The Directionality of Agree: A Case from Number and Gender Agreement in Standard Arabic

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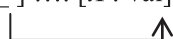*Mu'tah University, Jordan*

Abstract: *This paper argues for the necessity of a reversed upward Agree. There are three perspectives on the directionality of Agree. Agree conventionally operates downwards with the probe searching for a matching goal that is structurally lower (Chomsky 2000). A reversed upward Agree is also proposed (Zeijlstra 2012). The third perspective involves a parametric variation of Agree whereby Agree can operate either way (Baker 2011). We investigate number and gender agreement in Standard Arabic (SA) because they are independently sensitive to the configuration in which agreement operates. We compare the number and gender agreement patterns of verbal to non-verbal predicates with subjects in different word order alternations. We advocate a unidirectional upward Agree to account for agreement patterns in SA. W argue that while the gender feature of the probe is valued once the goal is structurally higher than the probe; the valuation of the number feature is delayed till the spell-out on the condition that the goal c-commands the probe; otherwise, a default singular value is assigned.*

Keywords: *Agree, directionality, number, gender, probe, goal*

1. Introduction

Agree is a core operation in minimalism, and it is assumed to be established immediately as soon as a node with unvalued uninterpretable features is merged into the existing structure whereby the unvalued uninterpretable feature, the probe, searches for a matching valued interpretable feature, the goal, to get valued and checked. Agree is essential to syntax because agreement that holds among features has important effects in determining licensing features and driving the syntactic derivations.

However, the directionality of Agree relation is subject to hot debate in recent research. There are three main proposals in this regard. The standard mainstream Agree is only downward (Chomsky 2000, 2001; Bošković 2007; Preminger and Polinsky 2015). More specifically, the probe only looks downwards for an agreeing goal in its c-command domain as represented below.
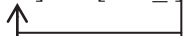
(1) [.. [uF: __] …. [iF: val] …]

This is the conventional account of Φ-feature agreement in English existential sentences as exemplified below.

(2) a. There is a book on the table.
    b. There are books on the table.

The Φ-features on the finite T constitute the probe that looks downwards for a matching goal in its c-command domain. The first potential DP is the subject, which is probably in Spec-*v*P. Agree is established and T's uninterpretable features get valued without the need to move the thematic subject to Spec-TP, which can be filled with the expletive to satisfy the EPP feature of T.

   Recently, a reverse Agree is advocated whereby the probe looks upwards rather than downwards for a goal (Diercks 2010, 2011; Wurmbrand 2012; Zeijlstra 2012) as demonstrated below.

(3) [.. [*i*F: val] …. [*u*F: _] …]

This proposal is motivated by empirical facts such as complementizer agreement in Bantu languages, e.g. Kinande, illustrated in the following example from Diercks (2010).

(4) mo-n-a-layir-ire   Kambale   **in-di**   a-gul-e   ama-tunda
    Aff-**1sS**-T-convince-EXT Kambale.1 **1sS**-that 1S-buy-SUBJ   6-fruits
    'I convinced Kambale that he should buy fruits.'

The complementizer agrees with the subject of the matrix clause that is structurally higher. This is accounted for by allowing a reversed agree.

   Upward agree is a "resurrection of spec-head agreement" as pinpointed by Preminger and Polinsky (2015: 2). Still the Spec-Head configuration in which the goal must be in the specifier slot of the head probe has some advocates (Koopman 2006; Ussery 2012). Ussery (2012) argues that the agreement asymmetry in Standard Arabic illustrated in Example (5) can only be accounted for by resorting to two agreement configurations rather than one.

(5) a. ja:ʔ-at   al-ban-a:t-u   *VSO/ partial agreement*
       came-**SG.F**   the-girls-**PL.F**-NOM
       'The girls came.'

   b. al-ban-a:t-u   jiʔ-na   *SVO/ full agreement*
       the-girls-**PL.F**-NOM   came-**PL.F**
       'The girls came.'

Verbs in Standard Arabic agree only in number with postverbal subject (5a), but they agree in number and gender with preverbal subjects (5b). Ussery claims that the standard Agree hypothesis suffices to account for gender agreement,

whereas it does not explain number agreement that can only operate if the subject DP is in a Spec-Head configuration with the agreeing head.

The third perspective advanced by Baker (2011) assumes that the directionality of Agree varies parametrically, and he proposed the parameter below accordingly.

(6) Direction of Agreement Parameter (DAP)   (Baker 2011: 626)

F agrees with XP only if (XP has the feature F is seeking, and):
a. F c-commands XP.
   or
b. XP c-commands F

This parameter accounts for the attested cross-linguistic variation in the directionality of agreement. This variation is obvious in many cases such as complementizer agreement. Consider the following example.

(7) a. kvinden   **dan**   die boek**en**   te   zyn
    I-find   that-**pl**   the book**s**   too expensive are
    'I find that those books are too expensive.'

   b. mo-n-a-layir-ire   Kambale   **in-di**   a-gul-e   ama-tunda
      Aff-**1sS**-T-convince-EXT   Kambale.1 **1sS**-that 1S-buy-SUBJ 6-fruits
      'I convinced Kambale that he should buy fruits.'

Example (7a) is from West Flemish, an Indo-European language (Carstens 2003). The complementizer agrees with the subject of its complement TP, a case of DAPa. Example (7b), the same as Example (4) repeated here for convenience, is from Kinande, a Bantu language (Diercks 2010). The complementizer agrees with the subject of the matrix clause, a case of DAPb. Such cases have inspired Baker to propose the DAP parameter to account for the attested cross-linguistic variation.

In a nutshell, the three main proposals are: downward agree, upward agree and bidirectional. More and more studies are necessary to adjudicate among these proposals to figure out which is universal. To this end, we used data from Standard Arabic (henceforth SA), a Semitic language used mainly in formal settings such as books, media, education, focusing on agreement in two features: number and gender. The paper aims at accounting for the following research questions:

(8) a. In which direction and configuration do number and gender agreement
       operate in SA?
    b. How do the data from SA improve our understanding of agreement
       necessary to improving the existing proposals?

To account for these questions, we examined agreement in number and gender between verbal predicates and subjects, and compared the patterns elicited to the agreement between non-verbal predicates and subjects. The data from SA is actually significant because gender and number agreement are independently sensitive to the configuration in which Agree holds and that is why SA data as presented in the paper should presumably provide a good case for the directionality of Agree. In essence, the difference in the directionality of Agree in independent Φ-features within a language can be taken as a representative of the potential different agreement directions attested across languages. More precisely, if it is possible for independent features to operate in different directions intralinguistically, then it could also be possible for different feature agreement patterns to operate in different directions cross-linguistically. Here lies the significance of the present study.

The paper is organized as follows. This section introduces the research problem. Section 2 presents a summary of the major accounts of agreement in number and gender in SA. Section 3 offers a detailed description of number and gender agreement in SA within clauses between a DP and verbs and adjectives taking into consideration the different word order alternations legitimate in SA. Section 4 involves the analysis proposed within the latest versions of Agree in Minimalism. Section 5 concludes with the main findings and some residual issues for future research.

2. Previous accounts of agreement in SA
There are many proposals in the literature on Arabic agreement (Benmamoun 2000; Fassi Fehri 1993; Aoun, Benmamoun and Sportiche 1994; Soltan 2007, Aoun, Benmamoun and Choueiri 2010, etc.). Nonetheless, the focus will mainly be devoted to two major proposals relevant to the present discussion. These are the movement versus non-movement accounts.

The movement analysis assumes that the word order alternations, VSO and SVO, are basically related (Mohammad 2000). In VSO, the subject remains in-situ, and the verb raises to a higher projection, i.e. T. In SVO, the subject moves to the spec-TP position. The bracketed representations illustrate the syntactic derivations.

(9) a. VSO: [TP *pro*$_{\text{EXPLETIVE}}$ … [vP DP$_{\text{SUBJ}}$ V+v …]]

    b. SVO: [TP DP$_{\text{SUBJ}}$ .. T …V+v [vP ~~DP$_{\text{SUBJ}}$~~ ~~V+v~~ …]]

The underlying motivation is to assume a unified configuration for agreement to hold only under Spec-Head configuration. In order to account for agreement asymmetry, a covert expletive whose features are third person masculine singular is assumed to be in Spec-TP in VSO. That is why the verb shows partial agreement in gender only. In SVO, the thematic subject moves to Spec-TP and the verb raises to T. In this configuration, agreement holds and the verb shows full agreement in number and gender.

In spite of its elegance, the account falls short on conceptual and empirical grounds. In essence, how it can account for gender agreement in cases where the verb exhibits a feminine value. Theoretically speaking, the postulation of the existence of a covert expletive is not well-motivated because it exists only to explain partial agreement on verbs.

On the other hand, the non-movement account advocated by some researchers such as Soltan (2007) rests upon the assumption that the word order alternations at issue result from different underlying configurations as sketched below.

(10) a. VSO: [TP T [vP DP$_{SUBJ}$ V …..]]

   b. SVO: [TopicP$_i$ DP Top [TP T [vP *pro*$_i$ V ….]]]

The argument is that SA agreement asymmetry follows from *pro* identification requirement. Soltan claims that the preverbal DP is not a derived subject. It is, rather, a left-dislocated DP that is base-generated in the left periphery, and it is related to a covert resumptive element, *pro*, requiring an association with a head carrying Φ-features to be identified (Rizzi 1982). This results in full agreement in SVO. However, the VSO word order ends up with the default number value, i.e. singular, because there is no *pro*, and so no need for identification.

A serious problem this account faces is the presence of the subject DP in an intervening position between the lexical verb and the auxiliary in compound tense constructions as in the example below.

(11) ka:n-**at**   a<u>t</u>-<u>t</u>alib-**a:t**-u   ya-ktub-**na**   ad-darsa-a
    were-**3SG.F**   the-student-**PL.F**-NOM   3F-write.**PL.F**   the-lesson-ACC
    'The girls were writing the lesson.'

Assuming that T hosts the auxiliary and the verb is probably in Asp, then the subject must undergo movement to a specifier position of an intermediate position, probably Spec-AspP. This means that it is at least not a left-dislocated DP as the typical position of the left-dislocated elements is the left periphery of the clause. This entails that the non-movement account does not account for the asymmetry appropriately.

In short, the previous accounts have been occupied by the presence of a covert pronominal element that is identified by the presence of subject-oriented inflections on the verb. By hypothesis, these proposals are likely motivated by a number of facts relevant to SA that can be summarized as follows:

(i) Arabic is a *pro* drop language, and the covert subject is identified by the presence of verbal inflections (Rizzi's 1982 *pro* Identification hypothesis).

(ii) Arabic allows the resumptive strategy in a number of contexts, in particular, when the object is dislocated as in the example below.

(12) ar-risa:lat-a   katab   at̲-t̲alib-u
    the-letter-**SG.F**-ACC   wrote.3SG.M   the-student-SG.F-NOM
    The intended reading is: 'the letter, the student wrote it.'

The object is singular feminine and the resumptive pronoun is singular feminine as well.

(iii) Some diachronic evidence also motivates these accounts. The origin of verbal inflections in Semitic languages is assumed to be independent pronouns. Within comparative historical Semitic studies, the standard assumption is that agreement inflections must have evolved from the independent pronouns that were incorporated into the verb and became the bound agreement inflections (Gray 1934; Gai 1984; Tropper 1995; Huehnergard 1997; Rubin 2005).

In fact, the previous movement and non-movement accounts of agreement asymmetry in SA are motivated by the aforementioned empirical facts that underlie the postulation of covert pronominal elements. Furthermore, these accounts have relied extensively on subject-verb agreement that actually provides a blurry consideration of agreement asymmetry in SA when considered in isolation from the number and gender agreement between the subject and non-verbal predicates. Therefore, we find it necessary to figure out if the same asymmetry holds between number and gender agreement in cases where a resumptive pronoun cannot exist. This is exactly what the empirical facts that agreeing adjectives in SA offer. The following section displays in detail SA agreement facts in gender and number in clauses involving nouns with agreeing verbal and non-verbal predicates.

3. Gender and number agreement in SA

At the outset of the discussion of number and gender agreement in SA, some important issues of agreement in Φ-features are necessarily made clear. Chomsky (1995) introduces a semantically-based interpretable-uninterpretable distinction in features. Interpretable features involve semantic contribution to the interpretation of an utterance; uninterpretable features do not contribute to the semantic interpretation. Chomsky (2000, 2001) signifies the importance of adding a valuation-based distinction in features whereby some features are lexically valued, i.e. they come from the lexicon bearing a value. Unvalued features, on the other hand, receive their value from the value of the same feature on another lexical item during the syntactic derivation.

Agree is mediated by a number of mechanisms whereby an unvalued feature F functions as a probe on a head that searches its c-command domain for a goal with a matching valued interpretable feature as stated in Chomsky (2000; 2001).

(13) An unvalued/ uninterpretable feature on α can be valued by a matching valued/ interpretable
 feature on β iff:

 i- α c-commands β.
 ii- There is no γ, distinct from β ,with a valued interpretable feature such that γ c-commands
  β and is c-commanded by α.

When Agree is established between the probe and goal, the value of the goal is assigned as the value of the probe. Overall, Agree is established and features are valued if the following conditions are satisfied:

(14) a. **c-command condition**: a probe must c-command a goal.
 b. **intervention condition**: there must not be an intervening constituent
  between the probe and the goal that has the same feature sought by the
  probe.
 c. **activity condition**: the goal has to be active to enter an Agree relation
  with a probe. The goal is active if it has an unvalued feature.
 d. **phase condition**: both the probe and the goal must be in the same phase.

 To illustrate these significant distinctions, let us consider an example from SA concerning agreement in the gender feature. Gender feature in SA has two values: feminine and masculine.

(15) a. al-fata**:t**-u   adh-dhakay-**at**-u   dakhal-**at**
  the-girl-**SG.F**-NOM the-smart-**SG.F**-NOM   entered-3**SG.F**
  'The smart girl entered.'

 b. al-fata: adh-dhakiji-u   dakhal
  the-boy.**SG.M**.NOM the-smart.**SG.M**-NOM entered.**3SG.M**
  'The smart boy entered.'

The noun *alfata:tu* 'the girl' in (15a) comes from the lexicon with the feminine value, whereas *alfata:* 'the boy' in (15b) has the masculine value from the lexicon. However, the gender feature of the verb *daxal* 'enter' is unvalued, but it gets valued in agreement with the noun. The mechanisms of Agree are as follows. The unvalued gender feature on the Asp head acts as a probe that searches its c-command domain for a goal, the matching feature with a value. The goal has to be active to enter the agreement relation, and it is active here because it has an unvalued uninterpretable case feature. There is no other DP with a matching feature that intervenes between the probe and the goal. Finally, both the goal and the probe are within the same phase, i.e. the same CP in this example assuming that the verb raises to Asp to support it lexically. No subject agreement holds within the *v*P because this phase is the locus of object

agreement in adherence to the standard assumption in Minimalism (Chomsky 2000, 2001). The subject raises either to Spec-AspP or Spec-TP. Having satisfied the four conditions stated in (14) above, agreement is established and the unvalued gender feature on Asp is valued as feminine in (15a) but masculine in (15b) in accordance with the DP subject in each sentence.

The upshot is that gender feature on nouns is valued interpretable whereas it is unvalued uninterpretable on verbs and adjectives as it is assigned a value through syntactic derivations (Chomsky 2001; Bošković 2011). Similarly, number feature is interpretable on nouns; uninterpretable on verbs and adjectives (Chomsky 2001; Bošković 2011).

Verbs show an agreement asymmetry with the subjects according to word order. In SVO word order, verbs exhibit full agreement in number and gender. Consider the examples below:

(16) a. aṯ-ṯa:lib-**at**-u   ta-drusu   fi: al-ḥadiqat-i
          the-student-**SG.F**-NOM   **3F**-study.**SG.F**   in   the-park-GEN
          'The (female) student is studying in the park.'

   b. aṯ-ṯa:lib-**ata:n**   ta-drus-**aan**   fi: al-ḥadiqat-i
      the-student-**DUAL.F**-NOM 3F-study-**DUAL.F**   in   the-park-GEN
      'The (two female) students are studying in the park.'

   c. aṯ-ṯa:lib-**a:t**-u   ya-drus-**na**   fi: al-ḥadiqat-i
      the-student-**PL.F**-NOM   **3F**-study-**PL.F**   in   the-park-GEN
      'The (female) students are studying.'

(17) a. aṯ-ṯa:lib-u   ya-drusu   fi: al-ḥadiqat-i
          the-student.**SG.M**-NOM   **3M**-study.**SG.M**   in   the-park-GEN
          'The (male) student is studying in the park.'

   b. aṯ-ṯa:lib-**a:n**   ya-drusu-**aan**   fi: al-ḥadiqat-i
      the-student-**DUAL.M**.NOM   3M-study-**DUAL.M**   in   the-park-GEN
      'The (two male) students are studying in the park.'

   c. aṯ-ṯullab-u   ya-drus-**uun**   fi: al-ḥadiqat-i
      the-student.**PL.M**.NOM   3M-study-**PL.M**   in   the-park-GEN
      'The (male) students are studying.'

In (16-17), the verb agrees in gender and number with the preverbal subjects, *aṯ-ṯa:libatu* 'the female student' and *aṯ-ṯa:libu* 'the male student'.

In contrast, verbs exhibit partial agreement, i.e. agreement in gender only, with postverbal subjects. The following examples demonstrate this:

(18) a. ta-drusu   aṯ-ṯa:lib-**at**-u

3F-study.**SG.F**   the-student-**SG.F**-NOM
'The (female) student is studying.'

b. ta-drusu/   *ta-drusu-**a:n**   a<u>t</u>-<u>t</u>alib-**ata:n**
   3F-study.SG.F/   3F-study-**DUAL.F**   the-student-**DUAL.F**.NOM
   'The (two female) students are studying.'

c. ta-drusu/   *ya-drus-**na**   a<u>t</u>-<u>t</u>a:lib-**a:t**-u
   3F-study.SG.F/   3F-study-**PL.F**   the-student-**PL.F**-NOM
   'The (female) students are studying.'

(19) a. ya-drusu   a<u>t</u>-<u>t</u>alib-u
     3M-study.**SG.M**   the-student.**SG.M**-NOM
     'The (male) student is studying.'

b. ya-drusu/   *ya-drusu-**a:n**   a<u>t</u>-<u>t</u>a:lib-**a:n**
   3M-study.**SG.M**/   3M-study-**DUAL.M**   the-student-**DUAL.M**-NOM
   'The (two male) students are studying.'

c. ya-drusu/   *ya-drus-**u:n**   a<u>t</u>-<u>t</u>ulla:b-u
   3M-study.**SG.M**   3M-study-**PL.M**   the-student.**PL.M**-NOM
   'The (male) students are studying.'

Verbs agree with postverbal subject in gender, yet agreement in number results in ungrammaticality as illustrated in (18c) and (19c).
      In the same vein, the non-verbal predicates, i.e. adjectives, manifest the same agreement asymmetry in accordance with different word order alternations just like their verbal counterparts. Consider the examples below:

(20) a. al-bana:t-u   kunna   <u>s</u>aghir-**a:t**-in/   *<u>s</u>aghir-**at**-an
      the-girls-**PL.F**-NOM were.**3PL.F** young-**PL.F**-ACC/ young-**SG.F**- ACC
       'The girls were standing/ young.'

b. <u>s</u>aghir-**at**-an/   *<u>s</u>aghir-**a:t**-in ka:n-**at**   al-bana:t-u
   young-**SG.F**-ACC/ young-**PL.F**-ACC was-**3SG.F**   the-girls-**PL.F**-NOM
   'STANDING/ YOUNG, the girls were.'

In (20a), the adjective <u>s</u>aghiratan 'young', and the verb *kunna* 'be' exhibit full agreement in number and gender by carrying plural and feminine inflections in agreement with the preceding plural feminine noun, a*lbana:tu* 'the girls'. When fronted as in (20b), the same categories exhibit singular and feminine inflections with the following plural feminine noun, *albana:tu* 'the girls'. This uncovers the fact that gender agreement between non-verbal predicates and the subject exists whether the noun is structurally higher or lower; number agreement manifests

itself only when the noun precedes the agreeing category just like verbal predicates.

Upon examining the aforementioned data, a number of generalizations can be drawn.

1. Both verbal and non-verbal predicates in SA exhibit similar agreement asymmetry that is sensitive to structural configurations.
2. Gender agreement holds whether the goal is structurally higher or lower than the probe.
3. Number agreement holds only when the goal is structurally higher than the probe.

The asymmetry observed between full versus partial agreement that varies according to word order entails that number rather than gender agreement is sensitive to the structural configuration in the sense that gender agreement holds regardless of whether the agreeing category precedes or follows the noun; number agreement realizes only when the agreeing category follows the noun. The following section presents the proposed account of all these facts within the latest advances of Minimalism.

4. Discussion and analysis

On the surface, the agreement asymmetry presented in the previous chapter seems to favor a hybrid account whereby gender agreement is bidirectional in the sense that it can be valued upwards or downwards. In contrast, number agreement only operates in a unidirectional fashion and in particular only upward Agree is possible. However, the careful inspection of this potential proposal has serious theoretical and conceptual flaws in the sense that if both directions of probing are available within a single language, and indeed within a single feature type, i.e. phi-features, how are such patterns learned? Furthermore, such an analysis overlooks the opacity of the syntactic derivations that may not be visible on the surface. In this section, we discuss how the upward Agree fares the analysis better than the downward or bidirectional Agree.

Since number and gender agreement operate independently, then the first assumption is that Φ-feature Probe in SA is split; each feature probes on its own. The alternative configurations proposed in the literature on feature valuation are repeated below for convenience:
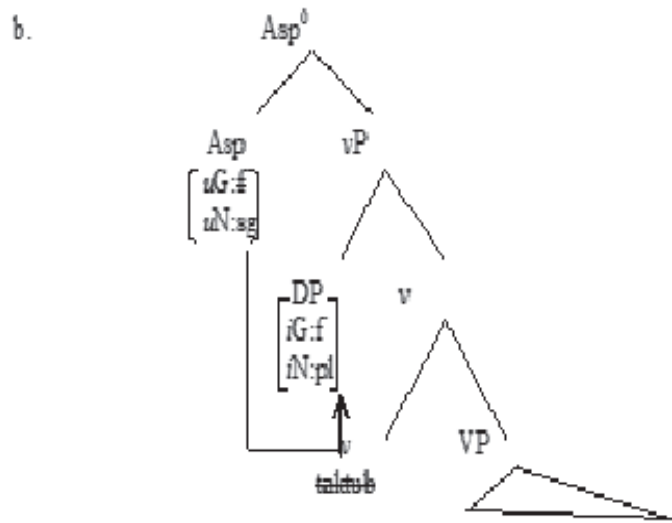
(21) a. Standard Downward Agree:
$$[.. [u\text{F}: \underline{\quad}] .... [i\text{F}: \text{val}] …]$$

b. Reversed Upward Agree:
$$[.. [i\text{F}: \text{val}] .... [u\text{F}: \underline{\quad}] …]$$
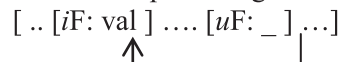
Let us begin with gender agreement. A potential hypothesis is that the formal standard downward agreement can perfectly account for gender agreement in SA when the goal is in a lower structural configuration, e.g. in VSO. Assuming the standard syntactic representation, the initial configuration of clauses is with the subject being higher than the verb and its complement. Therefore, in VSO word order, the verb plausibly moves higher possibly to AspP.

(22) a. ta-ktubu   aṯ-ṯa:lib-a:t-u   ad-dars-a
          3F-write.**SG.F**   the-student-**PL.F**-NOM   the-lesson-ACC
          'The girls are writing the lesson.'

Once merged, the gender feature on Asp probes for a local matching goal in its c-command domain. Here, the first potential goal it finds is the postverbal subject. All the conditions of standard downward Agree are met. The closest goal is c-commanded by the probe and both are active. Agree is established and the gender feature is valued.

The goal is still active because it has not got its case feature valued yet. That is why when T merges, its unvalued uninterpretable gender feature probes in its local domain for an active matching goal. The closest available one is in spec-*v*P.

(23)
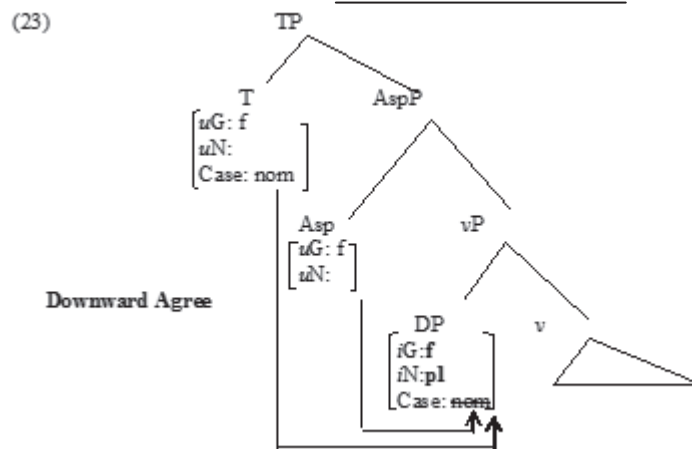
This explains how the goal remains active to value the gender feature on the auxiliary as well as the lexical verbs in examples such as the following.

(24) ka:n-at   ta-ktubu   at-ta:lib-a:t-u   ad-dars-a
      was-**3SG.F**   3F-write.**SG.F**   the-student-**PL.F**-NOM   the-lesson-ACC
      'The girls were writing the lesson.'

However, this account is challenged by gender agreement between non-verbal predicates that are structurally lower than the DP with which they agree within clauses. How can a downward agree account for this? Consider the example below along with its representation.

(25) a. ka:n-at   al-bana:t-u   saghir-a:t-in
        were-SG.F   the-girls-PL.F-NOM   young-PL.F-ACC
        'The girls were young.'
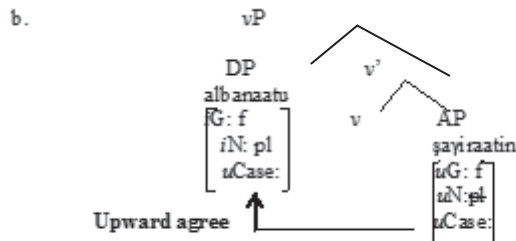
The unvalued features on the AP probe upwards and establish concord. It is in this way, the AP ends up agreeing with the subject DP in number and gender.

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This is the only configuration available for the derivation not to crash, and the unvalued features to be checked off before semantics.

In addition, in SVO word order, the verb is structurally lower than the DP just like non-verbal predicates above. Nonetheless, it is still possible to adopt downward agree by assuming that at some point in the derivation the verbal predicate is structurally higher than the DP and the downward Agree holds, but this will not account for how number value is assigned since it is only available if the goal is structurally higher than the predicate whether verbal or non-verbal. In response to all these challenges, the previous hypothesis can be modified as follows:

1. Downward Agree: gender valuation for verbal predicates
2. Upward Agree: gender valuation for non-verbal predicates
3. Upward Agree: number valuation for all predicate types

From a minimalist perspective, this is contra economy principles. Furthermore, this makes the burden of language acquisition for children hard and predictions are not easily formulated. A better scenario would be boiling down agreement into one upward direction, but the time of feature valuation differs. More precisely, gender agreement holds once all conditions for upward Agree are met. However, number feature valuation is delayed till Spell-Out on the condition that the goal ends up structurally higher than the probe.

Let us see how the upward Agree fares the analysis better. Back to gender agreement on verbal predicates, the verb moves to Asp. The subject likely raises to Spec-AspP, and so it is structurally higher than the verb. In this case, the goal values the gender feature of the probe. If this is the structure that is Spelled-Out, then number agreement also holds. Some cases may cause a problem to this analysis as when the subject intervenes between the auxiliary verb and the lexical verb, both verbs exhibit gender agreement but only the lexical verb exhibits number agreement as shown below.

(26) ka:n-at   aṯ-ṯa:lib-a:t-u   ya-ktub-na   ad-dars-a
      was-**3SG.F** the-student-**PL.F**-NOM 3F-write.**PL.F** the-lesson-ACC
      'The girls were writing the lesson.'

We contend that complex tense constructions have either two AspPs or two TPs as the most recent accounts assume (Fassi Fehri 2004; Ouali and Fortin 2007). Probably the auxiliary *kaan* starts in a lower projection before it lands higher in the clause. Therefore, there must be a time in the derivation where the subject is structurally higher than both the auxiliary and the thematic verbs as the syntactic representation below demonstrates.

(27)
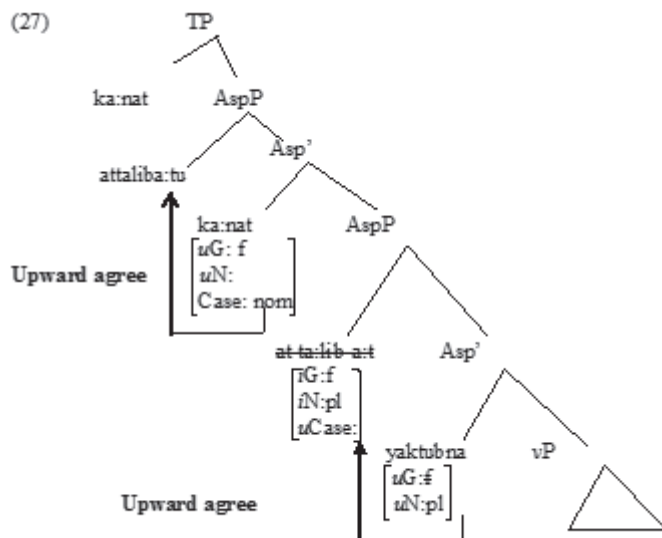
Through these configurations upward Agree is established and gender feature is assigned. However, the resulting structure allows only the lexical verb to be structurally lower than the subject at the Spell-Out, and that is why only number feature on the lower Asp is valued whereas the other is assigned the default singular value. Such cases pinpoint to a difference in gender and number valuation in SA that cannot be only attributed to the configuration of the probe and goal because here is a case where both verbs, the auxiliary and lexical, at one point in the derivation are in the configuration legitimate for agreement whereby the subject DP is structurally higher than both probes, but the result differs. While gender is assigned on both verbs, number is assigned only on the lexical but not the auxiliary verb that is structurally higher than the DP at the Spell-Out. Thus, the result cannot be due to only the configuration, but also to the time of valuation. It seems that while gender is valued immediately when the configuration is available, number valuation is delayed till the Spell-Out iff all the conditions for upward agree are satisfied.

Another challenge to the standard Agree is that several verbal heads like Aspect and Tense exhibit agreement with the same subject DP. In more technical terms, there is more than one probe agreeing with a single goal. This is clear in complex tense constructions as exemplified in (26) wherein T and Asp exhibit agreement with the same subject. The ubiquitous agreement that several probes exhibit with a single goal is not peculiar to SA. It is common in many other languages such as Bantu languages (Carsten 2001), Niger-Congo languages (Baker and Willie 2010), Icelandic (Bhatt 2005), Archi (Polinsky 2015). There is no constraint in the theory that prevents multi probes from valuing their features in agreement with a single goal as far as they are in the same extended projection and the same c-command domain (Grimshaw 2005, Polinsky 2015). There are several plausible accounts in the literature that revolve around assuming feature sharing or multiple or successive probing by

which the closest probe gets valued in agreement with the goal. Then, the higher probes share features or agree with the closest probe (See Baker and Willie 2010 and Polinsky 2015). The problem with these proposals is that they do not account for the SA different agreement patterns that the different probes exhibit when the goal intervenes between two probes where the lower probe exhibits full agreement but the higher probe exhibits partial agreement. Thus, if the probes agree with each other, then they should share the same values. In fact, this is not borne out by the empirical data from SA as that shown in Example (26). A better plausible account we advocate is that the goal remains active for further probing since its case has not assigned yet. Therefore, we contend that the subject raises to Spec-AspP where agreement is established with the Asp probe whose features are valued accordingly. The goal remains active since its structural case is not assigned, and so it remains available for agreement with the higher probe, T.

When the subject is structurally higher than the auxiliary and thematic verbs at the Spell-Out, both verbs exhibit number and gender agreement because all the conditions for the upward agreement are met. Below is an illustration (the irrelevant details are deleted).

(28) a. aṭ-ṭa:lib-a:t-u   kunna   ya-ktub-na   ad-dars-a
        the-student-**PL.F**-NOM   were.**3PL.F**   3F-write.**PL.F**   the-lesson-ACC
        'The girls were writing the lesson.'
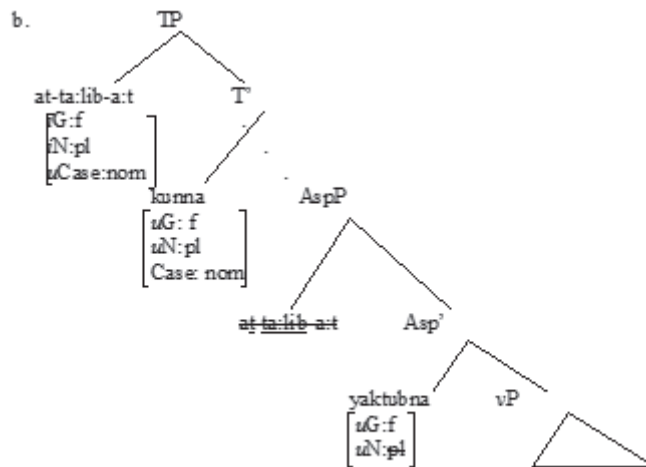
The preverbal subject can be in Spec-TP raised there through movement on a par with the intervening DP in Example (26) or it could be in Topic[0]. The most important fact is that the goal c-commands the probe in both cases.

This proposal brings life back to the Spec-Head proposal that Agree can dispense with in its recent versions. This is, in fact, not what we advocate. Our

contention is that the necessary condition for upward agreement in SA is for the goal to c-command the probe whether they are in Spec-Head configuration or not. That is where we think the data concerning the similar agreement asymmetry from non-verbal predicate fit. As we already clarified, the same agreement asymmetry holds between a DP and a non-verbal predicate in accordance with word order alternations as shown in the previous section, but a further example is given below for convenience:

(29) a. ka:n-at   al-faty-**a:t**-u   ṣaghir-**a:t**-in/   *ṣaghir-**at**-an
        was-3SGF   the-girl-**PL.F**-NOM   young-**PL.F**-ACC/ young-**SG.F**-ACC
        'The girls were young.'

     b. ṣaghir-**at**-an/   *ṣaghir-**a:t**-in   ka:n-at   al-faty-**a:t**-u
        young-**SG.F**-ACC/ young-**PL.F**-ACC was-3SG.F   the-girl-**PL.F**-NOM
        'YOUNG, the girls were.'

The Adjective *ṣaghiratan* 'young' must agree in number and gender with the preceding noun or subject as shown in (29a); however, it agrees in gender only when it precedes the subject as shown in (29b).
    The fronted constituent, adjective or participle, is FOCUS that is related to a gap rather than to a resumptive pronoun inside the sentence as it is sensitive to island constraints:

(30) a. *samiᶜ-tu   anna   **ṣaghir-at**-an taḥadathtu   ila: al-imaraʔah alti
        heard.1SG   that   young-SG.F   talked-1SG   to   the-woman   who

        bana:t-uha __
        daughters-her
        'I heard that YOUNG, I talked with the woman whose daughters are ___.'

     b. *samiᶜ-tu   anna   **ṣaghir-at**   taᶜrifu   kam   hunna ___
        heard-1SG   that   young-SG.F   know-2SG   how   they.PL.F __
        'I heard that young, you know how they are __ .'

     c. ***ṣaghir-at**   tilka al-faty-a:t [mutaḥamis-a:t li-idiraasati   wa __]
        young-SG.F these the-girl-PL.F [motivated-PL.F to-the-studying and_]
        'Young, these girls are [motivated to study and ___].'

The fronted adjective *ṣaghirat* 'young' exhibits island effects in the sense that it cannot be related to a gap within a complex NP island (30a), a wh-island (30b), or a coordinate structure island (30c).
     Furthermore, it preserves the case marking of its corresponding gap rather than showing the default nominative case as in Left-Dislocated elements that are related to a resumptive pronoun inside the clause.

(31) a. al-faty-a:t-u   ṣaghir-a:t-**un**
         the-girl-PL.F-NOM   young-PL.F-**NOM**
         'The girls are young.'

    b. ṣaghir-at-**un**,   al-faty-a:t-u
         young-SG.F-**NOM**   the-girl-PL.F-NOM
         'Young, the girls are.'

(32) a. ka:n-at   al-faty-a:t-u   ṣaghir-a:t-**in**
         was-3SG.F   the-girl-PL.F-NOM   young-PL.F-**ACC**
         'The girls were young.'

    b. ṣaghir-at-**in**,   ka:n-at   alfaty-a:t-u
         young-SG.F-**ACC**   was-3SG.F   the-girl-PLF.NOM
         'Young, the girls were.'

Besides, the adjective is assigned nominative case in its original position (31a), and it carries its case in its derived position (31b). Nonetheless, it carries accusative case in its original position (32a) and when fronted (32b).

    Since fronted adjectives are sensitive to islands, this means that they undergo movement. The question now is where these constituents land. These are APs rather than DPs like subjects. Accordingly, when APs are fronted, they more likely move to a non-argument position in contrast with the subject DPs. Thus, they cannot be in Spec-TP or in TopP. They are more likely in Spec-Focus position and this is further supported by the fact that they trigger subject-verb inversion in SA on a par with wh-interrogatives. Consider the following examples.

(33) a. ṣaghir-at-an,   ka:n-at   al-faty-a:t-u
         young-SG.F-ACC   was-3SG.F   the-girl-PL.F-NOM
         'Young, the girls were.'

    b. *ṣaghir-at-an,   al-faty-a:t-u   kunna
          young-SG.F-ACC   the-girl-PL.F-NOM   were.3PL.F

Below is the possible derivation of Example (33a). (Irrelevant details are deleted.)

(34)
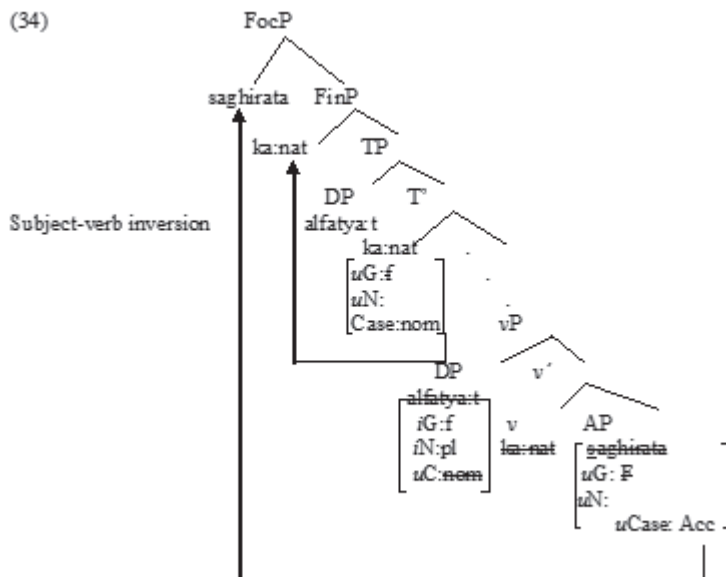
The AP has its case assigned by the *v* and the gender feature is valued in-situ, but its number feature is not valued just like verbs even though the goal is structurally higher than the probe and it c-commands it at the beginning of the derivation.

If the DP is topicalized, the fronted adjective then shows full agreement in number and gender as shown in the example below along with its derivation.

(35) a. al-faty-a:t-u   saghir-a:t-in/   *saghir-at-an   kunna
        the-girl-PL.F-NOM   young-PL.F-ACC/   young-SG.F-ACC   were.3PL.F
        'The girls, YOUNG, they were.'

Starting with the previous structure as the derivation in (34) represents, the example above can be sketched as follows:

(36)
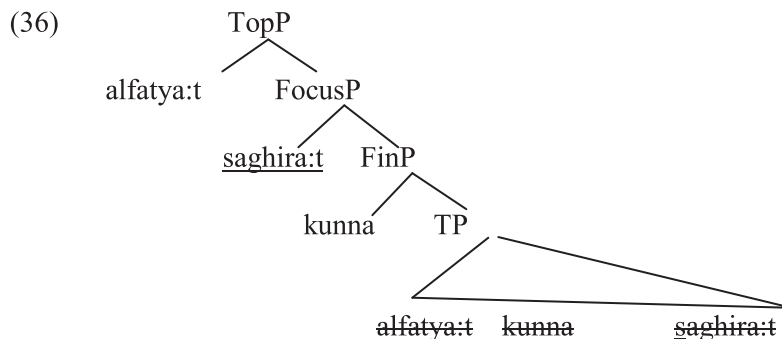
The TopP that hosts the goal and the FocusP that hosts the probe are not in Spec-Head configurations, but the goal c-commands the probe. Thus, it is not

necessary for the goal and the probe to be in Spec-Head configuration for agreement to hold, but what is necessary is for the goal to c-command the probe in SA.

To recapitulate, APs are in Spec-Focus position that land in the left periphery via movement and leaves a gap in its base-generated position evidenced by the islands sensitivity they exhibit, and a resumptive pronoun is not possible. The inflections on adjectives are nominal in nature and have not developed from subject independent pronouns as proposed for verbs. Furthermore, they are not argument DPs, and so no covert *pro* at all whether expletive in cases of VSO order or resumptive in cases of SVO word order. Thus, the previous accounts of agreement asymmetry in SA that resorted to assuming a covert resumptive or expletive cannot account for agreement asymmetry in these cases because it is not possible to assume an expletive *pro* to account for the partial agreement on the adjective when the predicate precedes the subject. Even the other accounts that confine number agreement to Spec-Head configuration (Ussery 2012) are not on the right track, we contend that it is not possible because in this case there are two maximal projections, DP and AP, and they are not in a Spec-Head configuration in their base-generated or derived positions; however, the same agreement asymmetry that exists on verbs manifests itself on adjectives. This, in turn, indicates that the previous accounts that overlooked number and gender agreement between subjects and non-verbal predicates cannot be concise enough to explain the number-gender asymmetry.

A further relevant question is whether word order alternations, VSO and SVO, are related (movement account) or unrelated (non-movement account). We would argue that both proposals could be correct. In some cases, the preverbal DP can be either a derived subject that lands in spec-TP, but it can also be a left-dislocated element that is base-generated in Topic. Nothing prevents any account from being correct. Both are possible, but a study on the properties of the preverbal DP is necessary to tease apart the cases where the preverbal DP is a derived subject (movement account) from those in which the DP at issue is a left-dislocated topic (non-movement account). The present study significantly concludes that whether the movement account or the non-movement account is correct, number versus gender agreement differs in the time in which feature valuation occurs. It also questions the plausibility of Spec-Head proposal because the present study shows that it is only necessary for the goal to c-command the probe at the Spell-Out for number agreement to realize whether the goal is in Spec-TP, Spec-AspP or TopP.

All in all, the analysis advocated in this paper can be recaptured and summarized in more formal terms as follows:

I) Upward agree accounts for number and gender agreement in SA.

II) Gender agreement holds once the goal is structurally higher than the probe. In contrast, there is a delay in number agreement till the Spell-Out when the phase is sent to PF on the condition that the goal c-commands the probe.

This finding is very important to the understanding of Agree operation because there are features that require immediate valuation upon merging a head with unvalued uninterpretable features such as gender feature on T and Asp in SA. However, there are other features whose valuation can be delayed till the time of the Spell-Out when the phase is sent to the PF. Furthermore, confining Agree to the downward direction for languages such as SA would result in many exceptional and superfluous operations that the upward account can dispense with. This gives further support to the reversed Agree direction and Baker's Parameter in the sense that some languages allow downward agree but others may allow upward Agree. Locality and c-command still lie at the heart of agreement.

5. Conclusion

The proposed analysis of number and gender agreement in SA illustrates that allowing Agree to hold in both directions empowers the theory and expands its capacity to embrace intralinguistic and cross-linguistic variation. We have seen that Agree suffices to account for empirical facts of SA without resorting to postulating unmotivated covert expletive or resumptive pronouns as previous accounts have done, and this is less costly on conceptual and empirical grounds. Nonetheless, locality constraint that requires a c-command relation between the probe and the goal is necessary. Still, further research is required to propose a semantic analysis to account for number-gender asymmetry and why some features must be valued immediately upon merging into the structure, whereas the valuation of others might be delayed till Spell-Out.

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References

Aoun, Joseph, Elabbas Benmamoun and Dominique Sportiche. (1994). 'Agreement and Conjunction in Some Varieties of Arabic'. *Linguistic Inquiry* 25: 195-220.

Aoun, Joseph, Elabbas Benmamoun and Lina Choueiri. (2010). *The Syntax of Arabic*. Cambridge: Cambridge Syntax Guides.

Baker, Mark. (2011). 'Agreement and Case'. In Cedric Boeckx (ed.), *The Oxford Handbook of Linguistic Minimalism*, 607-654. New York and Oxford: Oxford University Press.

Baker, Mark and Willie Udo Willie. (2010). 'Agreement in Ibibio: From every head, to every head'. *Syntax,* 13: 99-132.

Benmamoun, Elabbas. (2000). *The Feature Structure of Functional Categories: A Comparative Study of Arabic Dialects*. Oxford University Press.

Bhatt, Rajesh. (2005). 'Long distance agreement in Hindi-Urdu'. *Natural Language and Linguistic Theory* 23: 757-807.

Boškovic̕, Željko. (2007). 'On the locality and motivation of Move and Agree: An even more minimal theory'. *Linguistic Inquiry* 38: 589-644.

Boškovic̕, Željko. (2011). 'Last Resort with Move and Agree in derivations and representations'. In Cedric Boeckx (ed.), *The Oxford Handbook of Linguistic Minimalism*, 327-353. New York and Oxford: Oxford University Press.

Carstens, Vicki. (2003). 'Rethinking complementizer agreement'. *Linguistic Inquiry* 34: 393-412.

Carstens, Vicki. (2001). 'Multiple agreement and case deletion: against phi-(in)completeness'. *Syntax* 4: 147-163.

Chomsky, Noam. (1995). *The Minimalist Program*. Cambridge, MA: MIT Press.

Chomsky, Noam. (2000). 'Minimalist inquiries: the framework'. In Roger Martin, David Michaels, and Juan Uriagereka (eds.), *Step by Step: Essays on Minimalist Syntax in Honour of Howard Lasnik,* 89-115. Cambridge, MA: MIT Press.

Chomsky, Noam. (2001). 'Derivation by Phase'. In Michael Kenstowicz (ed.), *Ken Hale: A Life in Language,* 1-50. Cambridge, MA: MIT Press.

Diercks, Michael. (2010). Agreement with Subjects in Lubukusu. PhD dissertation, Georgetown University, USA.

Diercks, Michael. (2011). 'The morphosyntax of Lubukusu locative inversion and the parametrization of Agree'. *Lingua* 121(5): 702-720.

Fassi Fehri, Abdelkader. (1993). *Issues in the Structure of Arabic Clauses and Words*. Dordrecht: Kluwer Academic.

Fassi Fehri, Abdelkader. (2004). 'Temporal/aspectual interaction and variation across Arabic heights'. In Jacqueline Guéron and Jacqueline LeCarme (eds.) *The Syntax of Time*, 235-259. Cambridge: MIT Press.

Gai, Amikam. (1984). 'Predicative State and Inflection of the Nominal Predicate in Akadian and Syriac'. *Afroasiatic Linguistics* 9/1: 83.

Gray, Louis. (1934). *Introduction to Comparative Semitic Linguistics*. Amsterdam: Philo Press.

Grimshaw, Jane. (2005). *Words and Structure*. Stanford, Calif: CSLI Publications.

Huehnergard, John. (1997). *A Grammar of Akkadian*. Atlanta: Scholars Press.

Koopman, Hilda. (2006). 'Agreement configurations; in defense of Spec, head'. In Cedric Boeckx (ed.), *Agreement Systems*, 159-199. Amsterdam: John Benjamins.

Mohammad, Mohammad. (2000). *Word Order, Agreement and Pronominalization in Standard and Palestinian Arabic.* Amsterdam: John Benjamins.

Ouali, Hamid and Catherine Fortin. (2007). 'The Syntax of Complex Tense in Moroccan Arabic'. In Elabbas Benmamoun (ed.), *Perspectives on Arabic Linguistics XIV*, 175-189. Amsterdam/ Philadelphia: John Benjamins Publishers.

Pesetsky, David. (1989). Language-particular rules and the Earliness Principle. Manuscript. MIT.

Polinsky, Maria. (2015). 'Agreement in Archi from a Minimalist Perspective'. In Greville Corbett, Marina Chumakina, and Dunstan Brown (eds.), *Archi: Complexities of agreement in cross-theoretical perspective*. Oxford: Oxford University Press.

Preminger, Omer and Maria Polinsky. (2015). Agreement and semantic concord: a spurious unification. http://ling.auf.net/lingbuzz/002363/ (Retrieved on 13 July 2015).

Rizzi, Luigi. (1982). *Issues in Italian syntax*. Dordrecht: Foris.

Rubin, Aaron D. (2005). *Studies in Semitic Grammaticalization.* Harvard Semitic Studies 57.

Soltan, Usama. (2007). 'On Agree and Postcyclic Merge in Syntactic Derivations: First Conjunct Agreement in Standard Arabic Revisited'. In Elabbas Benmamoun (ed.), *Perspectives on Arabic Linguistics XIX*, 191-216. Amsterdam: John Benjamins.

Tropper, Josef. (1995). 'Die semitische "Suffixkonjugation" in Wandel'. In Manfried Dietrich and Oswald Loretz (ed.), *Vom alten Orient zum Alten Testament: Festschrift fur Wolfram Freiherrn von Soden zum 85. Geburtstag am 19. Juni 1993,* 491-516. Neukirchen-Vluyn: Neukirchener.

Ussery, Cherlon. (2012). 'Case and Phi Features as Probes'. In Jaehoon Choi, Alan Hogue, Jeffrey Punske, Deniz Tat, Jessamyn Schertz, and Alex Trueman (eds.), Proceedings of the Poster Session of the West Coast Conference on Formal Linguistics (WCCFL), held in April, 2011.

Wurmbrand, Susi. (2012). 'The syntax of valuation in auxiliary-participle constructions'. In Jaehoon Choi (ed.), *Coyote Working Papers: proceedings of the 29th annual West Coast Conference on Formal Linguistics*, 154-162. University of Arizona, Tuscon.

Zeijlstra, Hedde. (2012). There is only one way to Agree. *The Linguistic Review* 29: 491-53.