RELATIVIZED AGREE AND AGREEMENT ASYMMETRIES IN STANDARD ARABIC[*]

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1. Introduction

Standard Arabic exhibits three types of asymmetries in subject-verb agreement. The first type, which I call *SV-VS asymmetry*, is observed in sentences with lexical subjects. In the SV order the verb agrees with the subject in gender and number (full agreement).[1] On the other hand, in the VS order the verb is invariantly singular, agreeing with the subject only in gender (partial agreement).

(1) SV sentences: agreement in both gender and number

    a.   ʔal-ʔawlād-u   qadim-**ū**.[2]

        the-boys-NOM   came-3.M.PL

        'The boys came.'

    b.   ʔal-bint-āni   qadim-**atā**.

        the-girl-NOM.DL came-3.F.DL

        'The two girls came.'

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[1] Following the common assumption that "3rd person" is a non-person (e.g., Anderson 1982; Sigurðsson 1996; Harbert and Bahloul 2002), I assume that 3rd person DPs lack a person feature and that so-called 3rd person inflection on a verb is a default form when its φ-features are not specified for person.

[2] The following abbreviations are used in this paper. 1/2/3 = 1st/2nd/3rd person, ACC = accusative, C = complementizer, CL = clitic, DAT = dative, DL = dual, EV = epenthetic vowel, F = feminine, FUT = future, GEN = genitive, IND = indefinite, M = masculine, N = neuter, NOM = nominative, PL= plural, PART = participle, PRT = particle, Q = question marker, REL = relative pronoun, SG = singular, SUBJ =

(2) VS sentences: agreement only in gender

    a.   qadim-**a**   l-ʔawlād-u.

          came-3.M.SG   the-boys-NOM

          'The boys came.'

    b.   qadim-**at**   al-bint-āni.

          came-3.F.SG   the-girl-NOM.DL

          'The two girls came.'   (Harbert and Bahloul 2002:45)

The second asymmetry is observed in sentences with coordinated subjects. When the coordinated subject precedes the verb, both conjuncts control agreement on the verb (Whole Conjunct Agreement (WCA)). In the VS order, in contrast, the verb agrees only with the first conjunct (First Conjunct Agreement (FCA)). The asymmetry, *WCA-FCA asymmetry* henceforth, is illustrated by the following examples:

(3) SV sentences: full agreement with both conjuncts (WCA)

    a.   [ʔal-ʔawlād-u wa l-banāt-u]   qaraʔ-**ū**   kitāb-an.

          the-boys-NOM and the-girls-NOM read-3.M.PL   book-ACC

          'The boys and the girls read a book.'

    b.   [ʔal-banāt-u   wa l-ʔawlād-u] qaraʔ-**ū**   kitāb-an.

          the-girls-NOM and the-boys-NOM read-3.M.PL   book-ACC

          'The girls and the boys read a book.'

    c.   [ʔal-bint-u   wa l-walad-u]   k̲araj-**ā**.

          the-girl-NOM   and the-boy-NOM left-3.M.DL

          'The girl and the boy left.'

          ((a, b) from Mohammad 2000:112-113; (c) from Harbert and Bahloul 2002:50)

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subjunctive.

For the sake of uniformity, hyphenations and symbols used for transliteration of Arabic examples may be altered from those used in the cited papers.

(4) VS sentences: partial agreement with the first conjunct (FCA)

    a.   qaraʔ-**a**   [l-ʔawlād-u   wa l-bantāt-u]   kitāb-an.

        read-3.M.SG   the-boys-NOM and the-girls-NOM   book-ACC

        'The boys and the girls read a book.'

    b.   qaraʔ-**at**   [l-banāt-u   wa l-ʔawlād-u]   kitāb-an

        read-3.F.SG   the-girls-NOM and the-boys-NOM   book-ACC

        'The girls and the boys read a book.'   (Mohammad 2000:112-113)

Note that the order of the two conjuncts is reversed in (3a, b) and that the verb in either example is masculine. This indicates that the masculine on the verb is a composite value of the feminine and masculine conjuncts. Notice also that the two singular conjuncts in (3c) trigger dual agreement on the verb. It is thus attested that the verb agrees with both conjuncts in gender and number in SV sentences. In VS sentences (4a, b), in contrast, verbs are invariantly singular, and their gender is the same as that of the first conjunct. That is, verbs partially agree with the first conjunct.

    Third, pronominal subjects trigger agreement patterns different from lexical DP subjects (*DP-pronoun asymmetry*). Examples (5a, b) illustrate that verbs display full agreement with pronominal subjects in both SV and VS sentences.

(5) Agreement with the pronominal subject: Full agreement in SV and VS

    a.   hum   qaraʔ-**ū**   d-dars-a.

        they   read-3.M.PL   the-lesson-ACC

        'They read the lesson.'

    b.   qaraʔ-**ū**   hum-u   d-dars-a.[3]

        read-3.M.PL   they-EV the-lesson-ACC   (Soltan 2006:248)

    This paper aims to provide a principled account of these agreement asymmetries. The paper is organized as follows. In section 2, I review previous approaches to the agreement asymmetries and highlight their problems. In section 3, I advance a modified

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[3] "Pronoun subjects in Arabic cannot typically appear postverbally" (Harbert and Bahloul 2002:49). The postverbal overt subject in (5b) is acceptable because it is "associated with emphasis/contrastive focus effects" (Soltan 2006:248) by the epenthetic vowel.

theory of Agree and propose the internal structures of lexical DPs and pronouns in Standard Arabic. Section 4 addresses how the proposed theory accounts for the agreement asymmetries. Section 5 is a conclusion.

2. Previous approaches

Researchers have taken different approaches to the agreement asymmetries in Standard Arabic. Roughly speaking, there are four major types of approaches: (i) the Null Pronoun approach, (ii) the Agreement Loss approach, (iii) the Level of Licensing approach, and (iv) the Government-Agreement approach. The terms in (ii)-(iv) are borrowed from Harbert and Bahloul 2002. I outline these approaches in order and note their problems.
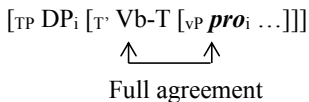
2.1. The Null Pronoun approach

Some researchers argue that a null pronoun (*pro*) triggers agreement. They differ in two ways with regard to whether *pro* triggers full or partial agreement.

2.1.1 pro in Spec,v

Researchers such as Fassi Fehri (1993), Soltan (2006), and Al-Horais (2009), building on the fact that pronominal subjects always trigger full agreement, insist that only pronouns can induce full agreement. In an SV sentence with a lexical subject, therefore, it is not the lexical subject, but *pro* in Spec,v that controls agreement on the verb. In a VS sentence, the subject occupying Spec,v can only induce gender agreement. The contrast is illustrated in (6a, b).

(6) a. SV sentences: b. VS sentences:

$[_{TP}$ DP$_i$ $[_{T'}$ Vb-T $[_{vP}$ ***pro***$_i$ …]]] $[_{TP}$ Vb-T $[_{vP}$ DP …]]   (Vb = V-v)

  Full agreement   Partial agreement
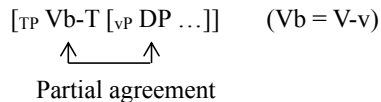
According to Fassi Fehri and Al-Horais, *pro* is incorporated and realized as an inflectional morpheme on the verb.

This analysis seems untenable for at least two reasons. First, it cannot explain the

agreement pattern with the postverbal coordinated pronominal subject.

(7) Agreement with the postverbal coordinated subject: Full FCA

    ḵaraj-**ti**   [ʔanti   wa   huwa].

    left-2.F.SG you.F.SG and he

    'You and he left.'   (Harbert and Bahloul 2002:51)

The verb displays full agreement with the first conjunct. Under the analysis proposed by Fassi Fehri and Al-Horais, the pronoun must incorporate into the verb. However, such movement should not be allowed because it violates the Coordinate Structure Constraint. Moreover, it does not give a principled account for why Vb-T in (6b) agrees in gender but not in number. According to Soltan, agreement is unnecessary altogether in VS sentences because φ-information is represented by the subject. The verb inflects for gender because the redundancy happens to be grammaticalized in Standard Arabic. The "unfortunate redundancy" (Harbert and Bahloul 2002:62) explanation of this type is obviously far from convincing.

2.1.2 pro *in Spec,T*

   The opposite explanation is given by Mohammad (1990, 2000), according to which *pro*, occupying Spec,T, triggers *partial* agreement on the verb, as illustrated in (8b).

(8) a. SV sentences: b.VS sentences:

   [TP DP [T' Vb-T [vP …]]]   [TP ***pro***[SG] [T' Vb-T [vP DP …]]]

      ⤒_____⤒   ⤒_____⤒

     Full agreement   Partial agreement

In (8a), the subject triggers full agreement on the verb under the Spec-head relation. In (8b), on the other hand, Spec,T is occupied by the expletive *pro*. Assuming that *pro* is invariantly singular, the verb is always singular in VS sentences. At LF, (the formal features of) the DP subject is raised to check its Case feature. At this stage, the gender feature of Vb-T is also checked by the DP, yielding gender agreement on the verb.

   This analysis is also subject to at least two problems. The first problem concerns

FCA. The first conjunct in (4a, b) must be raised at LF to assign its gender feature to Vb-T, in violation of the Coordinate Structure Constraint.

The second problem, mentioned by Aoun, Benmamoun, and Choueiri (2010), has to do with the mechanism of gender agreement in (8b). If gender is checked at LF, how does it have morphological reflex? A possible explanation would be that *pro* "can change its gender feature to feminine if followed by a feminine subject" (Mohammad 2000:144), triggering gender agreement in overt syntax. This is far from convincing, however, unless the mechanism of gender change is clarified and justified.

Summarizing, both *pro*-in-Spec,v and *pro*-in-Spec,T analyses are untenable due to their conceptual and empirical problems. It is therefore concluded that the Null Pronoun approach must be dismissed.

2.2. The Agreement Loss approach

Let us consider the second approach advocated by Aoun, Benmamoun, and Sportiche (1994) and Benmamoun (2000). They argue that in either SV or VS sentences, full agreement is established under a Spec-head relation. The verb may remain in T, as in (9a), or be further raised to F, as in (9b).

(9) a. SV sentences: b. VS sentences:

    [$_{TP}$ DP [$_{T'}$ Vb-T [$_{vP}$ …]]]   [$_{FP}$ Vb-T-F [$_{TP}$ DP [$_{T'}$ t_{Vb-T} [$_{vP}$ …]]]]

    ↑_____↑   ↑_____↑

    Full agreement   (Full agreement)

The full agreement information surfaces on the verb in (9a) but not in (9b). According to the above researchers, the verb loses its number feature in (9b) because the verb and the following subject make up a prosodic unit, "which in turn makes the lexical subject an exponent of the number feature on the verb" (Aoun, Benmamoun, and Choueiri 2010:83).

There are at least two problems with the Agreement Loss approach. The first problem concerns "unfortunate redundancy." If the postverbal subject in (9b) makes the verb's inflection redundant, why should the verb retain gender inflection? Second, this approach cannot predict FCA, as noted by Harbert and Bahloul (2002) and Soltan

(2006). The relevant example (4b) is repeated here as (10).

(10) qaraʔ-**at**   [l-banāt-u   wa l-ʔawlād-u]   kitāb-an
     read-3.F.SG   the-girls-NOM   and the-boys-NOM book-ACC

     'The girls and the boys read a book.'

Under this approach, the coordinated subject assigns its compositional features ([M,PL]) to Vb-T when they enter into a Spec-head relation, as represented in (11a).

(11) a. Full agreement: b. Agreement loss:

[TP ConjP[M,PL] [T' Vb-T[uφ] [vP …]]]   [FP Vb-T-F [TP ConjP [T' tVb-T [vP …]]]
                                                    → [M,P̶L̶]

→ [M,PL]

Vb-T is further raised to F to derive the VS order, as in (11b). At this point, Vb-T should lose the number value [PL] but retain the gender value [M]. It is thus wrongly predicted that the verb in (10) should take the masculine form.

In conclusion, the Agreement Loss approach is untenable for its conceptual and empirical problems.

2.3. The Level of Licensing approach

The third approach holds that the different agreement patterns reflect different levels in which agreement takes place. In this section, I will discuss two subtypes and their shortcomings.

2.3.1. Agreement in overt syntax and covert syntax

Researchers such as Parkinson (1995) and van Gelderen (1996) argue that full agreement reflects feature checking in overt syntax and partial agreement in covert syntax. Let us assume that the [number (Nr)] of Vb-T may be strong or weak, whereas [gender (Gr)] is always weak. If [Nr] is strong, it triggers subject movement (i.e., the SV order) and feature checking in overt syntax, yielding a morphological reflex, i.e., number agreement on the verb. If [Nr] is weak, on the other hand, feature checking takes place in covert syntax, yielding the VS order and the absence of number agreement morphology.

This analysis has been challenged by several authors. First, as noted by Aoun, Benmamoun, and Choueiri (2010), it is unclear why gender agreement is overtly manifested in VS sentences if the gender feature is checked in covert syntax. Second, Harbert and Bahloul (2002) note that this analysis cannot explain full agreement with pronominal subjects. Recall that pronouns trigger full agreement even when they appear postverbally. Nor can it account for FCA, as acknowledged by Parkinson himself. FCA requires covert raising of the first conjunct but it would violate the Coordinate Structure Constraint.

2.3.2. Agreement in syntax and PF

Walkow (2010) also argues that agreement may take place in different components. According to him, partial agreement is the result of Agree in syntax, whereas full agreement is a PF phenomenon. This analysis is built on the assumption that lexical DPs and pronouns in Standard Arabic have the following structures:

(12) a. Lexical DPs: b. Pronouns:

$[_{DP}$ D $[_{\varphi P}$ $\varphi_{[Gr,Nr]}$ $[_{NP}$ N$_{[Gr]}]]]$ $[_{\varphi P}$ $\varphi_{[Gr,Nr,Pn]}$ $[_{NP}$ N$]]$ (Pn=person)

Gender is realized on N because it is an inherent feature of nouns (cf. Ritter 1992; Harbert and Bahloul 2002). On the other hand, number features are variable, and hence do not originate on N. Walkow, following Déchaine and Wiltschko 2002, posits φ as the locus that encodes φ-information. Therefore, φ bears [Nr] as well as [Gr]. He also assumes that D "acquires its φ-features in a relation with NP" (p.5). Namely, D shares [Gr] with N in some way or another. Pronouns, on the other hand, lack a DP layer, as in (12b).[4]

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[4] This assumption is built on the analysis by Déchaine and Wiltschko (2002). They claim that there are three pronoun types: DP, φP, and NP. DP pronouns function similar to R-expressions and appear only in argument positions. φP pronouns can function similar to variables and can occupy either argument or predicate positions. NP pronouns are interpreted as constants and appear only in predicate positions.

Walkow argues that pronouns in Standard Arabic qualify as φPs. Pronouns in Standard Arabic can be used either as arguments or as predicates, as demonstrated in (i). Moreover, they are bindable, as

With these assumptions in mind, let us consider how agreement is achieved. In the VS order, the probe Vb-T undergoes Agree with the postverbal subject in syntax. (13a) illustrates Agree with the lexical subject and (13b) with the pronominal subject.

(13) a. Vb-T$_{[u\varphi]}$ … [$_{DP}$ D [$_{\varphi P}$ $\varphi_{[Gr,Nr]}$ [$_{NP}$ N$_{[Gr]}$]]]

    b. Vb-T$_{[u\varphi]}$ … [$_{\varphi P}$ $\varphi_{[Gr,Nr,Pn]}$ [$_{NP}$ N]]

In (13a), the closest matching goal for Vb-T is D. D shares [Gr] with N. As a result of Agree(Vb-T, D), Vb-T is assigned D's [Gr] feature. Partial agreement is thus obtained. In (13b), on the other hand, the closest matching goal for Vb-T is φ. Because φ bears a full set of φ-features, the verb fully agrees with postverbal pronominal subjects.

    Let us then consider agreement in SV sentences. Because A-traces are invisible (Chomsky 2000, 2001, 2008), Vb-T fails to find a goal in its domain. Features unchecked in syntax may be licensed in morphological (PF) component, and PF agreement is established by adjacency. (14) represents how PF Agree takes place. When Vb-T is adjacent to the subject DP, it is also adjacent to φP. Therefore, Vb-T is assigned φ's [Gr, Nr]-values. Full agreement is thus obtained.

(14) [$_{DP}$ D [$_{\varphi P}$ $\varphi_{[Nr, Gr]}$ [$_{NP}$ N$_{[Gr]}$]]]   Vb-T$_{[u\varphi]}$ t_{DP} …
                                                                                      PF adjacent

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in (ii), which indicates that they are variables.

(i) a. hā$\underline{d}$ā **huwa.**   b. ʔanti   **hiya.**
       this he   you(F.SG)   she
       'This is he.'   'You are she.'   (Walkow 2010, (15))

(ii) ʔa-$\underline{k}$āf-u ʔana   wa [kull-u   zamīl-in   l-ī]$_1$ ʔan
      1.SG-fear I   and[every-NOM colleague-GEN.IND for-me]$_1$ C
      ʔa-tanāfis-a   ʔana wa **huwa**$_1$ ʕalā nafs-i   l-wa$\underline{z}$ā?if-i.
      1.SG-compete-SUBJ I   and he$_1$ for same-GEN the-jobs-GEN
      'I and every colleague of mine are afraid that I and he will be competing for the same job.'

                                                                      (Walkow 2010, (16))

There are at least two problems with this analysis. First, we have to stipulate [Gr]-feature sharing as in (12a), whose mechanism or motivation is entirely unclear. The other problem is empirical. The proposed analysis cannot address obligatory WCA, as Walkow himself admits. In an SV sentence with a coordinated subject, the verb is adjacent not only to the whole subject but also to the second conjunct. It would then be predicted that either WCA or second conjunct agreement is allowed, contrary to the fact.

To sum up, either version of the Level of Licensing approach is problematic conceptually and empirically.

2.4. The Government-Agreement approach

The fourth approach is proposed by Bahloul and Harbert (1993) and Harbert and Bahloul (2002). Their approach, similar to Walkow's, is built on the assumptions that (i) lexical DPs and pronouns have different structures and that (ii) different structural relationships between the verb and the subject trigger different feature checking operations. As for (i), they assign such representations as (15a, b) for lexical and pronominal DPs:

(15) a. Lexical DPs: $[_{DP}\ D_{[+/-def]}\ [_{NumP}\ Num_{[Nr]}\ [_{NP}\ N_{[Gr]}]]]$
     b. Pro-DPs: $[_{DP}\ D_{[Gr,Nr,Pn]}]$

                                  (adapted from Harbert and Bahloul 2002:46, 49)

They assume with Ritter 1992 that gender is an inherent feature of N, whereas other features are generated outside the NP. On the other hand, pronouns are DPs without internal structure. All φ-features are associated with the same head, i.e., D.

As for (ii), they assume that agreement obtains either under a Spec-head relation or government. Full agreement in an SV sentence reflects a Spec-head relation between the subject and the verb, as in (16a). In a VS sentence, on the other hand, the verb agrees with the subject under government, as in (16b).

(16) a. SV sentences: Spec-head agreement

   $[_{TP}$ DP $[_{T'}$ Vb-T $[_{vP}$ …]]]
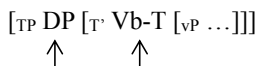
 b. VS sentences: Agreement under government

  i. $[_{TP}$ Vb-T $[_{vP}$ $[_{DP}$ D $[_{NumP}$ Num$_{[Nr]}$ $[_{NP}$ N$_{[Gr]}$]]] …]]　　　(lexical DP)

  ii. $[_{TP}$ Vb-T $[_{vP}$ $[_{DP}$ D$_{[Gr,Nr,Pn]}$] …]]　　　　　　　(pronominal DP)
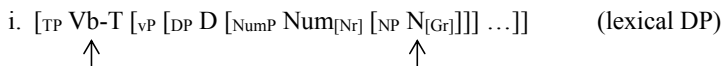
Agreement under government is peculiar in that it is subject to the following constraint:

(17) The Government Agreement Constraint

 Only those features which originate on the Base of a Projection System are

 evaluated for agreement under government.

<div align="right">(Harbert and Bahloul 2002:46)</div>

The "Projection System" may be understood as Grimshaw's extended projections (Grimshaw 1991). Because DP and NumP are extended projections of N, N is considered the Base of a lexical DP. In pronouns, on the other hand, the Base is D. Accordingly, when Vb-T checks its features against a lexical DP under government, as in (16bi), it can only see [Gr] in N. Partial agreement is thus obtained. When the postverbal subject is pronominal, as in (16bii), Vb-T sees all φ-features on D. Postverbal pronouns thus trigger full agreement.

 FCA is also given a simple account under the Government-Agreement approach. They assume, following Munn 1992, that a coordinated phrase has the following structure:

(18)   ConjP
            ╱   ╲
        DP1   Conj'
        ╱╲   ╱   ╲
  … N[Gr]   Conj   DP2
                          ╱╲
                    … N[Gr]
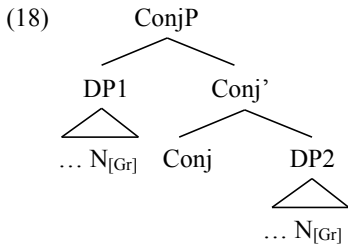
When ConjP appears postverbally, Vb-T can only see the gender feature of the first conjunct. The explanation runs as follows. First, Conj receives DP1's (full) φ-features under Spec-head agreement. However, Vb-T cannot target those features in Conj because they do not originate there. Vb-T cannot target DP2 either because DP2 is in the domain of a closer governor, i.e., Conj. Accordingly, Vb-T targets [Gr] in the Base (N) of DP1, yielding FCA.

All the agreement asymmetries are thus accounted for under the Government-Agreement approach. Moreover, gender agreement is not an "unfortunate redundancy" but a necessary consequence of the proposed agreement mechanism. In these regards, the Government-Agreement approach seems superior to the other approaches reviewed so far. However, there are several problems with this approach. The first problem concerns the plausibility of the constraint in (17), especially in the minimalist framework. "Government" may be paraphrased as Agree, but the proposed mechanism conflicts with the locality principle because Vb-T skips the closer goal Num in favor of N (see (16bi)).

Full agreement under a Spec-head relation poses another conceptual problem. Observe the structure of the lexical DP in (15a) again. φ-features are associated with NumP and NP, but not DP. When the subject DP occupies Spec,T, neither NumP nor NP is in a Spec-head relation with Vb-T. How are those features checked by "Spec-head" agreement? Neither Bahloul and Harbert (1993) nor Harbert and Bahloul (2002) provide an explanation. A possible explanation might be that [Nr] and [Gr] percolate up to DP, which are then assigned to Vb-T under the Spec-head relation. This means that non-original features are available in Spec-head agreement but not in government agreement. However, the question remains of what is responsible for this asymmetry.

To summarize, despite its descriptive adequacy, the Government-Agreement

approach is problematic because of its stipulative agreement mechanism.

3. Relativized Agree and the internal structure of noun phrases

In this section, I introduce a theory of Relativized Agree and the structures of nominals in Standard Arabic, both of which have been proposed in the literature on independent grounds. These proposals provide a straightforward account of the agreement asymmetries as will be shown in section 4.
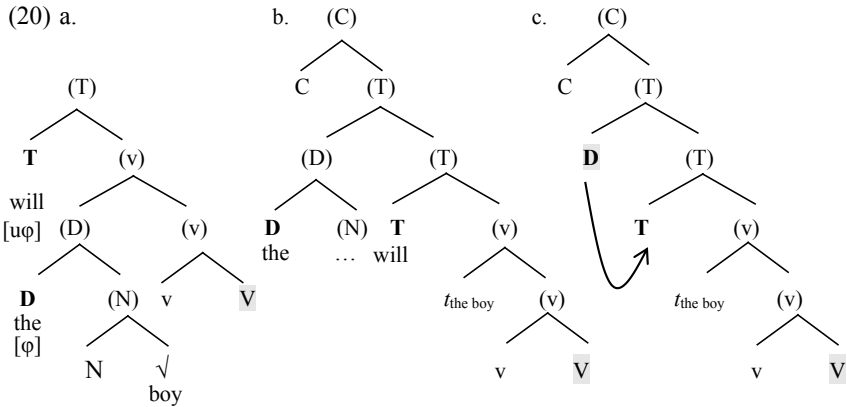
3.1.Relativized Agree

In this section I introduce a theory of Agree advanced in my 2014 paper (Kobayashi 2014). I have demonstrated that Chomsky's Agree theory cannot explain subject-verb agreement. My argument is built on the following standard assumptions:

(I)   Only heads can be a probe or a goal (cf. Chomsky 2004, 2007).

(II)   Move applies prior to Agree. Agree applies at the phase level (cf. Chomsky 2007, 2008).

(III)   A-traces are invisible to Agree (cf. Chomsky 2000, 2001, 2008).

(IV)   Derivation is strictly cyclic (cf. Chomsky 1995, 2000, 2001).

(V)   Transfer spells out either the domain of a phase or the phase in full. The latter option is available when necessary for convergence (cf. Chomsky 2004).

(VI)   Labels are assigned to a transferred syntactic object by a labeling algorithm (LA) (cf. Chomsky 2013).

(VII)   Labels are identical with heads (cf. Chomsky 2000, 2004).

(VIII) No-Tampering Condition: "[O]perations do not tamper with the basic relations involving the label that projects: the relations provided by Merge and composition" (Chomsky 2000:136).

Given these assumptions, however, Agree cannot take place between the subject and T. Let us consider the sentence (19) and suppose that the derivation has reached stage (20a).

(19) The boy will buy the book.

(20) a.　　　　　b.　(C)　　　　　c.　(C)

```
a.              (T)
            T        (v)
          will
          [uφ]   (D)        (v)
              D      (N)   v      V
              the
              [φ]       N     √
                          boy

b.        (C)
       C        (T)
            (D)          (T)
         D    (N)  T         (v)
        the   …  will    t_the boy   (v)
                                   v      V

c.        (C)
       C        (T)
            D            (T)
                     T          (v)
                          t_the boy   (v)
                                    v      V
```

The labels in parentheses are absent at this stage whereas VP has been transferred and labeled ((VI)). What is informally labeled as "VP" or "V" is actually *buy* because the label is identical with its head ((VII)). I indicate the assigned label with shadowing. A transferred object becomes invisible, but its highest label should remain in syntax as a placeholder because otherwise the resulting structure would violate the No-Tampering Condition ((VIII)).

At the stage of (20a), T (*will*) and D (*the*) are in a c-command relation and have matching features (Match).[5] However, the valuation of their uninterpretable features (Agree) must wait until the phase level ((II)). Suppose, then, that the CP has been constructed as in (20b). At this stage, however, Agree(T, D) is impossible because the subject has moved out of T's domain. T cannot target $t_{\text{the boy}}$ for Agree because A-traces are invisible ((III)). It is therefore concluded that the subject and T do not agree, apparently an incorrect conclusion.

To rescue the situation, I have argued, the subject DP is transferred and labeled as D. D then works as a probe and agrees with T, as represented in (20c). Notice that the subject is transferred in full in this case. This is possible only when necessary ((V)). This does not apply when the subject remains in vP because in this case T works as a probe and agrees with the *head* D (cf. (20a)).

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[5] Here, I assume that D bears all φ-features to simplify the discussion. The distribution of φ-features will be discussed in the next section.

To recapitulate, agreement between the subject and T are relativized in the following manner.

(21) a.   Agree(D, T) in SV sentences.

   b.   Agree(T, D) in VS sentences.

"T" will be replaced with "Vb" in the case of Standard Arabic because there is evidence to believe that [uφ] are associated with verbs (see section 4).

   In section 4, I demonstrate how the Relativized Agree theory accounts for the agreement asymmetries. Before that, we need to make clear what internal structures lexical DPs and pronouns have.

3.2. The structures of lexical DPs and pronouns in Standard Arabic

   In this section, I provide an analysis of lexical DPs and pronouns. It is often claimed that in Semitic languages, N is raised to a higher functional head (e.g., Ouhalla 1988; Ritter 1992; Fassi Fehri 1993). Here, I adopt (22) as the basic structure of lexical DPs, essentially following Kremers 2003:

(22)
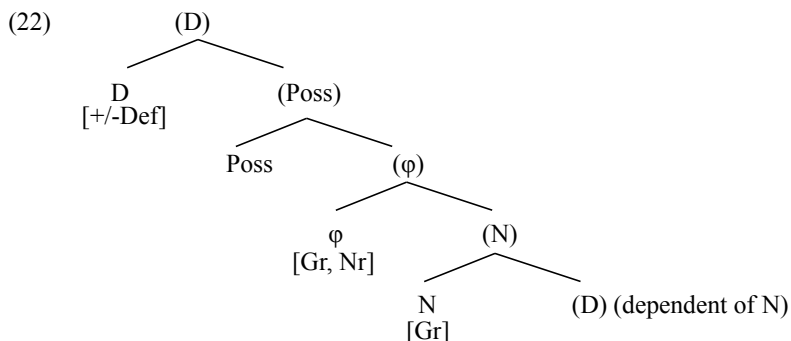
There are two modifications I have made to Kremers's original proposal. First, I assume that N bears a gender feature, following Bahloul and Harbert 1993 and Walkow 2010.[6] Second, Kremers refers to a head that merges with NP as "Num," which I dub "φ"

---

[6]   More precisely, "N" is composed of N and a root (√) complement, and [Gr] is associated with the root.

because it contains [Gr] as well as [Nr].

The structure in (22) is proposed based on the order of suffixes that follow the stem N. N is first followed by suffixes that denote gender and number information. Therefore, the head bearing [Gr, Nr], which I call φ, should first merge with N.

(23) Head N is followed by a gender-number (φ) morpheme.

　　a.　　ʔal-muᶜallim;　ʔal-muᶜallim-**ūna**

　　　　　the-teacher;　　the-teacher-M.PL

　　b.　　ʔal-muᶜallim-**a(t)**;　ʔal-muᶜallim-**āt**

　　　　　the-teacher-F;　　　the-teacher-F.PL　　　　　(Kremers 2003:48)

Then, the functional head that Kremers calls Poss is introduced. Poss "indicates whether the head noun in the construction has a syntactic dependent" (Kremers 2003:36). Specifically, Poss may appear overtly to signal that the N has no complement (UNPOSS). As shown in (24a, b), *-na* (or *-ni*) appears with a masculine dual/plural N when the N does not take a complement. Poss is null in (24c) because the N takes a complement DP, which is assigned genitive Case by Poss.[7] Notice that the Poss marker in (24a, b) follows the plural marker (φ).

(24) The φ may be followed by a Poss morpheme.

　　a.　　muᶜallim-ū-**na**
　　　　　teacher-PL.NOM-UNPOSS
　　　　　'teachers'

　　b.　　ʔal-muᶜallim-ū-**na**
　　　　　the-teacher-PL.NOM-UNPOSS
　　　　　'the teachers'

　　c.　　muᶜallim-ū　　　l-madrasat-i
　　　　　teacher-PL.NOM　the-school-GEN
　　　　　'the teachers of the school'　　　　　　(Kremers 2003:49)

---

[7] The (in)definite article does not appear when the N takes a genitive complement. Kremers claims that D and Poss make up a (phonologically null) hybrid category when Poss is [+genitive].

Let us now turn to D. The definite article in Standard Arabic is realized as a prefix *al-*, and the indefinite article is realized as a suffix *-n*.[8] Note that in (26b), *-n* follows the feminine-plural marker (φ).

(25) The articles in Standard Arabic

    a.   **ʔal**-muᶜallim-ū-na   (=(24b))
         the-teacher-PL.NOM-UNPOSS
         'the teachers'

    b.   muᶜallim-āt-u-**n**
         teacher-F.PL-NOM-IND
         '(female) teachers'   ((b) from Kremers 2003:51)

Because *al-* and *-n* are in complementary distribution, they are assumed to be of the same category (D). Kremers posits D above Poss because Poss and φ seems to be in a closer relationship: Poss has an overt form only when φ is [masculine, dual/plural]. There is no such interaction between D and φ.

N undergoes head movement to φ and then to Poss to compose an inflected word N-φ-Poss. It remains in Poss when D is [+definite], hence deriving the D-N-φ-Poss order as in (25a). When D is [-definite], it raises further to D, deriving the N-φ-(Poss)-D order as in (25b).

Let us now consider the distribution of φ-features in DPs. (26a) is a configuration obtained when N is raised up to Poss. (26b) is obtained when N is raised to D.

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[8] *-n* does not occur when the N has a masculine dual/plural ending (Kremers 2003:51).

(26) a.
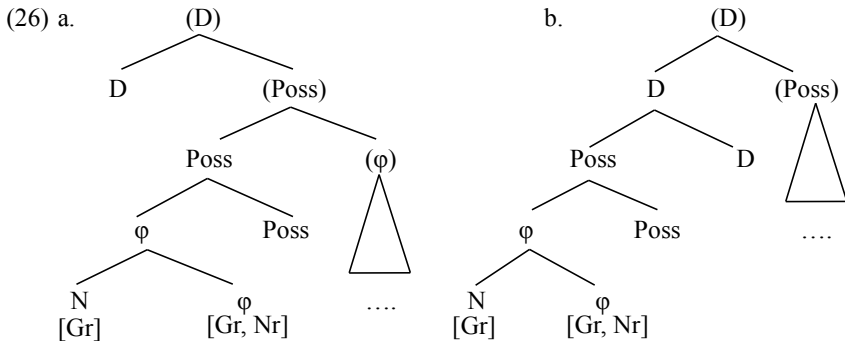
It seems unlikely that Ds bear any φ-features because both definite and indefinite Ds are invariant. Hence N and φ are the only φ-feature bearers. Of the two, N is the higher: φ does not exclude and hence does not c-command N. N, on the other hand, c-commands φ because all categories that dominate N also dominates (the segments of) φ.[9]

Although the head D lacks φ-features, the label D may bear φ-features. According to Lieber 1989 and Cole, Hermon, and Sung 1993, feature percolation from non-heads is allowed when the head of the phrase is not specified for that feature. Feature percolation might be understood in label-free syntax as follows: when LA assigns a label to a transferred phrase, it scans the internal elements and adds to the label X the features that non-heads bear. In the case of (26a, b), for example, LA assigns [Gr, Nr]-features to the label D.

Let us then consider the internal structure of pronouns. As seen in section 2, it has often been argued that pronouns have a less complex structure than lexical DPs. Here, I adopt Walkow's (2010) analysis of Standard Arabic pronouns as φPs (see section 2.3.2 and footnote 4).[10]

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[9] C-command is defined as follows.

(i) X c-commands Y iff X and Y are categories and X excludes Y and every category that dominates X
   dominates Y.   (Kayne 1994:18)

(ii) α excludes β if no segment of α dominates β.   (Chomsky 1986:9)
   In label-free syntax, however, notions such as "category" and "segment" should be redefined
   accordingly.

[10] Only 1st and 2nd person pronouns have [Pn] because 3rd person is a non-person. See footnote 1.

(27)   (φ)

         φ   (N)
    [Gr,Nr(,Pn)]
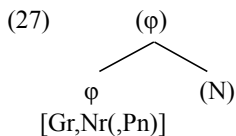

φ, a locus of φ-information, bears a full set of φ-features. The label φ also bears a full φ-set because it is identical to the head φ.

　　To sum up this section, I have argued first that what can participate in Agree depends on syntactic configuration. If the subject XP remains in the search domain of its matching head Z, as schematically illustrated in (28), the highest φ-bearing head in XP, say Y, acts as a goal for Z (Y may or may not be the same as X). Agree thus holds between Z and Y, assigning Y's φ-value(s) to Z. If the subject is not in Z's search domain, on the other hand, full Transfer applies to the XP, leaving its label (X) behind. X bears a full set of φ-features due to feature percolation. X then works as a probe for Z and assigns its φ-values to Z.

(28)

     $X_{[\varphi]}$

          $Z_{[u\varphi]}$
              (X)   ……

              $Y_{[\varphi]}$ … X
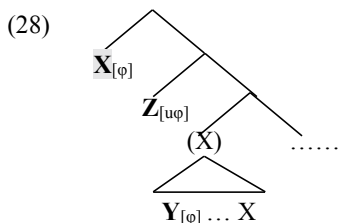
　　Second, following Kremers 2003 and Walkow 2010, I have proposed the structures of lexical DPs and pronouns as in (29a, b). The highest φ-bearing head in each structure is boldfaced. The highest label bears percolated φ-features, but it is not present in syntax until Transfer.
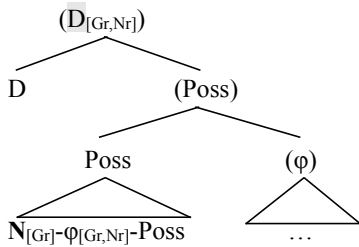
(29) a. Lexical DPs: b. Pronouns:
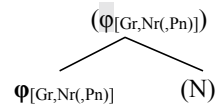
In the next section, I will show how these proposals contribute to the account for the agreement asymmetries in Standard Arabic.

4. An account

I demonstrate how the relevant data are accounted for by the Relativized Agree theory and the assumed nominal structures. Below, I adopt the clausal structure proposed by Aoun, Benmamoun, and Sportiche (1994) and Aoun, Bemamoun, and Choueiri (2010), in which Vb-T is raised to F to derive the VS order, but the discussion remains the same if we adopt other clausal structures. I also assume, with Bahloul and Harbert 1993, that Vb, not T, bears [uφ] based on the observation that nonfinite verbal participles may display full agreement with the subject (see example (37) below).

Let us first consider the SV-VS asymmetry. Examples (2b) and (1b) are repeated here as (30a) and (30b), respectively. The agreement relations in these examples are schematically illustrated in (31).

(30) a.   qadim-**at**   al-bint-āni.
           came-3.F.SG   the-girl-NOM.DL
           'The two girls came.'

   b.   ʔal-bint-āni   qadim-**atā**.
   the-girl-NOM.DL came-3.F.DL

(31)
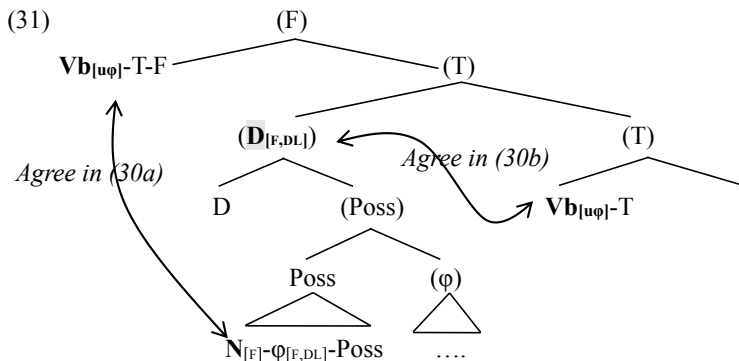
In (30a), Vb serves as a probe and searches its domain. Because the closest matching goal is N, Vb receives only the [F] value from N. Partial agreement thus results.

In (30b), Vb has no matching head in its domain at the stage of Agree. Full Transfer, therefore, applies to the subject as a rescue operation, leaving only its highest label (D) in syntax. The label then assigns to Vb the φ-values percolated from non-heads (N and φ), yielding full agreement.

Let us then consider the WCA-FCA asymmetry. The relevant examples, (4b) and (3b), are repeated here as (32a) and (32b), respectively. The agreement relations relevant in (32a, b) are schematically illustrated in (33).

(32) a.　qaraʔ-**at**　[l-banāt-u　　　wa　l-ʔawlād-u]　kitāb-an.
　　　　　read-3.F.SG　the-girls-NOM　and　the-boys-NOM　book-ACC
　　　　　'The girls and the boys read a book.'

　　 b.　[ʔal-banāt-u　wa　l-ʔawlād-u]　　qaraʔ-**ū**　　kitāb-an.
　　　　　the-girls-NOM　and　the-boys-NOM　　read-3.M.PL　book-ACC
　　　　　'The girls and the boys read a book.'

(33)
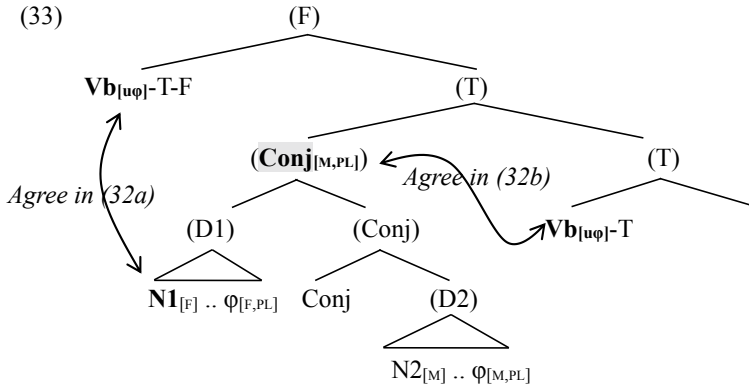
In the VS sentence, Vb searches the domain and finds two highest φ-bearing heads, i.e., N1 in DP1 and N2 in DP2. Given the notion of multiple Agree (cf. Hiraiwa 2001), Vb can agree with both goals, thus assigning nominative value to both of them. However, the Ns' distinct gender values cannot be assigned to the single Vb. In such a case, according to Kobayashi 2014, the "newer" goal values Vb. In strictly cyclic derivation, DP1 is merged *later* than DP2. Assuming that computation has phase-level memory (Chomsky 2001), Vb chooses the newer goal. Vb is therefore assigned N1's gender value, yielding FCA.

In the SV sentence, on the other hand, Vb remains in T. At the point of Agree, it cannot find a matching head. Full Transfer therefore applies to the subject, leaving its highest label (Conj) behind in syntax. It then searches its domain and finds Vb as its goal. Let us assume, with Munn 1999 and Bošković 1997, that features percolated up from conjuncts are added up at the label: [F, PL] (of DP1) and [M, PL] (of DP2) will be added up to yield [M, PL] at Conj. Agree(Conj, Vb) therefore yields WCA on the verb. The analysis also accounts for the full FCA with the postverbal coordinated subject. The relevant example (7) is repeated here as (34).

(34)   ḵaraj-**ti**   [ʔanti   wa   huwa].
       left-2.F.SG   you.F.SG   and   he
   'You and he left.'

The goal for Vb in this case is φ in the first conjunct. The verb hence fully agrees with the first conjunct.

Let us then turn to the DP-pronoun asymmetry. The relevant examples (5b, a) are repeated here as (35a, b).

(35) a.   qaraʔ-**ū**   hum-u   d-dars-a.

      read-3.M.PL   they-EV   the-lesson-ACC

      'They read the lesson.'

    b.   hum   qaraʔ-**ū**   d-dars-a.

      they   read-3.M.PL   the-lesson-ACC

The verbs in (35a, b) are in masculine plural inflection, indicating that the pronominal subject triggers full agreement whether it precedes or follows the verb.

The absence of agreement asymmetry is accounted for as follows. Agree relations in (35a, b) are illustrated in (36).

(36)
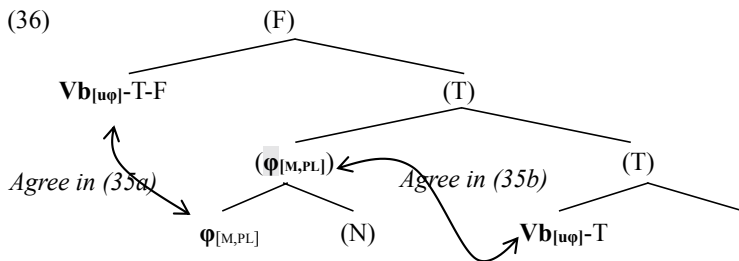
In the VS sentence, the probe Vb finds φ as a goal. Because φ bears [Gr, Nr]-features, Agree(Vb, φ) yields full agreement. In the SV sentence, on the other hand, Vb fails to find its matching head. Full Transfer therefore applies to the subject, leaving its highest label φ behind. It then serves as a probe for Vb, assigning its [Gr, Nr]-values to Vb. Full agreement thus results in either order.

The proposed analysis can explain agreement patterns in other constructions as well. Let us first consider agreement in the multiple verb sentence (37).

(37) kān-at   al-bint-āni   ta-ktub-āni   dars-a-humā.
       was-3.F.**SG** the-girl-NOM.DL 3.F-write-**DL**   lesson-ACC-their
       'The two girls were writing their lesson.'   (Bahloul and Harbert 1993:16)

The example shows that the agreement pattern is determined by the relative order between the verb and the subject: Vb preceding the subject displays partial agreement and Vb following the subject full agreement. Under the Relativized Agree analysis, Agree between the subject and the two verbs in (37) takes place as illustrated below:

(38)
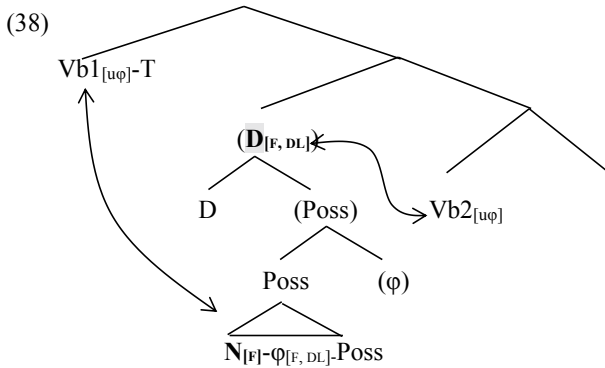
Note that Agree, unlike the bottom-up structure building procedure, is established in a top-down manner: the probe, i.e., the higher head, searches *down* the domain for a matching goal. In this configuration, therefore, Vb1 first probes its domain and finds N in the subject, which yields partial agreement on the verb. Next, Vb2 tries and fails to find its goal. Then full Transfer applies to the subject as a rescue operation, leaving only D in syntax. Because D bears percolated [Gr, Nr]-features, Agree(D, Vb2) results in full agreement. The Relativized Agree theory thus explains the presence of both types of agreement in a single sentence.

   Let us then consider how Agree takes place in wh-questions.

(39)   Object wh-movement: Vb agrees with the subject.

[Ɂayy-a   marīḍ-in]   zār-at   nādiya?

which-ACC   patient-GEN.IND visited-3.F.SG Nadia

'Which patient did Nadia visit?'

(Aoun, Benmamoun, and Choueiri 2010:132)

(40)   Subject wh-movement: Vb agrees with the subject.

[Ɂayy-u   l-Ɂawlād-i]   ya-jib-u   Ɂan yu-sāfir-**ū**?

which-NOM   the-boys-GEN   3.M-must-SG   C   3-depart-M.PL.SUBJ

'Which boys must depart?' (Lit. 'Which boys is it necessary that depart?')

(Mohammad 2000:100)

Arabic dialects make use of up to four strategies to form wh-interrogatives: the gap strategy, the resumption strategy, the Class II strategy, and the wh-in-situ strategy (Aoun, Bemamoun, and Choueiri 2010). Because the last strategy is not available in Standard Arabic, the wh-phrases in (39) and (40) must have undergone A′-movement, leaving a gap in their base position. (39) demonstrates that the verb agrees with the postverbal subject, not with the dislocated wh-object. On the other hand, (40) shows that the dislocated wh-subject controls agreement on the verb in the embedded clause.

Why does the dislocated wh-phrase not serve as a probe for the verb in (39)? The absence of agreement is explained in terms of the activity condition (cf. Chomsky 2001). The wh-object is base-generated in the vP phase and has its Case-feature valued in that phase. Because a valued feature becomes "invisible to further computation" (Chomsky 2008:150), the only match for Vb is the postverbal subject. Agreement with the subject thus results.

Presence of agreement in (40) also follows from the proposed analysis. Suppose that the embedded CP phase has been constructed. The wh-subject occupies Spec,C for further movement. From this position, its highest label (D) serves as a probe for Vb. The verb therefore displays full agreement.

Related to this, I highlight an interesting fact about wh-subjects. When a wh-phrase is interpreted as the subject of an embedded clause headed by *Ɂanna*, the resumption strategy is obligatory:

(41) Subject wh-movement out of the *Ɂanna* clause: resumption obligatory

    a.   Ɂayy-u   fatāt-in   ᶜalim-tum   Ɂanna-*(ha)   qad

        which-NOM   girl-GEN.IND learned-2.PL that-*(she)   PRT

        rabiḥ-at-ĭ   l-žāɁizat-a?

        won-3.F.SG   the-prize-ACC

        'Which girl did you learn that she has won the prize?'

    b.   man   ᶜalim-tum   Ɂanna-*(hu) qad rabiḥ-a   l-žāɁizat-a?

        who   learned-2.PL that-*(he)   PRT   won-3.M.SG   the-prize-ACC

        'Who did you learn that he has won the prize?'

   (Aoun, Bemamoun, and Choueiri 2010:137)

Aoun, Bemamoun, and Choueiri (2010) regard this as a type of *that*-trace effect: the complementizer *Ɂanna* does not allow a gap to follow it for unknown reasons.

The above fact can be accounted for as a result of intervention. Finite complementizer *Ɂanna* obligatorily assigns accusative Case to the subject that follows it.

(42)   *Ɂanna* is a accusative Case assigner:

        ya-bd-u   Ɂanna ṭ-ṭullab-**a**   waṣal-ū.

        3.M-seem-SG that   the-students-ACC arrive-3.M.PL

        'It seems that the students have arrived.'   (Al-Horais 2009:5)

Because Case assignment is an reflex of φ-feature agreement (cf. Chomsky 2000:122), *Ɂanna* must carry φ-features of some type ([uφ]). With this in mind, imagine what will happen when a subject wh-phrase moves across the CP phase boundary. When the embedded CP phase has been constructed, the label of the wh-phrase, occupying in Spec,C, serves as a probe and values [uφ] of C as in (43). How is [uφ] of Vb valued, then? Probing by the wh-phrase must be blocked by the closer [φ]-bearing head, i.e., C. Then, Agree must be established between C and Vb, but this fails for the reason to be clarified below.

(43)   Subj-wh   C(ʔanna)   Vb-T …

            [uCase]   [uφ]   [uφ]
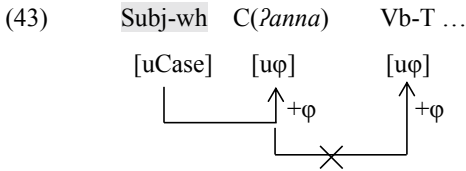
Consequently, the movement strategy leads the derivation to crash. As a rescue operation, a resumptive pronoun is inserted to value and delete Vb's [uφ]. Obligatory resumption in (41a, b) thus follows.

What, then, blocks φ-valuing from C to Vb? Seemingly, it has to do with their difference in the content of [φ]. According to Henderson (2013), the finite complementizer has a feature related to referentiality or (de)finiteness in its φ-set. When the φ-set is assigned values from the subject, it will be something like [+Ref]. Because the [+Ref] value cannot be assigned to Vb, the whole φ-Agree is cancelled.

Henderson advances this analysis to account for the absence of subject-verb agreement in many languages when the subject is A′-moved. Several examples are given below for illustration:

(44) Antiagreement

a.   umulumendo **a**-ka-belenga   ibuku.   Bemba (Bantu)
      boy   3.SG-FUT-read   book
      'The boy will read the book.'

b.   umulumendo ú-**u**-ka-belenga   ibuku
      boy   REL-AAE-FUT-read book
      'the boy who will read the book'

(45) man   tamghart   ay   {**yzrin**/   *t-zra}   Mohand?   Berber
      which woman   C   see.PART/   3.F.SG-see   Mohand
      'Which woman saw Mohand?'

(46) quante   putele {**è vegnú**/ *le   è vegnude}   con ti?   Trentino
      how-many girls   is come/ CL   is come.F.PL   with you
      'How many girls came with you?'   (adapted from Henderson 2013:454)

The verb displays agreement with the subject in (44a), whereas the verb has no agreement morpheme in (44b), which involves subject wh-movement (anti-agreement effect (AAE)). This effect is observed in (45) and (46) as well. Henderson attributes the absence of agreement to the intervention by C. Presumably, these languages are different from Standard Arabic in that the derivation converges without resumption. In that case, the verb is spelled out in a default form.

To sum up this section, the agreement asymmetries in Standard Arabic are given a unified account under the Relativized Agree theory. In VS sentences with lexical subjects, Agree takes place between Vb and N, yielding partial agreement. In SV sentences, on the other hand, Agree holds between Vb and the label of the subject. Because the φ-features of non-heads percolate up and accumulate at the label, the label triggers full agreement on the verb. When the subject is pronominal, Agree occurs between Vb and φ (head or label), which results in full agreement in either order.

Admittedly, the proposed agreement relations are virtually the same as what has been discussed in the Government-Agreement approach: N participates in Agree in VS sentences and the label of the subject in SV sentences. However, the Government-Agreement approach gives no principled account for why the agreement relations are different the way they are. Under the Relativized Agree theory, they are a necessary consequence of minimalist assumptions and the nominal structures of Standard Arabic.

5. Conclusion

In this paper, I have shown that the agreement asymmetries in Standard Arabic are accounted for under the Relativized Agree theory. Agree applies under a head-head relation. If two matching heads lack c-command relation, the phrase that contains one of them undergoes full Transfer, leaving a label behind. The label therefore works as a probe for the other head.

The Relativized Agree theory, coupled with the theory of internal structures of lexical DPs and pronouns, accounts for three agreement asymmetries in Standard

Arabic. The subject and the verb display full agreement in SV sentences because the preverbal subject undergoes full Transfer for the above reason, and its label, bearing percolated φ-features, assigns a full set of φ-features to the verb. Different agreement patterns are observed in VS sentences. When the postverbal subject is a lexical DP, the verb agrees with the subject only in gender. This is because the verb finds N in the subject as the closest matching goal. N, bearing only a [gender]-feature, triggers partial (gender) agreement on the verb. If the postverbal subject is coordinated, the verb finds N in the first conjunct as its closet matching goal. The verb therefore agrees with the first conjunct in gender. If the postverbal subject is a pronoun, the verb displays full agreement. The highest φ-bearing head in pronouns is φ, which bears a full set of φ-features. Full agreement reflects Agree between the verb and φ.

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