Goal, but unlike the previous derivation, it does not find  $T^0$  as a goal, but  $uT$  on  $D^0$  in  $[\text{Spec}, T^0]$ . This leads to the checking of  $uT$  on  $\text{Fin}^0$  and  $u\text{Num}$  as a free rider. This full valuation of  $\phi$ -features leads to the application of **Move** to raise the subject in step eight. Finally, in the morphological component, **Lower** is the last operation to apply, lowering the valued number feature onto the verbal complex and allowing for spelling out of number agreement because of the presence  $u\text{Num}$  on  $\text{Fin}^0$ .

## 6.2 Future Research

As noted throughout the work, there are many places where the conclusions reached here shed light on areas which would be promising for future research. The first of these comes in the nature of  $\phi$ -feature distribution. The analysis advanced here argues that  $u\text{Num}$  is the only feature which is not realized in its canonical position on  $T^0$ . However, it would be possible to analyze the feature system of Arabic as not including  $u\text{Person}$  in VSO agreement (indeed, this is the claim made in Fassi Fehri (1993)). This work has not made a specific claim as to the locus of person agreement in Arabic. As such, future research is needed to determine the position of person agreement in the Arabic clause.

Turning to the empirical facts, Chapter 2 argued that Aoun et al. (1994) were correct in their characterization of first conjunct agreement, in addition to assuming that Fassi Fehri (1993) was correct in his claims concerning the nature of postverbal pronominals which trigger full agreement. These two facts, when taken together, can constitute an argument that Arabic is not analogous to

other VSO languages such as Irish. However, it is an interesting question as to whether the Arabic analysis here advanced can be made to accommodate more languages which McCloskey (1996) argues might be derived in a similar fashion (i.e., by verb movement around the subject).

Finally, since this work relied heavily on the Fin(ite) Phrase as introduced in Rizzi (1997), it also makes very specific predictions as to the structure of nonfinite clauses in VSO languages. However, these predictions vary based on what it means for a clause to be nonfinite - is FinP simply missing in these clauses (as Rizzi himself seems to imply), or is Fin<sup>0</sup> still present, but valued nonfinite? Given which way one answers this question, the implications for nonfiniteness in Arabic remain a topic for future investigation.

### 6.3 Conclusion

This work has attempted to stitch together various different topics of research in order to present a unified picture of VSO syntax as it applies to Arabic. Taking as a starting point the agreement asymmetry often noted in Arabic syntax, this work argued for FinP as a landing site, both for verbal movement in all clauses and subject movement in SVO clauses with full agreement. This work also analyzed V2 phenomenon as they are apparent in Arabic and argued that the nature of Arabic verb movement is more complicated than previous literature had assumed, suggesting that two verb landing sites on the left edge of the clause were adequate to capture the empirical facts. Building on the work of Mohammad (1999); Aoun et al. (1994), this work further argued for a refinement to the Expletive Analysis of the agreement asymmetries in existence between VSO and SVO clauses. Finally, it was argued that these facts represent a subpart of a broader principle active in the syntax which forces **Agree** relations that value all the  $\phi$ -features of a head to undergo a subsequent **Move** operation. While further research is undoubtedly needed to clarify and sharpen the analysis presented here, as well as extend it to other VSO languages, this work should provide a starting point for analyses which work toward subject movement outside of  $vP$  and high verb raising to account for syntactic facts.

# Bibliography

- Ackema, P., and A. Neeleman. 2003. Context-Sensitive Spell-Out. *Natural Language and Linguistic Theory* 21:681–735.
- Ackema, Peter, and Ad Neeleman. 2004. *Beyond Morphology: Interface Conditions on Word Formation*. Oxford: Oxford UP.
- Aoun, J., Elabbas Benmamoun, and Dominique Sportiche. 1994. Agreement, word order, and conjunction in some varieties of Arabic. *Linguistic Inquiry* 25:195–220.
- Aoun, Joseph, and Elabbas Benmamoun. 1999. Gapping, PF merger, and patterns of partial agreement. In *Fragments: Studies in ellipsis and gapping*, ed. Shalom Lappin and Elabbas Benmamoun. New York: Oxford UP.
- Bahloul, Maher, and Wayne Harbert. 1992. Agreement asymmetries in Arabic. *Proceedings of WCCFL* 11:15–31.
- Belletti, A., and C. Leonini. 2004. Subject inversion in L2 Italian. *Eurosla Yearbook* 4:95–118.
- Benmamoun, Elabbas. 1992. Functional and inflectional morphology: Problems of projection, representation and derivation. Doctoral Dissertation, University of Southern California, Los Angeles, CA.
- Benmamoun, Elabbas. 1998. Agreement asymmetries and the PF interface. Ms., University of Illinois at Urbana-Champaign.
- Benmamoun, Elabbas. 2000. *The feature structure of functional categories*. New York: Oxford.
- Benmamoun, Elabbas, and Heidi Lorimor. 2006. Featureless Expressions: When Morphophonological Markers Are Absent. *Linguistic Inquiry* 37:1–23.
- Bobaljik, Johnathan David, and Andrew Carnie. 1996. A minimalist approach to some problems of Irish word order. In *The syntax of the celtic languages*, ed. Robert D. Borsley and Ian Roberts, 223–240. Cambridge: Cambridge UP.
- Boeckx, Cedric, and S. Stjepanovic. 2001. Head-ing toward PF. *Linguistic Inquiry* 32:345–355.
- Carstens, Vicki. 2003. Rethinking Complementizer Agreement: Agree with a Case-Checked Goal. *Linguistic Inquiry* 34:393–412.
- Chomsky, Noam. 1981. *Lectures on Government and Binding*. Foris.

- Chomsky, Noam. 1995. *The Minimalist Program*. Cambridge, MA: MIT Press.
- Chomsky, Noam. 2000. Minimalist inquiries. In *Step by step: Essays on minimalist syntax in honor of Howard Lasnik*, ed. David Michaels Martin, Roger and Juan Uriagereka, chapter 3, 89–156. Cambridge, MA: MIT Press.
- Chomsky, Noam. 2001a. Beyond explanatory adequacy. *MIT Occasional Papers in Linguistics* 20.
- Chomsky, Noam. 2001b. Derivation by phase. In *Ken Hale: A Life in Language*, ed. Michael Kenstowicz. MIT Press.
- Chomsky, Noam, and Howard Lasnik. 1993. The theory of principles and parameters. *Syntax: An international handbook of contemporary research* 1:506–569.
- Chung, Sandra. 1998. *The design of agreement: Evidence from Chamorro*. The University of Chicago Press.
- Collins, Chris. 2001. Economy conditions in syntax. In *Handbook of contemporary syntactic theory*, ed. Mark Baltin and Chris Collins. Philadelphia: Blackwell.
- Diesing, Molly. 1990. Verb movement and the subject position in Yiddish. *Natural Language and Linguistic Theory* 8:41–79.
- Diesing, Molly, and Eloise Jelinek. 1995. Distributing arguments. *Natural Language Semantics* 3:123–76.
- Embick, David, and Alec Marantz. 2006. Architecture and blocking. Ms.
- Embick, David, and Rolf Noyer. 2001. Movement operations after syntax. *Linguistic Inquiry* 32:555–595.
- Embick, David, and Rolf Noyer. 2005. Distributed morphology and the syntax/morphology interface. In *The oxford handbook of linguistic interfaces*, ed. G. Ramchand and C. Reiss. Oxford: Oxford UP.
- Emonds, Joseph. 1981. Word order in generative grammar. *Journal of Linguistic Research* 1:33–54.
- Fassi Fehri, Abdelkader. 1988. Agreement in Arabic, binding and coherence. In *Agreement in natural language: Approaches, theories, description*, ed. M. Barlow and C. Ferguson, 107–58. Stanford: CSLI.
- Fassi Fehri, Abdelkader. 1993. *Issues in the structure of Arabic clauses and words*. Kluwer: Dordrecht.
- Fukui, N., and M. Speas. 1986. Specifiers and projection. *MIT Working Papers in Linguistics* 8:128–72.
- van Gelderen Elly. 1996. Parameterizing agreement features in Arabic, Bantu languages, and varieties of English. *Linguistics* 34:753–767.

- Halle, Morris, and Alec Marantz. 1993. Distributed morphology and the pieces of inflection. In *The view from building 20: Essays in linguistics in honor of Sylvain Bromberger*, ed. Kenneth Hale and Samuel Jay Kayser. Cambridge, MA: MIT Press.
- Halle, Morris, and Alec Marantz. 1994. Some key pieces of distributed morphology. In *Papers on phonology and morphology*, ed. Andrew Carnie and Heidi Harley, volume 21, 275–288. Cambridge, MA: MIT Press.
- Harbert, Wayne, and Maher Bahloul. 2002. Postverbal subjects and the theory of agreement. In *Themes in Arabic and Hebrew Syntax*, ed. John Ouhalla and Ur Shlonsky. Dordrecht: Kluwer.
- Harley, Heidi, and Rolf Noyer. 1999. Distributed morphology. *Glott International* 4:3–9.
- Holes, Clive. 2004. *Modern Arabic: Structures, functions, and varieties*. Washington, D.C.: Georgetown UP.
- Holmberg, Anders. 1993. Two subject positions in IP in Mainland Scandinavian. *Working Papers in Scandinavian Syntax* 52:29–41.
- Holmberg, Anders, and Urpo Nikanne. 1994. Expletives and subject positions in Finnish. In *NELS 24, Proceedings of the Twenty-Fourth Annual Meeting of the Northeastern Linguistics Society, GLSA*, 173–187. Department of Linguistics, University of Massachusetts, Amherst.
- Holmberg, Anders, and Christer Platzack. 2005. The Scandinavian languages. In *The oxford handbook of comparative syntax*, ed. Guglielmo Cinque and Richard S. Kayne, 420–458. Oxford: Oxford UP.
- Iatridou, Sabine. 1990. About AgrP. *Linguistic Inquiry* 21:551–577.
- Jonas, Diane. 1992. Checking theory and nominative case in Icelandic. In *Harvard working papers in linguistics*, ed. S Kuno and H. Thrainsson, volume 1, 175–195. Cambridge, MA: Harvard UP.
- Kayne, Richard S. 1994. *The Antisymmetry of Syntax*. MIT Press.
- Kitagawa, Yoshihisa. 1986. Subjects in Japanese and English. Doctoral Dissertation, University of Massachusetts - Amherst.
- Koopman, Hilda. 2005. Agreement configurations: In defense of Spec-Head. Ms., University of California, Los Angeles.
- Kortobi, Ibtissam. 2002. Gapping and VP-deletion. In *Themes in arabic and hebrew syntax*, ed. Jamal Ouhalla and Ur Shlonsky, 217–240. Dordrecht: Kluwer.
- Kramer, Ruth. 2006. VSO and SVO word order in Middle Egyptian. Ms., University of California, Santa Cruz.
- Kuroda, Shige-Yuki. 1988. Whether we agree or not: A comparative syntax of japanese and english. In *Papers from the Second International Workshop on Japanese Syntax*, ed. William Poser. Stanford: CSLI.

- Laka, Itziar. 1994. *On the syntax of negation*. New York: Garland.
- Lozano, C. 2006. Focus and split-intransitivity: the acquisition of word order alternations in non-native Spanish. *Second Language Research* 22:145.
- McCloskey, James. 1980. Is there raising in modern Irish? *Ériu* 31:59–99.
- McCloskey, James. 1983. A VP in a VSO language. In *Order, concord and constituency*, ed. G. Gazdar E. Klein and G. K. Pullum, 9–55. Foris: Dordrecht.
- McCloskey, James. 1986a. Case, movement and raising in Modern Irish. In *Proceedings of WC-CFL*, ed. J. Goldberg S. MacKaye and M. Wescoat, 4, 190–205.
- McCloskey, James. 1986b. Inflection and conjunction in Modern Irish. *Natural Language and Linguistic Theory* 4:245–281.
- McCloskey, James. 1996. Subjects and subject positions in Irish. In *The syntax of the celtic languages*, ed. Robert D. Borsley and Ian Roberts, 241–283. Cambridge: Cambridge UP.
- McCloskey, James. 1997. Subjecthood and subject positions. In *Elements of grammar*, ed. Liliane Haegeman, 197–235. Dordrecht: Kluwer.
- Mohammad, Mohammad A. 1999. *Word order, agreement, and pronominalization in Standard and Palestinian Arabic*. Philadelphia: John Benjamins.
- Munn, Alan. 1992. A null operator analysis of ATB gaps. *The Linguistic Review* 9:1–26.
- Munn, Alan B. 1993. Topics in the syntax and semantics of coordinate structures. Doctoral Dissertation, University of Maryland at College Park.
- Ouhalla, Jamal. 1994. Verb movement and word order in Arabic. In *Verb Movement*, ed. David Lightfoot and Norbert Hornstein, 41–72. Cambridge: Cambridge UP.
- Ouhalla, Jamal. 2005. Agreement features, agreement and antiagreement. *Natural Language and Linguistic Theory* 23:655–686.
- Parkinson, David. 1995. Iterated subjects in Standard Arabic. *Cornell Working Papers in Linguistics* 15:121–150.
- Pesetsky, David, and Esther Torrego. 2001. T-to-C movement: Causes and consequences. In *Ken Hale: A life in language*, ed. Michael Kenstowicz. Cambridge, MA: MIT Press.
- Pesetsky, David, and Esther Torrego. 2004. The syntax of valuation. Ms.
- Pollock, Jean-Yves. 1989. Verb movement, universal grammar, and the structure of ip. *Linguistic Inquiry* 20:365–424.
- Ritter, Elizabeth. 1990. Cross-linguistic evidence for the number phrase. *Canadian Journal of Linguistics* 37:197–218.

- Rizzi, Luigi. 1997. The fine structure of the left periphery. In *Elements of grammar*, ed. Liliane Haegeman, 281–337. Dordrecht: Kluwer.
- Roberts, Ian. 1991. Excorporation and minimality. *Linguistic Inquiry* 22:209–218.
- Rouveret, Alain. 1991. Functional categories and agreement. *The Linguistic Review* 8:353–387.
- Samek-Lodovici, Vieri. 1996. Constraints on subjects: An optimality theoretic analysis. Doctoral Dissertation, Rutgers University.
- Shlonsky, Ur. 1997. *Clause structure and word order in Hebrew and Arabic: An essay in comparative Semitic syntax*. Oxford: Oxford UP.
- Sproat, Richard. 1985. Welsh syntax and VSO structure. *Natural Language and Linguistic Theory* 3:173–216.
- Truckenbrodt, Hubert. 1999. On the relation between syntactic phrases and phonological phrases. *Linguistic Inquiry* 30:219–255.
- Tucker, Matthew A. 2005. A Probe-Goal account of partial agreement in Arabic. Ms., Cornell University.