Word-Order and Features Inheritance: A Case Study of Standard Arabic

*Imran Alrashdan ***

ABSTRACT

This paper is an attempt to systemize Chomsky's proposal of Features Inheritance (2005). It takes Standard Arabic as a Case Study. Accordingly, analysis is provided for Arabic SVO and VSO Clause Structure. Moreover, this study sheds light on Phasal Heads and Agreement. A question arises during the course of the study: "What defines a Phasal Head (at least with respect to Standard Arabic)?" The analysis utilizes the Probe-Goal Analysis. The feature of Case plays a very significant role in the analysis presented here.

Keywords: Features Inheritance, Probe-Goal Analysis, Subject-Verb-Object (SVO) and Verb-Subject-Object (VSO), Standard Arabic, Tense.

Introduction

The main purpose of this paper is to shed light on phasal heads and Chomsky's proposal of Features Inheritance. The study takes Standard Arabic as a means for reaching the conclusions. Thus, I provide analysis for SVO and VSO Standard Arabic structures: a collateral means for the ultimate goal of revealing the nature via which Features Inheritance works. Special reference is made to Agreement, Position of Subject, Case, and of course to Phasal Heads.

1. Literature Review on Arabic Clause Structure

Two main structures (word orders) are attested in Standard Arabic (as well as in Arabic dialects), namely SVO and VSO. In fact, Standard Arabic exhibits more variant structures including VOS and OSV. The semantic interpretation of the last two structures in particular is entirely dependent on the inflectional asymmetries they display. Furthermore, explicit or overt case markers are essential to the interpretation of such structures. Hence, the subject is nominative and the object is accusative. Mohammad (2000, p. 3), points out that there are six possible word orders in MSA:

1. zayd-un   qaraʔa   l-kitaab-a   (SVO)
Zayd-Nom   past.3ms.read   the-book-Acc
    'Zayd read the book.'

2. zayd-un   l-kitaab-a   qaraʔa   (SOV)
Zayd-Nom   the-book-Acc   past.3ms.read
    'Zayd read the book.'

3. qaraʔa   l-kitaab-a   zayd-un   (VOS)
past.3ms.read   the-book-AccZayd-Nom
'Zayd read the book.'

4. qaraʔazayd-un   l-kitaab-a   (VSO)
past.3ms.readZayd-Nom   the-book-Acc
'Zayd read the book.'

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5.   ʔal-kitaab-a   zayd-un   qaraʔa   (OSV)

the-book-AccZayd-Nom   past.3ms.read

'Zayd read the book.'

6.   ʔal-kitaab-a   qaraʔazayd-un   (OVS)

the-book-Acc   past.3ms.read   Zayd-Nom

'Zayd read the book.'

However, in this paper, the focus is mainly on two structures: SVO and VSO. The former shows **rich** agreement in the sense that the verb manifests the same *Person*, *Number*, and *Gender* features as those of the subject. The VSO structure, on the other hand, shows **poor** agreement in the sense that the *Number* feature that appears on the verb is always *Singular* irrespective of the *Number* feature of the subject. Compare the following Standard Arabic sentences:

7.   ʔal-banaat-u ʔakal-**na** l-ʕinab-a   SVO

the girls (**3fp**)-Nom past.eat-**3fp**   the-grapes-Acc

The girls ate the grapes.

8.   ʔakal-**at**il-banaat-u l-ʕinaba   VSO

past.eat-**3fs** the-girls (**3fp**)-Nom the-grapes-Acc

The girls ate the grapes.

2.   The Position of Subject:

The position of subject has been investigated by many linguists particularly in the past three decades (Kitagawa, Y. (1986); Speas, P. (1986); Zagona, K. (1987); Contreras, J. (1987); etc.). The proposal that subjects originate in the VP shell to get their thematic roles seems to have received widespread acceptance. This proposal is now known as The Internal-Subject Hypothesis. Brief review of the Arabic literature on this topic will be presented below.

Fassi Fehri (1993, p. 16) suggests that "the grammar of Arabic instantiates a canonical phrase structure" such as 1 below:

1.

He suggests that the subject is "base-generated in Spec of VP", and he attributes the distinction between SVO and VSO to raising the subject in the former to Spec IP and raising the verb to I, whereas in VSO, the subject remains in situ while the verb raises to I. He states that raising the subject from Spec VP to Spec IP is "triggered by the occurrence of rich AGR on the verb. Poor AGR prevents such an operation from taking place, thus resulting in a VSO structure".

Similarly, Shlonsky (1997, p. 2) adopts the proposal that thematic subjects originate in Spec VP position: "the VP includes, in addition to the verb, all of its θ-marked arguments. In particular, the researcher takes the subject to be base-generated as the specifier of VP".

Ouhalla (1994, p. 46) suggests that "in VSO languages T is higher than AGR$_S$, whereas in SVO languages the reverse relation is found". He presents the following VSO and SVO structures:

2. a. VSO languages
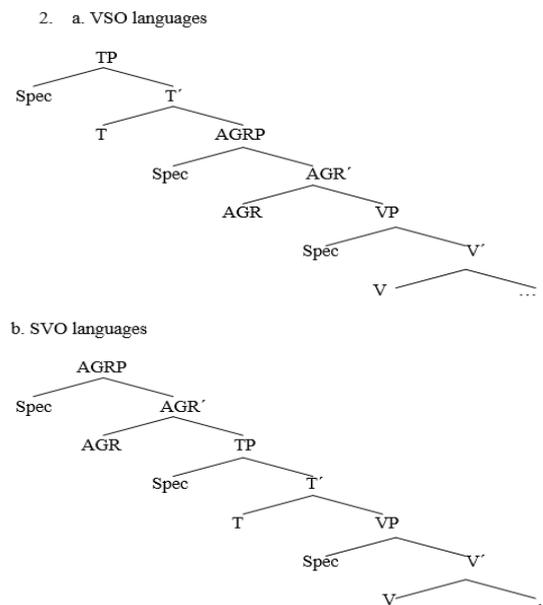
b. SVO languages

Thus, according to Ouhalla, SVO languages such as French and Italian are derived from the structure in 2.b. above, whereas VSO languages are derived from 2.a. He suggests that there are two potential positions for post verbal subjects in VSO languages: in Spec AGRs or in Spec VP. According to him, this explains the agreement patterns found in such languages. First, he proposes that poor agreement, in VSO structures, is a result of the assumption that the thematic subject is not in a Spec-Head relation with AGRs. Therefore, the subject should be in Spec VP: a position that is lower than Spec AGRs (ibid, p.47). He adds that in poor agreement structures Spec AGRs is filled with an expletive *pro* "which is in Spec-Head agreement with the default AGRs" (ibid, p.47). Furthermore, the thematic subject moves to Spec AGRs to replace the Expletive *pro* at the LF "paving the way for a semantic predication relation between the thematic subject, on the one hand, and the verb and its complements, on the other" (ibid, p.47).

Second, Ouhalla points out that some VSO languages such as Berber and the dialects of Arabic show rich agreement that holds between the verb and the subject. He attributes this phenomenon to the assumption that the subject is in a Spec-Head relation with AGRs (i.e. the subject is in Spec AGRs).

According to Ouhalla (1994, p.47), the structure in 2.a. "is also compatible with a well-known property of VSO languages, including Arabic, namely the fact that they tend to have SVO as an alternative order". He proposes that the derivation of SVO involves raising the verb to head T and the subject to Spec TP, "a legitimate subject position in much the same way that Spec of VP and Spec of AGRs are" (ibid, p. 47). He presents two analyses that account for the rich agreement manifested in SVO sentences:

First, the subject that raises to Spec TP moves through Spec AGRs, "a process which establishes an agreement relation between it and AGRs" (ibid, p. 47). Second, the adjunction of the V+AGRs to T "locates AGRs in a position where it is in a Spec-Head configuration with the subject" (ibid, p. 47).

Mohammad (2000, p. 83) also mentions that deriving VSO structures requires raising the verb to head T "with the subject remaining in situ in its D-structure position, namely in Spec of VP". He argues that Spec TP in VSO structures is filled by an Expletive (ibid, p. 108). On the other hand, SVO structures are derived by raising the subject to Spec TP (ibid, p. 83).

3.   Deriving SVO and VSO Structures

After this brief review of the literature, a fairly systematic analysis of Arabic SVO and VSO sentences will now be provided. Consider 1 below:

1.   ?al-banaat-**u**?akal-**na** l-ʕinab-**a**

The-girls (3fp)-**Nom**   past-eat-**3fp**   the-grapes-**ACC**

The girls ate the grapes.

Considering the Internal-Subject Hypothesis and the importance of Theta-Criterion (θ-Criterion), the researcher will follow Chomsky (1995) by assuming that the agentive subject of a transitive verb originates in Spec vP, so it will be assigned Agentive role: if the subject does not receive a θ-role, it will lead to a direct violation of θ-Criterion. Therefore, the derivation will crash by failure to meet the Full Interpretation principle (FI) (ibid, p. 315). Hence, the verb *?akal* merges with its complement (that is *l-ʕinab*) forming VP. This VP is then merged with an affixal null light verb forming v′ which merges with the subject to form vP (Split-VP Hypothesis).

Thus, *l-ʕinab*, being the complement of the verb in the above diagram gets Accusative Case. And as shown in the diagram, the null light verb, being affixal, triggers movement of the lexical verb to head little v. This vP forms a phase and only its *Edge* and *Domain* can be accessed for further operations. This means that *l-ʕinab-a* is handed over to the Phonological Component (PF).

The vP then merges with T forming T′. As discussed in the literature on Arabic structure, the verb raises overtly to head T. But before proceeding in the analysis, it is important to shed light on the features associated with head T, specifically φ-features (Phi-features) and Case (let alone the categorial features). Chomsky (1995, p. 259) says that "Case is an intrinsic property of a verb or I element, not of the DP that "receives" Case in a certain position; and φ-features are properties of the DP, not of the verb…" Furthermore, Case does not appear on head I/T and φ-features tend to overtly appear when movement to the checking domain is overt rather than covert (ibid, p. 277). Thus, the verb overtly raises to head T. Chomsky (2001, p. 12) mentions that phases are '"propositional": verbal phrases with full argument structure and CP with force indicators, but not TP alone or "weak" verbal configuration lacking external arguments…" '. Furthermore, he (2005, p. 10) mentions that features percolate from the phase head to the lower nonphasal head. In his words:

for T, φ-features and Tense appear to be derivative, not inherent: basic tense and also tense-like properties (e.g., irrealis) are determined by C (in which they are inherent: "John left" is past tense whether or not it is embedded) or by the selecting V (also inherent) or perhaps even broader context. In the lexicon, T lacks these features. T manifests the basic tense features if and only if it is selected by C (default agreement aside); if not, it is a raising (or ECM) infinitival, lacking φ-features and basic tense. So it makes sense to assume that Agree- and Tense-features are inherited from C, the phase head.

There is evidence in Arabic supporting Chomsky's Features Inheritance proposal. When the Complementizer *?inna* in Arabic is introduced in the sentence, head T (which normally assigns Nominative Case to the subject) assigns Accusative Case to the subject. Compare:

2.   ?al-?awlaad-**u**?akal-**u**   l-ʕinab-**a**

the-boys (3mp)-**Nom**   past.east-**3mp**   the-grapes.3mp-**ACC**

    The boys ate the grapes.

3.   ?inna   l-?awlaad-**a**?akal-**u**   l-ʕinab-**a**

Compl.   The-boys (3mp)-**ACC**   past.east.**3mp**   the-grapes.3mp-**ACC**

    Verily the boys ate the grapes.

As shown in 2 and 3, the subject receives Nominative and Accusative Case respectively. This can be attributed to Chomsky's proposal that head T inherits features from head C, the Locus of all features. Hence, the Accusative Case is inherited by head T and is assigned to the subject via the checking relation. Chomsky (1995) states that Case cannot be overridden. Hence, head T cannot enter the derivation with uninterpretable Nominative Case; otherwise it would be impossible for T to inherit Accusative Case because this requires Accusative to override Nominative which is not acceptable.

The analysis of 1 above proceeds as follows. Once features percolate to T, the latter probes for a Goal with matching features. The Case filter ensures that "Every phonetically realized NP must be assigned (abstract) Case" (Chomsky 1981, p. 49). The complement of the transitive verb in 1 above receives Accusative Case and the subject receives Nominative Case. Chomsky (1995, p. 278) stresses the significance of Case in the role of checking features. The targeted category (the

goal) must have –interpretable (uninterpretable) feature or otherwise no checking of features takes place. Accordingly, the subject with uninterpretable Case feature is active and can enter into a checking relation with a head like T (Probe), the assigner of Nominative Case. Now T probes and locates the subject as its closest goal which has uninterpretable Case feature and interpretable Φ-features allowing the checking relation between head T and the subject. The latter receives Nominative and T values its uninterpretable φ-features assuming that "structural Case is a reflex of agreement" (Chomsky 2001, p. 16). Assuming that head T in SVO structure is specified for EPP features which requires that Spec T be filled with a subject, the nominal *ʔal-awlaad-u* raises to Spec TP giving SVO structure. Chomsky (2001, p. 8-9) relates both EPP and φ-features together. He points that "it is tempting to associate EPP with Φ-completeness: C, and T selected by C, are Φ-complete and therefore allow an EPP-feature; T_{def} cannot have an EPP-feature." This makes sense with respect to Arabic structure because in SVO sentences T is φ-complete and therefore the verb in head T manifests rich or complete agreement. Note that Chomsky (1995, p. 280, 2001, p. 6) mentions that once the agreement takes place between Probe and Goal, the latter (assuming, it is the subject) is "frozen in place" and cannot undergo further checking/agree relations. In relation to our analysis here, we would expect that once the subject receives its Case, it could not satisfy the EPP feature as the subject would not enter more checking relations and should be frozen in place. However, Chomsky adds a slight and important modification to the checking relation so that the subject could satisfy the EPP once it receives its Case feature in addition to assigning a value to the uninterpretable φ-features of head T. "Thus, if local (P, G) match and are active, their uninterpretable features must be eliminated at once, as fully as possible; partial elimination of the residue under more remote Match is not an option. In particular, if Probe requires Move (i.e., has an EPP-feature), then operation must be carried out as quickly as possible." (Chomsky 2001, p. 15).

The derivation of the VSO structure in 4 below goes through the same processes as above but with one exception: the subject remains in situ in Spec vP as illustrated:

4.   ʔakal-**at**il-banaat-**u**   l-ʕinab-**a**

past.eat-**3fs**   the-girls (3fp)-**Nom**   the-grapes-**Acc**

The girls ate the grapes.

The verb *ʔakal* raises to the affixal null light v and the direct object *l-ʕinab-a* is assigned Accusative Case. The subject, on the other hand, remains in Spec vP because, assumingly, head T is not specified for EPP.

In spite of the fact that head T in the above structure shows poor agreement as opposed to rich agreement found in SVO structures, T remains Φ-complete. The distinction between SVO and VSO structures is attributed to the value of the *Number* feature on head T which overtly appears on the verb. In other words, in VSO structures, the verb always inflects for *SingularNumber*, while in SVO structures, the verb inflects for either *Singular* or *PluralNumber* depending on the interpretable *Number* associated with the subject. However, Φ-complete means also the occurrence of the EPP feature which must be satisfied or otherwise the derivation crashes instead of converging.

The sentence in 4 is not headed by a defective C, so the question that arises now is how to utilize Chomsky's proposal of features inheritance in favor of our analysis to account for the variation in *Number* agreement in SVO and VSO and also satisfy the EPP feature. The researcher will put this issue aside for the time being and return to it later.

In order for the derivation of the VSO structure above to converge, we need to value the *Number* feature on head T as *Singular* rather than *Plural*. If we assume that there is a null Expletive *pro* in the structure, the problem can be solved.

The assumption of having Expletive in VSO structures is not novel. Fassi Fehri (1993), Mohammad (2000), and Ouhalla (1994) assume the occurrence of an Expletive in VSO structures. For instance, Fassi Fehri points out that "these expletives are shown to be only in singular forms, although they may be masculine or feminine, as the following contrasts illustrate:

5.   a. ʔinna-huzaar-a-nii t̠alaat̠-u šaaʕiraat-in

That-it   visited-me   three-nom   poets.f.-gen

b. ʔinna-haazaar-at-niit̠alaat̠-u šaaʕiraat-in

That-her   visited-f.-me   three-nom   poets.f.-gen

c. *ʔinna-hunnazur-na-niitalaat-u šaaˤiraat-in

   That-them.f.   visited-pl.f.-me   three-nom   poets.f.-gen

  It visited me three poets. ˮ   (1993, p. 39)

With the above assumption in mind, I now return to deriving the VSO structure in 4 above repeated below:

6.   ʔakal-at   il-banaat-**u**   l-ʕinab-**a**

past.eat (3fs)   the-girls-**Nom**   the-grapes-**Acc**

   The girls ate the grapes.

Chomsky (2005, p. 7) states that *merge* and *move* are both Cost-Free. Hence, we have two options here. First, we can assume that *pro* is merged in Spec vP with a multiple Spec positions structure (cf. Chomsky 1995, p. 356). Second, *pro* is directly merged in Spec TP. The researcher will pursue the two alternatives to show which one is the best option. Following in Chomsky's steps (2001) where he assumes that Expletives are specified for *Person* feature, the researcher will assume, as shown above, that the Arabic null Expletive is specified for *SingularNumber* feature.

Now, it seems that there are two ways to account for VSO structures. The first path is to assume that *pro* is Spec vP (multiple Spec positions). The second is to assume that *pro* is directly merged in Spec TP. But conceptually, the first assumption seems implausible and trivial. Why does Language need a null *pro* and an overt lexical item in Spec positions of the same vP to value the features of the probe when the overt lexical subject is sufficient to value such uninterpretable features of the probe? So, having *pro* and a lexical subject in multiple Spec positions seems 'superfluous' rather than minimalist. Hence, we dispense with the multiple Spec positions here and assume that there is no need for the null *pro* in SVO. Note also that Chomsky (2001: 103) states that "pure merge in Ө-position is required of (and restricted to) arguments".

Accordingly, we are left with the option that *pro* is directly merged in Spec TP. Hence, head C enters the derivation with uninterpretable φ-features. The role of Expletive in Spec TP is to value the *Number* feature in head C prior to Features Inheritance. Once valued, the *Number* feature will be assigned *Singular* feature. The φ-features remain intact and percolate to head T. Thus, T, being the probe because it bears uninterpretable features that must be assigned value, searches for the closest goal with matching features. The Goal is the subject with Interpretable φ-features and an uninterpretable Case feature. The probe gets its *Person* and *Gender* features valued and the subject receives *Nominative* Case. The EPP feature is already satisfied by the assumption that Spec T is already filled by an Expletive. Finally, the derivation converges.

Thus, Arabic has the two structures SVO and VSO which require slightly different mechanisms of derivation. The former depends on the lexical subject for valuation of features; the latter requires the insertion of the null Expletive *pro* in Spec TP.

However, an important aspect has been ignored here. If *pro* is directly merged in Spec TP, how would it assign the *Singular* Number feature to the uninterpretable *Number* feature in C? In order for this to happen, C must probe and locate *pro* as its closest goal. But if C probes, why doesn't it keep probing and agree with the remote subject under Long Distance Agreement (LDA)? If this happens then we expect Fassi Fehri's 5c above to be correct- contrary to fact. But why shouldn't C keep probing? The researcher will attribute this to locality condition (cf. Chomsky 2005, p. 14). C cannot probe and agree with an element that belongs to a different domain particularly when another head, namely, T is in between. Thus, features must be inherited by T to be valued or otherwise the derivation never converges. Alrashdan (2015) argues that, in North Jordanian Arabic, features percolate from head C to head NegP (passing thereby head T) which dominates vP and is itself dominated by TP. This argument is in line with Features Inheritance and accounts for the position of the verb with respect to the negative elements. According to Alrashdan, the verb does not raise to T but rather to head Neg which is located between TP and vP (for further details, cf. Alrashdan (2015). Alrashdan's analysis then supports the suggestion that locality plays a significant role for probing. Hence, In North Jordanian Arabic, features percolate to Neg where they

become local to their goal.

So, features keep percolating until they become local to their goal so the probe values its uninterpretable features and assigns Case to its goal. However, it must be pointed out that features cannot percolate to v/VP for this will result in Case conflict (C-T assigns Nominative, v-V assigns Accusative).

Accordingly, C probes and locates *pro* (which is close to C in the Edge position of TP, i.e. in Spec TP) as its goal. Hence, *pro* values the *Number* feature on C, but the φ-features of C remain intact and require valuation in the narrow syntax; therefore, they must percolate to the lower head which is T in our analysis here allowing Agree to take place with the subject of Spec vP. This analysis provides theoretical evidence for Chomsky's Features Inheritance.

In the following section, the researcher will try to analyze structures with embedded clauses.

4.   Analysis of Embedded TPs

I will start this section by analyzing the following sentence:

1.   kaan-**at**il-banaat-**u**   ya?kul-**na**   l-ʕinab-**a**

past.be-**3fs** the-girls (3fp)-**Nom**   nonpast.eat-**3fp**   the-grapes-**Acc**

The girls were eating the grapes.

Here the sentence *ʔal-banaat-u ya?kul-na l-ʕinab-a* is embedded while *kaanat* heads the matrix clause.

Let us assume that the derivation of the embedded sentence goes through the same processes as illustrated in section 1 (except for the point that the embedded TP is not selected by C) and then it is merged with *kaan*. In section one; we assumed that C selects T$_{comp}$ (Chomsky 2001). However the embedded TP here is not selected by C. Nonetheless, Chomsky (2001, p. 9) says that "just as C$_{comp}$ selects T$_{comp}$, we might expect v$_{comp...}$to select V$_{comp}$". Thus, the embedded TP cannot be defective because "there is no internal raising to [Spec, T$_{def}$] in raising or ECM constructions" (Chomsky 2001, p. 9). Moreover, Chomsky (2005) stresses the assumption that phases are CPs and v*Ps: the locus of features. So, as the structure above shows, the embedded TP (not selected by CP) is not defective and Agree takes place between T and the subject which raises to a higher position since there is no raising to Spec T$_{def}$. The question that arises at this point is where the embedded head T gets its φ-features from? The answer seems straightforward. The embedded TP gets its uninterpretable φ-features from the higher little head v.

It remains however to account for whether the higher little v is a phase or not. Remember that Chomsky (2001, p. 12) mentions that phases are '"propositional": verbal phrases with full argument structure and CP with force indicators, but not TP alone or "weak" verbal configuration lacking external arguments…"'. Accordingly, when the embedded TP is merged with *kaan*, the latter cannot be treated as a phase because it is a weak verbal configuration and it lacks external argument (because VSO structures have *pro* directly merged in Spec TP as discussed in section 1). Furthermore, *kaan* fails to assign Accusative Case to the subject of the embedded TP (similar to raising and unaccusative verbs in English); hence, *kaan* does not head v*P phase.

Moreover, if the embedded TP was assumed to be selected by C, it would therefore form a phase and be handed over to the PF; hence, the matrix C would fail to discharge its Case feature leading the derivation to crash. However, one might argue that the Edge of the phase would remain accessible for further derivational processes. Indeed, this is true. But, the subject might remain in situ in Spec vP of the embedded clause as in 3 below and therefore, assumingly, is handed over to the PF-contrary to fact:

2.   kaan-at   ta?kulu   l-banaat-**u**   l-ʕinab-**a**

past.be-3fs   nonpast.eat.3fs   the-girls-**Nom**   the grapes-**Acc**

The girls were eating grapes.

This being so, the analysis of sentence 1 repeated below should proceed as follows:

3.   kaan-at   il-banaat-u   ya?kul-nal-ʕinab-a

3fs.past.be   the-girls-Nom   3fp.nonpast.eat   the-grapes-Acc

The girls were eating the grapes.

The embedded head T will inherit its features from the null light verb. Head T then probes and locates the subject as its closest goal. The norm is that T assigns Nominative Case to the subject; the subject values the uninterpretable features on T which eventually appear on the verb *yaʔakul* (hence, *yaʔkul**na***). However, remember that if the embedded T assigns Case for its subject, the matrix T will not be able to value all its uninterpretable features because the subject will be 'frozen in place' and will not have Case to offer for valuation. Chomsky (2001, p. 6) mentions that features of Probe and Goal match if features have values for the goal, not for the probe. Accordingly, the subject of the embedded TP MUST remain Active until it enters into Agreement relation with the matrix probe.

Now, *kaan* is merged with the embedded TP and raises to the null light verb. The matrix head T inherits its features from the nondefective CP. As suggested in section 1, in VSO structures, *pro* in Spec TP values the *Number* feature of C before features percolation to T. Consequently, T probes and locates the remote subject of the embedded TP as its goal with matching features. The φ-features of head T, being intact, agree with the subject which assigns values for the uninterpretable features in T and the subject in return gets its Nominative Case assigned. Note that because the embedded TP is not headed by a strong phasal head, the subject in the embedded TP is accessible to- and can enter further Agree relations with a higher probe; thus, no violation of Phase Impenetrability Condition (PIC) which reads as follows (Chomsky 2001, p. 14):

"The domain of H is not accessible to operations at ZP; only H and its edge are accessible to such operations."

Remember that Chomsky associates φ-complete with EPP. Accordingly, we assume as in section one that the null Expletive *pro* fills Spec TP in VSO structures. It seems that all Arabic verbs manifest a complete set of φ-features (whether rich or poor). Hence, the EPP feature is always present in Arabic structure and must be checked. This draws attention to a very important concept which so far has been taken for granted, namely, the optionality of the occurrence of the EPP feature in Arabic clause structures. Radford (2015, Personal Communication) asked "what principles determine when the subject raises and when it does not. Note that saying 'EPP' is not an answer, because then I ask you 'What principle determines whether T carries an EPP feature or not?'". I can now answer this question. The EPP feature is known as an abbreviation for The Extended Projection Principle (Chomsky 1981, p. 27) which calls for "the structural requirement that certain configurations…must have subjects". So assume the optionality of the EPP feature. Then if the matrix probe in the sentence at hand carries EPP feature, it will trigger raising the lexical subject of the embedded TP to the matrix Spec TP assuming the absence of *pro*. But this does not happen and rather the derivation converges. The answer to this problem is discussed in section one with respect to the occurrence of a null Expletive *pro* in the structure. The occurrence of the expletive, as discussed before, is associated with poor agreement which is a mirror of structural convergence since *pro* plays a significant role in assigning a value for the *Number* feature. In the absence of *pro* in 4 above, the lexical subject will raise to the matrix Spec TP giving 4 below:

4.   ʔal-banaat-**u**   kun-**na**yaʔkul-**na**   l-ʕinab-**a**
the-girls (3fp)-**Nom**   past.be-**3fp** nonpast.eat-**3fp**   the-grapes-**Acc**
The girls were eating the grapes.

Thus, the answer to the question "What is the EPP feature?" can be paraphrased as- and attributed to the occurrence of *pro* in poor agreement VSO structures and the occurrence of an overt lexical item in rich SVO structures. And if the analysis given so far is on the right track, it seems then that EPP feature is a must in Arabic and somehow seems to be a mechanism for Agree.

If the embedded TP in the sentence in 4 above is not specified for EPP (= poor agreement VSO with *pro* in Spec TP), the subject will remain in situ as follows:

5.   kaan-at   taʔkulu   l-banaat-**u**   l-ʕinab-**a**
past.be-**3fs**   nonpast.eat.**3fs**   the-girls (3fp)-**Nom**   the-grapes-**Acc**
The girls were eating the grapes.

Note that the subject in 5 is in the lower embedded vP (i.e. in situ) and the embedded TP shows poor agreement: VSO structure. This means that the Expletive *pro* is in Spec TP of the embedded clause. However, this does not prevent agreement with the lexical subject because the *Number* feature associated with *pro* is interpretable and needs no valuation. So, under Long-Distance Agreement, the matrix probe values its uninterpretable *Person* and *Gender* features and assigns Nominative Case to the lexical subject. Accordingly, all uninterpretable features are valued and eliminated from the narrow syntax; the derivation converges and is handed over to the phonological component.

To illustrate some ignored points, let us trace back our analysis of 1(repeated here as 6):

6.   kaan-**at**il-banaat-**u**   yaʔkul-**na**   l-ʕinab-**a**

past.be-**3fs** the-girls (3fp)-**Nom**   nonpast.eat-**3fp**   the-grapes-**Acc**

The girls were eating the grapes.

The verb yaʔakul merges with its complement *l-ʕinab* to form VP which is merged with the null light verb forming v′ which is also merged with its external agentive argument *il-banaat*. It would be wrong to assume that V inherits its features from v and consequently V enters into a checking relation with the complement. There are two main reasons for assuming this. First, little v, being affixal, should trigger immediate raising of V so the latter adjoins to the former (Left-ward adjunction, LCA: Kayne 1994). Accordingly V will not inherit any features from v. Second, if V were to inherit features from v, the former would agree with its complement; hence, V would inflect for the features associated with the complement rather than those of the subject.

Hence, it is the null v that agrees and assigns Case to the complement. Note that with respect to the analysis of transitive structures, Radford (2009, p. 405) points out that "it would seem that v must be the probe which agrees with and assigns accusative case to the…direct object…of VP". Hence, the null light verb probes and agrees with the complement *ʔal-ʕinab* which receives Accusative Case. The vP is then merged with T to form TP. The latter, apparently, inherits a full set of φ-features from the higher head v. Thus, T, being affixal, triggers movement of the verb to T which agrees with the *Agentive* subject in Spec vP. The latter consequently raises to the higher Spec vP in matrix clause (no raising to Spec T_{def}). Remember that the lexical subject cannot be assigned Case value via agreement with the embedded T because otherwise the matrix probe (C-T) will not be able to discharge its uninterpretable Case feature. So, if, as suggested above, the embedded T inherits its features from the higher head v, then it seems we have violated some of Chomsky's proposals. First, Chomsky (2001, p. 9) states the following: "Just as C_{comp} selects T_{comp}, we might expect v_{comp}…to select V_{comp}. Being Φ-complete, C must select T_{comp} for its unvalued features to delete under Match/Agree, and it allows an EPP-feature. For the same reasons, *v** selects V_{comp} and allows EPP feature". So in 1 above, the embedded T manifests φ-complete features which assumingly are inherited from the higher head v. But we have at least one major problem here (Not to mention the fact that the subject may stay in situ in the lower Spec vP although T is φ-complete). Agree between the embedded T and the lexical subject, assumingly, must eliminate all uninterpretable features including the Case feature of the lexical subject. If so, the matrix probe will fail to discharge its Case leading the derivation to crash. So, either our analysis is wrong or Chomsky's defining characteristics of defective φ-incomplete need modification (at least with respect to Arabic). The researcher will stick to the latter.

In order for the sentence in 1 to converge, we need to make sure that the subject of the embedded TP remains active. The lexical subject becomes inactive and cannot enter further Agree relations once its Case is valued. Accordingly, the researcher will review the mechanism via which an argument gets its Case valued. Chomsky himself seems to hold on to Case assignment. In The Minimalist Program (1995) he assumes that head V and T have intrinsic uninterpretable Case features that must be checked. He (2001, p. 6) mentions that "Structural Case is not a feature of the probes (T,*v*), but is assigned a value under agreement". Thus again Chomsky maintains the assumption that T or v has uninterpretable Case. Besides, in the same article, Chomsky (2001) assumes that Case is a reflex of agreement and in (2005) he makes it clear that a head like T inherits its features from the phasal head c-commanding it. If so, then the subject of the embedded TP in 1 above (repeated below as 7) should have its Case valued before merging with *kaan* and so should have head T- a

conclusion already ruled out.

7.   kaan-**at**   il-banaat-**u**ya?kul-**na**   l-ʕinab-**a**

past.be-**3fs**   the-girls (3fp)-**Nom**   nonpast.eat-**3fp**   the-grapes-**Acc**

The girls were eating the grapes.

However, Chomsky (2005) assumes that T is selected by C. This means that the verb that inflects for Tense is selected by C while the ones that do not are not selected by C; hence, *defective*. Chomsky (2005, p. 10) adds that "T manifests the basic tense features if and only if it is selected by C (default agreement aside); if not, it is a raising (or ECM) infinitival, lacking φ-features and basic tense." This remark by Chomsky is essential for solving our problem. I will take 'the basic tense' to be the marker of a phase. Therefore, *il-banaat* in 9 above fails to receive Case from the embedded T because v is a weak verbal configuration that lacks the basic Tense. But a phase like C must have the basic Tense which makes it a Strong phase. So, the basic tense of the matrix T in 7 above (which is selected by C) is 'past'; the non-basic tense of the embedded TP is 'nonpast'. This seems to be the case across the board for the embedded 'Tense' in Arabic (where the embedded TP is not selected by C, cf. 8.d below).

8.   a. kaan-**a**   l-?awlaad-**u**   yalʕab**uun**

past.be.**3ms**   the-boys (3mp)-**Nom**   nonpast.play**3mp**

  The boys were playing.

b. kaana   l-ʕuSfuur-u   yuġarrid

past.be.**3ms**   the-bird (3ms)-**Nom**   nonpast.sing.**3ms**

  The bird was singing.

c. kaan.**at**talʕabu   l-bint-**u**

  past.be.**3fs**   nonpast.play.**3fs**   the-girl (3fs)-**Nom**

  The girl was playing.

d. ?iʕtaqadaʕaliyy-**un?anna**   l-banaat-**i**   saafar.**na**

past.think.3ms Ali(3ms)-**NomCompl**.   the-girls (3fp)-**Acc**   past.travel.**3fp**

Ali thought/believed that the girls departed.

Here is a clear distinction between φ-complete and φ-incomplete (again at least with respect to Arabic). The former carries the basic tense whether 'past' or 'nonpast', the latter carries the default 'nonpast tense'. A default 'nonpast tense' must be distinguished from basic 'nonpast tense' which can be in the matrix clause, a natural conclusion since it is headed by the Strong phase C; compare:

9.   a. **ta?kulu**   l-bint-**u**   l-ʕinab-**a**

nonpast.eat.3fs   the-girl (3fs)-**Nom**   the-grapes-**Acc**

b. **kaanat**   l-bint-**u**ta?kulu l-ʕinab-**a**

past.**be**.**3fs**   the-girl (3fs)-**Nomnonpast**.eat.3fs the-grapes-**Acc**

The girl was eating the grapes.

Again, we need to distinguish between default 'nonpast' and nondefault 'nonpast' in embedded structures. Compare:

10.   a. kaan-at   l-banaat-u   ya?kul-**na**   l-ʕinab-a

past.**be**-**3fs**   the-girl (3fs)-**Nom**   **nonpast**.eat.**3fp**   the-grapes-**Acc**

The girls were eating the grapes.

b.   raʔayt-u   l-banaat-**i**yaʔkul-na   l-ʕinab-**a**
(I).**past**.see.1s   the-girls-**Accnonpast**.eat-**3fp**   the-grapes-**Acc**
I saw the girls eating the grapes.

So, we can reduce such distinctions to the verbal configuration. If it is a strong verb such as transitive ones, it can then bear the 'basic' nonpast tense. I will not pursue all types of verbs here; I will leave it for further research.

To conclude, one can say that the embedded subject as in 8 above can enter into Agree relation with an embedded φ-complete probe (in the sense that it does not bear the basic tense) without having its Case valued which will leave it active for further Agree operations. So, the φ-incomplete probe in Arabic lacks the 'basic tense' and is specified for a full set of φ-features (whether rich or poor).

Thus, the lexical subject of sentence 8 above agrees with the embedded probe T and assigns values for its uninterpretable φ-features but it remains active as its Case is not valued. Thus, the matrix probe, under LDA, enters into agreement relation with the subject. The former gets its uninterpretable features valued while the latter receives Nominative. Hence the derivation converges.

5.   Conclusion

This paper aims at identifying the process via which Features percolate from a phasal head to a nonphasal head. It takes Standard Arabic as a case study. The conclusion reached is that features percolation is not just a proposal but rather is systematic and is a necessity, like any other operation, for derivational convergence. The researcher provide theoretical evidence that features percolate as a last resort operation. Thus, features in C/v can be valued by raising the associate goal. If the goal is not local to the probe or its movement is blocked by the occurrence of *pro*, for instance, then percolation must take place not only to the immediately nonphasal head below but rather further to more remote nonphasal heads until they become local to their goal (cf. Alrashdan (2015) suggestion with regard to features percolation to Neg in North Jordanian Arabic). In short, features percolation is indeed systematic. This study also demonstrates that a head with uninterpretable features is a probe, including the locus of such features: C/v.

The researcher also show that in Standard Arabic (with respect to embedded TPs) that Case is not a 'reflex of agreement' for the subject of an embedded TP can agree and assign values for all the uninterpretable φ-features associated with a mediating embedded probe. This in line with Chomsky (2005) leads to the assumption that Tense plays a significant role in determining Case. A distinction, consequently, is made between strong phases and weak phases. The former bears the 'basic' Tense while the latter does not. Accordingly, such a distinction seems to be determined by the verbal configuration. Hence, strong verbal configurations head strong phasal heads and therefore they bear the 'basic' tense whether past or nonpast. On the other hand, weak verbal configurations do not head strong phases although they might be specified for a full set of φ-features but not the 'basic' Tense.

Reading Conventions

b	voiced bilabial stop, e.g. *b*aab 'door'
t	voiceless denti-alveolar stop, e.g. *t*iin 'figs'
d	voiced denti-alveolar stop, *e.g. d*iin 'religion'
S	(the correlative of non-emphatic /s/) voiceless, denti-alveolar, emphatic sibilant, e.g. *S*aam 'He fasted'
k	voiceless velar stop, e.g. *k*alaam 'speech'
q	voiceless, uvular stop, *e.g.q*awm 'group of people'
ġ	voiced, uvular fricative, e.g. *ġ*arb'west'
n	voiced denti-alveolar nasal, e.g. *n*aam 'he slept'
l	voiced alveolar lateral, e.g. *la*ʕiba 'he played'
ʕ	voiced, pharyngeal fricative, e.g. *ʕ*ilm 'science'
ʔ	glottal stop, e.g. *ʔamr* 'command'
i	front, nearly close, spread, e.g. *b*int 'girl'

a	front, nearly open, neutral, e.g. *ʕasal* 'honey'
u	back, close, rounded, e.g. *ruzz* 'rice'
w	voiced, labio-velar, semi-vowel, e.g. *wardah* 'rose'
y	voiced palatal semi-vowel, e.g. *yadd* 'hand'

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ترتيب الكلمات و توارث السمات النحوية: دراسة حالة خاصة في اللغة العربية الفصحى

عمران الرشدان *

ملخص

هذه الدراسة محاولة لتنظيم توارث السمات النحوية التي عرضها تشومسكي (2005). تعتمد هذه الدراسة على تطبيق هذه الأفكار على اللغة العربية الفصحى كحالة خاصة. و بناءً على ذلك تم عرض تحليل التراكيب العربية النحوية فاعل– وفعل– ومفعول به (SVO) و وفعل– وفاعل– ومفعول به(VSO) . وفوق ذلك تلقي هذه الدراسة الضوء على مصادر هذه السمات النحوية في بنية الجملة (Phasal Heads) أي الرؤوس المرحلية للاشتقاق وكذلك التوافق النحوي (Agreement). ويبرز سؤال عبر هذه الدراسة يتعلق بمحددات الروؤس المرحليه النحوية المشار اليها (Phasal Heads) وخاصة فيما يتعلق باللغة العربية الفصحى. وهذه الدراسة تستثمر التحليل المسمى (Probe-Goal Analysis) و هو معني بالاشتقاق النحوي حيث يبحث عنصر معين في الاشتقاق عن عنصر آخر مشابه له في السمات. كما أن سمة الحالة الإعرابية (Feature of Case) لها دور مهم جدا في هذه الدراسة.

الكلمات الدالة: توارث السمات النحوية، فاعل– فعل– مفعول به، فعل– فاعل– مفعول به، اللغة العربية الفصيحة، زمن الفعل.