Agreement and Coordination in Hijazi Arabic: A Minimalist Approach

Abdulrahman Alqurashi & Abdulrahman Aljabri
King Abdulaziz University, Department of European Languages and lit.

Abstract. This paper aims to investigate subject-verb agreement patterns in coordinated structures in Hijazi Arabic, concentrating on the phenomenon of first conjunct agreement. It attempts to explore the mechanisms by which first conjunct agreement operates in Hijazi Arabic from a minimalist perspective. It also discusses previous approaches to first conjunct agreement in other varieties of Arabic and argues against those that treat agreement in terms of late MERGE or decomposed MERGE. This study demonstrates that subject-verb agreement patterns in coordinated structures in Hijazi Arabic can be accommodated within Crone’s (2017) analysis for Lebanese Arabic which relies on employing some general constraints on the operation AGREE and the operation MOVE and on the interaction between them. Keywords: Hijazi Arabic, First conjunct agreement, FCA, subject-verb agreement, coordination.

1. Introduction

First conjunct agreement (henceforth, FCA) refers to a syntactic phenomenon that occurs in some languages when only the leftmost item of post-verbal coordinated subjects agrees with the verb. FCA has been observed in Arabic and received considerable attention in the literature over the last three decades (see, e.g., Aoun et al., 1994; Munn, 1999; Aoun et al., 1999; Harbert and Bahloul, 2002; Soltan, 2007; Larson, 2013 and Crone, 2017). To illustrate the issue, let us consider the following examples from Modern Standard Arabic (henceforth, MSA):
Abdulrahman Alqurashi, Abdulrahman Aljabri

(1) a. ʕali-un wa f醾-Ta-un n-nahw-a. (MSA)
   studied.3.M.SG Ali-NOM and Fatima-F-NOM DEF-syntax-ACC
b. ʕali-un wa fFileSync-Ta-un n-nahw-a.
   studied.3.F.SG Fatima-F-NOM and Ali-NOM DEF-syntax-ACC
* ʕali-un wa fFileSync-Ta-un n-nahw-a.
   studied.3-DUAL Ali-NOM and Fatima-F-NOM DEF-syntax-ACC
‘Ali and Fatima studied Syntax.’

The verb which precedes the coordinated subjects agrees fully with the first conjunct in number, person and gender. However, when coordinated subjects appear in a pre-verbal position, agreement with both conjuncts takes place as in (2).

(2) a. ʕali-un wa fFileSync-Ta-un darasaa fi harfard. (MSA)
   Ali-NOM and Fatima-f-NOM studied.3.DUAL in Harvard
b. *ʕali-un wa fFileSync-Ta-un darasa fi harfard.
   Ali-NOM and Fatima-f-NOM studied.3.M.SG in Harvard
c. *ʕali-un wa fFileSync-Ta-un darasat fi harfard.
   Fatima-f-NOM and Ali-NOM studied.3-F.SG in Harvard
‘Ali and Fatima studied at Harvard.’

The above examples show that agreement in MSA is sensitive to the ordering of the subject and the verb (Aoun et al., 1994). In fact, FCA is somehow related to the well-known agreement asymmetry attested in MSA with respect to word order. Thus, in (S)ubject-(V)erb word order, the verb agrees fully with the subject in number, person and gender as in (3), whereas in (V)erb-(S)ubject word order, the verb agrees partially with the subject (i.e. only in gender) as in (4).

(3) a. ʔa-Tawlaad-u darasu fi harfard. (MSA)
   DEF-boys-NOM studied.3.M.PL in Harvard
b. *ʔa-Tawlaad-u darasa fi harfard.
   DEF-boys-NOM studied.3.M.SG in Harvard
‘The boys studied at Harvard.’
(4) a. darasa ʔa-Tawlaad-u fi harfard. (MSA)
   studied.3.M.SG DEF-boys-NOM in Harvard
b. *darasu fi harfard.
   studied.3.M.PL DEF-boys-NOM in Harvard
‘The boys studied at Harvard.’

There is an abundance of research conducted on agreement phenomena in MSA and various other varieties of Arabic, but there is a scarce of research on agreement in Hijazi Arabic (hereafter, HA). Therefore, this paper aims to investigate agreement patterns in HA, concentrating on the phenomenon of first conjunct agreement. The remainder of this paper is organized as follows. In section 2, we disus some agreement facts in Arabic and present the basic data. Then, in section 3, we consider some previous analyses proposed for FCA in other varieties of Arabic. In section 4, we
provide an analysis of the data within the framework of Minimalist Syntax. Finally, we conclude the paper in section 5.

2. Basic data

2.1 Some agreement facts in Arabic

Agreement in the modern Arabic dialects such as HA is less complex than agreement in MSA in which the morphological system is far much richer than the dialects. Unlike in MSA, the verb in HA does not display dual agreement nor gender distinction (i.e. femininity marker -na) in the plural form. Compare the following agreement paradigms of MSA and HA:

<table>
<thead>
<tr>
<th>Person</th>
<th>Number</th>
<th>Gender</th>
<th>Perfect verb form</th>
<th>Imperfect verb form</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Singular</td>
<td>Masculine/ Feminine</td>
<td>daras-tu</td>
<td>?a-drus(u)</td>
</tr>
<tr>
<td></td>
<td>Plural</td>
<td>Masculine/ Feminine</td>
<td>daras-naa</td>
<td>na-drus(a)</td>
</tr>
<tr>
<td>2</td>
<td>Singular</td>
<td>Masculine</td>
<td>daras-t</td>
<td>ta-drus(u)</td>
</tr>
<tr>
<td></td>
<td>Feminine</td>
<td></td>
<td>daras-ti</td>
<td>ta-drus-iin(a)</td>
</tr>
<tr>
<td></td>
<td>Dual</td>
<td>Masculine/ Feminine</td>
<td>daras-tumaa</td>
<td>ta-drus-aan(i)</td>
</tr>
<tr>
<td></td>
<td>plural</td>
<td>Masculine</td>
<td>daras-tum</td>
<td>ta-drus-uun(a)</td>
</tr>
<tr>
<td></td>
<td>Feminine</td>
<td></td>
<td>daras-tunna</td>
<td>ta-drus-na</td>
</tr>
<tr>
<td>3</td>
<td>Singular</td>
<td>Masculine</td>
<td>daras-t / daras-tu</td>
<td>?a-drus</td>
</tr>
<tr>
<td></td>
<td>Feminine</td>
<td></td>
<td>daras-at</td>
<td>ta-drus(u)</td>
</tr>
<tr>
<td></td>
<td>Dual</td>
<td>Masculine</td>
<td>daras-aa</td>
<td>ya-drus-aan(i)</td>
</tr>
<tr>
<td></td>
<td>Feminine</td>
<td></td>
<td>daras-ataa</td>
<td>ta-drus-aan(i)</td>
</tr>
<tr>
<td></td>
<td>Plural</td>
<td>Masculine</td>
<td>daras-uu</td>
<td>ya-drus-uun</td>
</tr>
<tr>
<td></td>
<td>Feminine</td>
<td></td>
<td>daras-na</td>
<td>ta-drus-na</td>
</tr>
</tbody>
</table>

Furthermore, pre/post-verbal subject agreement asymmetries observed in MSA as in (3) and (4) above are not attested in most of the Arabic dialects such as HA, Lebanese Arabic (henceforth, LA) and Moroccan Arabic (henceforth, MA) (see Aoun et al., 1994 for discussion of agreement in LA and MA). In HA, both VS and SV word orders show full agreement between the verb and the subject as illustrated in (5).
The examples above demonstrate that word order has no significance over the agreement patterns in HA. This is not the case in MSA in which word order has a great significance over agreement. The verb shows agreement in person, number and gender with preverbal subjects while with post-verbal subjects the verb lacks number agreement as shown in (1), (2) above and in (6) below.

DEF-girls-NOM studied.3.F.PL in Harvard 

b. darast ?al-fatayat-u fi harfard.  
studied.3.F.SG DEF-girls-NOM in Harvard 

studied.3.F.PL DEF-girls-NOM in Harvard 

‘The girls studied at Harvard.’

However, when the subject is pronominal (either overt or null), only full agreement is permitted in both VS and SV orders in MSA as illustrated in (7). This is also true in HA as shown in (8) below.

(7) a. darasna (hunna) fi harfard.  
studied.3.F.PL they-F in Harvard 

b. (hunna) darasna fi harfard.  
they-F studied.3.F.PL in Harvard 

c. *forlas (hunna) fi harfard.  
studied.3.F.SG they-F in Harvard 

‘They (the girls) studied at Harvard.’

(8) a. darasuu (hum) fi jeddah.  
studied.3.M.PL they in Jeddah 

b. (hum) darasuu fi jeddah.  
they studied.3.M.PL in Jeddah 

‘They (the boys) studied in Jeddah.’
2.2 First conjunct agreement in HA

Conjunct(s) agreement in HA differs slightly from that in MSA. While FCA is mandatory in MSA in VS word order, it is optional in HA. Both FCA and full agreement are possible in HA as illustrated by (9). However, in SV word order, only full agreement is possible as shown in (10) below. This is exactly the case in LA and MA (cf. Aoun et al., 2010).

(9) a. daras ʕali w faTima-h fi harfard. (HA)
    studied.3.M.SG Ali and Fatima-F in Harvard
b. darasuu ʕali w faTima-h fi harfard.
    studied.3.PL Ali and Fatima-F in Harvard
c. *darast ʕali w faTima-h fi harfard.
    studied.3.F.SG Ali and Fatima-F in Harvard

‘Ali and Fatima studied at Harvard.’

(10) a. ʕali w faTima-h darasuu fi harfard. (HA)
    Ali and Fatima-F studied.3.PL in Harvard
b. *ʕali w faTima-h daras fi harfard.
    Ali and Fatima-F studied.3.M.SG in Harvard
c. *faTima-h ʕali darasat fi harfard.
    Fatima-F and Ali studied.3.F.SG in Harvard

‘He and Fatima studied at Harvard.’

However, the situation in MSA is quite different as FCA is obligatory in post-verbal positions as shown in (11) above. The optionality of FCA in VS word order in HA, MA and LA, which MSA lacks, suggests that word order has less influence on agreement in modern Arabic dialects. Let us now consider agreement in coordinate structures where the first member of the conjoined subjects is pronominal. Unlike in MSA where the verb must agree fully with the pronominal subject as shown in (11), FCA is optional in such constructions in HA. The verb can either agree with the first (pronominal) subject or with the whole conjoined phrase as shown in (12) below.

(11) a. darasa huwa wa faTima-t-un n-nahw-a. (MSA)
    studied.3.M.SG he and Fatima-F-NOM DEF-syntax-ACC
b. *darasa w huwa wa faTima-t-un n-nahw-a.
    studied.3.DUAL he and Fatima-F-NOM DEF-syntax-ACC

(12) a. daras huu w faTima-h n-nahw. (HA)
    studied.3.M.SG he and Fatima-F DEF-syntax
b. darasuu huu w faTima-h n-nahw.
    studied.3.PL he and Fatima-F DEF-syntax

‘He and Fatima studied Syntax.’

Another related phenomenon we would like to consider here is agreement in what is commonly known as a ‘double subject construction’. According to Aoun et al. (1994), double subject constructions occur in LA in sentences involving the auxiliary keen ‘was’ where one subject (a DP)
precedes the auxiliary and a conjoined DP, whose first member is a pronoun linked to the preverbal DP, follows it. In such constructions, the auxiliary must agree with the preceding DP and not with the following conjoined DP. This can be illustrated by the examples in (13) from LA provided by Aoun et al. (1994:209).

(13) a. Kareem keen huwwe w Marwan ʕam yilʕabo. (LA)
    ‘Kareem and Marwan were playing.’

b. *Kareem keeno huwwe w Marwan ʕam yilʕabo.

This is also the case in HA as the examples in (14) below demonstrate.

(14) a. ʕali kaan huu w ʔaḥmad yadrusuun fi jeddah. (HA)
    ‘Ali and Ahmad were studying in Jeddah.’

b. *ʕali kaanuu huu w ʔaḥmad yadrusuun fi jeddah.

Normally, both the verb and the auxiliary agree with the entire conjoined subject in SV order in HA as the example in (15a) shows. However, when the auxiliary precedes the entire conjoined subject, agreement becomes optional. The auxiliary may agree with the whole conjoined phrase (15b) or with the first member only (15c). This is also the case in LA as pointed out by Aoun et al. (1994).

(15) a. ʕali w ʔaḥmad kaanu yadrusuun fi jeddah. (HA)
    ‘Ali and Ahmad were studying in Jeddah.’

b. kaan ʕali w ʔaḥmad yadrusuun fi jeddah.

The above cases of agreement are referred to in the literature as ‘mixed agreement’ (see e.g. McCloskey, 1986 and Munn, 1999) which is quite crucial to the analysis we adopt here.

3. Previous analyses of FCA in Arabic
3.1 Clausal analysis

One of the earliest proposals for FCA in Arabic is Aoun et al. (1994). They have explored the mechanisms by which agreement operates in Lebanese, Moroccan and Standard Arabic. They have employed the specifier-head agreement configuration to propose a biclausal analysis of FCA constructions. According to them, FCA does not exist and the apparent FCA constructions are actually derived from a clausal coordination structure wherein the apparent first conjunct functions as the subject of the first clause and the apparent second conjunct functions as the subject of the

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1 The specifier-head configuration was used in Government and Binding theory to account for subject-verb agreement. Under this approach, agreement is a result of a relationship between a head (X) and its specifier (an ZP). However, this approach is abandoned within the framework of minimalist syntax for some theoretical and empirical reasons (See e.g. Hornstein et al. (2005) and Radford (2009) for more information).
second clause. The second clause, then, undergoes a sever deletion leaving behind the subject only. Thus, under this analysis, a sentence like the one in (16) will have a structure like the one in (17) below which involves two additional processes known as: across-the-board movement (of the verb) and right node raising (of the object).

(16) darasaʕamr-un wa zayd-un n-nahw-a. (MSA)  
studied.3.M.SG Amr-NOM and Zayd-NOM DEF-syntax-ACC  
‘Amr and Zayd studied Syntax’

(17) [darasa, [IP ʕamr-un ...tj ...]] wa [ e, [IP zayd-un ...tj ...]] [n-nahw-a]j

The main evidence Aoun et al (1994) provide for their analysis is that what appears to be a conjoined subject in FCA constructions does not in fact behave like plural subjects semantically. The authors employed some semantic plurality tests to show that FCA in LA and MA is not permitted with the presence of certain elements that require plural subjects, such as the intransitive verb ‘meet’ (18a), the reciprocal ‘each’ (18b), the reflexive ‘themselves’ (18b) and the quantifier ‘together’ (18c). These elements are incompatible with singular subjects, which suggests that the following examples involve a conjunction of NPs, not a conjunction of clauses, each with a singular subject, as the case in (17) above. If they were a conjunction of clauses like (17), we would expect them to exhibit FCA.

(18) a. ltaʔ-o/*ltaʔa Kariim w Marwan. (LA)  
met.3.M.PL/met.3.M.SG Kareem and Marwan  
‘Kareem and Marwan met.’  
(Aoun et. al., 1994:213)

b. bihibbo/*bihibb Kariim w Marwan baʕDun/haalun.  
love.3.M.PL/love.3.M.SG Kareem and Marwan each other/themselves  
‘Kareem and Marwan love each other/themselves.’  
(Aoun et. al., 1994:214)

c. raaho/*raah Kariim w Marwan sawa.  
love.3.M.PL/love.3.M.SG Kareem and Marwan together  
‘Kareem and Marwan left together.’  
(Aoun et. al., 1994:211)

Munn (1999) argues against Aoun et al.’s analysis in (17) on the basis that there are some new data from LA and MA undermining their main argument. Although Aoun et al. (1999) reply to Munn’s (1999) remarks, yet their analysis fails to account for FCA in other varieties of Arabic like MSA (cf. Soltan, 2007) and HA which does not show the same result with respect to semantic plurality tests.² Consider the following examples from HA:

² This is also the case in other languages such as Welsh as pointed out by Harbert and Bahloul (2002).
(19) a. tqabal / tqabal-uu ʕamr w zayd ʔams.
met. 3.M.SG / met. 3.M.PL Amr and Zayd yesterday
‘Amr and Zayd met yesterday.’
b. tqaasam / tqaasam-uu ʕamr w zayd l-maksab.
divided. 3.M.SG / divided. 3.M.PL Amr and Zayd DEF-profit
‘Amr and Zayd divided the profit.’

(20) a. yiḥubbu u ʕamr w zayd nafsahum.
love. 3.M.PL Amer and Zayd themselves
‘Amr and Zayd love themselves.’
b. ? yiḥubb ʕamr w zayd nafsahum.
love. 3.M.SG Amer and Zayd themselves
‘Amr and Zayd love themselves.’

(21) a. saafruu ʕamr w zayd sawa.
travelled. 3.M.PL Amer and Zayd together
‘Amr and Zayd travelled together.’
b. saafar ʕamr w zayd sawa.
travelled. 3.M.SG Amer and Zayd together
‘Amr and Zayd travelled together.’

The examples in (19-21) constitute further empirical evidence against the clausal analysis for FCA constructions. In addition, Soltan (2007), who revisits agreement asymmetries in MSA from a minimalist perspective, points out that the empirical evidence found in MSA casts doubts on the adequacy of the Specifier-head approach to agreement in general. In the next sub-section, we consider some alternative analyses of FCA constructions in Arabic within Minimalist Syntax.

3.2 Previous Minimalist approaches

Soltan (2007) proposes a phrasal analysis for FAC constructions in MSA deploying the central minimalist operation AGREE which establishes a syntactic relation (e.g. agreement and Case checking) between two elements: a Probe (a) and a Goal (b) (Chomsky 2000, 2001, 2004). We will return to discuss the definition of the operation AGREE in section 4. Soltan argues that FCA is a result of the interaction between two operations: AGREE and late- MERGE. First, he assumes an adjunction structure for coordinated phrases following Munn (1993, 1999). Thus, the conjunction head takes the second conjunct as its complement and both form an adjunct of the first conjunct as sketched in (22) below.

(22)
```
DP
<table>
<thead>
<tr>
<th>DP₁</th>
<th>ConjP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conj</td>
<td>DP₂</td>
</tr>
</tbody>
</table>
```

Second, he assumes building on works by Chomsky (1993), Fox and Nissenbaum (1999) and Uriagereka (2002) that adjuncts are introduced into the derivation post-cyclically via the operation
of late-MERGE. This means that the adjunct (i.e. the ConjP and its complement DP₂) will not be present when the agreement relation between the verb and the first conjunct (DP₁) takes place (23) since late-MERGE applies afterwards to adjoin the ConjP as in (24).

(23) FCA via AGREE prior to late adjunction:

```
TP
   /\      \   
  T   vP     DP
      \      /   
       v'   v    VP
          \    /     
           v  VP      X
               \      
                \   
                 \  
                  \ 
                   \ 
                    \ 
                     \ 
                      \ 
                      DP₁ [First conjunct]
                      ConjP
                      Conj
                      DP₂
                      X
```

(24) Late adjunction of ConjP:

```
TP
   /\      \   
  T   vP     DP
      \      /   
       v'   v    VP
          \    /     
           v  VP      X
               \      
                \   
                 \  
                  \ 
                   \ 
                    \ 
                     \ 
                      \ 
                      DP₁ [First conjunct]
                      ConjP
                      Conj
                      DP₂
                      X
```

With regard to the SV order where full agreement is obligatory, Soltan (2007) assumes that the real subject is in fact a pronominal (a null pro) that is placed in the c-command domain of T and co-indexed with the base generated preverbal conjunct in Spec TP. This is illustrated in (25) below.

(25)

```
TP
   /\      \   
  T   vP     DP₁
      \      /   
       v'   v    VP
          \    /     
           v  VP      X
               \      
                \   
                 \  
                  \ 
                   \ 
                    \ 
                     \ 
                      \ 
                      DP₁ [First conjunct]
                      ConjP
                      Conj
                      DP₂
                      X
```

Similarly to Soltan (2007), Larson (2013) assumes that FCA constructions involve an adjunction structure and can be derived via the basic operation AGREE and slightly different version of operation MERGE. In his approach to FCA, he adopts Hornstein’s (2009) idea of ‘decomposed
merge’ which divides the central syntactic operation MERGE into two sub-operations: CONCATENATE and LABEL.\(^3\) CONCATENATE is the operation that takes two syntactic elements and combines them into a complex of units (26a), whereas the operation LABEL chooses one the concatenated elements to act as the label of that complex, making it atomic itself (26b). Larson (2013) points out that in most cases these sub-operations follow each other immediately, but not in the case of adjuncts. Sometimes, when an adjunct is not necessary to the derivation, it does not have to undergo LABEL immediately after CONCATENATE. It may remain unlabelled for a while, which will make it invisible to further operations targeting its host phrase such as AGREE or MOVE.

(26) Decomposed merge:

\begin{align*}
\text{a. } & \text{Concatenate}(X, Y) \quad \rightarrow \quad X \quad Y \quad [X \ Y] \\
\text{b. } & \text{Label}(X, [X \ Y]) \quad \rightarrow \quad X \quad Y \quad [X \ X \ Y]
\end{align*}

Larson (2013:618)

Now, recall that Larson assumes an adjunction structure for coordinated phrases like the one in (22) above. Thus, under his analysis, FCA occurs when both the first conjunct (the DP) and the adjunct phrase (the conjunction head + the second conjunct) undergo CONCATENATE, but not LABEL yet. Since the resulting concatenation is not labelled yet, it will not count as a constituent. Therefore, when T enters into the derivation and AGREE operates, the only appropriate goal the probe T can locate in its domain would be the first conjunct. This results in FCA between the verb with the post-verbal subject as the structure in (27) shows. On the other hand, if the coordinated subject has undergone both CONCATENATE and LABEL, then it will be recognized as a proper coordination that forms a constituent. This results in full agreement between the verb with the post-verbal subject as in (28).

\(^3\) In Chomsky (1995), MERGE is taken to be a basic operation whereby two syntactic elements are combined to form a larger constituent and then one of them is projected as the label.
Larson (2013) points out that in most cases these sub-operations follow each other immediately, but not in the case of adjuncts. Sometimes, when an adjunct is not necessary to the derivation, it does not have to undergo Label immediately after Concatenate. It may remain unlabelled for a while, which will make it invisible to further operations targeting its host phrase such as AGREE or MOVE. Now, recall that Larson assumes an adjunction structure for coordinated phrases like the one in (22) above. Thus, under his analysis, FCA occurs when both the first conjunct (the DP) and the adjunct phrase (the conjunction head + the second conjunct) undergo Concatenate, but not Label yet. Since the resulting concatenation is not labelled yet, it will not count as a constituent. Therefore, when T enters into the derivation and AGREE operates, the only appropriate goal the probe T can locate in its domain would be the first conjunct. This results in FCA between the verb with the post-verbal subject as the structure in (27) shows. On the other hand, if the coordinated subject has undergone both Concatenate and Label, then it will be recognized as a proper coordination that forms a constituent. This results in full agreement between the verb with the post-verbal subject as in (28).

(27) FCA when the coordinated subject has undergone Concatenate, but not Label:

(28) Full agreement when the coordinated subject has undergone both Concatenate and Label:
As for SV order, Larson’s (2013) account for agreement is quite different from that of Soltan (2007). He assumes that the coordinated subject moves to Spec-TP after having undergone both Concatenate and Label. Recall that only full agreement (plural) is possible in SV order. Therefore, the coordinated subject by virtue of being labelled, it becomes accessible for further operations, and hence it agrees fully with verb and moves to Spec-TP.

However, Crone (2017) argues against Soltan’s (2007) and Larson’s (2013) analyses on the basis that they fail to account for cases of ‘mixed agreement’ in LA, where there is an auxiliary realizing FCA and a main verb realizing full agreement within the same clause. As discussed above, mixed agreement exists also in HA (cf. examples (15a-c) above). Therefore, we have the same reason to argue that neither of the above analyses is adequate to account for the data in HA. Crone (2017) proposes an alternative analysis of FCA, drawing on data from LA, which mainly relies on interaction between independently motivated constraints on the operation AGREE

\[
(29) \text{oras/oras} \quad [\text{al w fa\text{-}Tima-h]} \quad \text{fi harfard.} \quad \text{(HA)} \\
\text{study.3.M.SG/study.3.PL} \quad \text{Ali and Fatima-F} \quad \text{in Harvard} \\
\text{‘Ali and Fatima studied at Harvard.’} \\
(30) [\text{lat w fa\text{-}Tima-h} \text{oras/\*oras} \quad \text{fi harfard.} \\
\text{Ali and Fatima-F study.3.PL/study.3.M.SG} \quad \text{in Harvard} \\
\text{‘Ali and Fatima studied at Harvard.’}
\]

and on the operation MOVE.\(^4\) The optionality of FCA follows from a locality constraint on AGREE that requires both the coordinated phrase (ConjP) and its first conjunct (DP\(_1\)) to be equally local to a c-commanding head (a probe). The absence of FCA in SV order follows from two constraints on the operation MOVE (namely: MOVE must combine AGREE (Chomsky, 2000) and the Coordinate Structure Constraint (Ross 1967)). More details of Crone’s analysis will be discussed in the following section where we develop an analysis of FCA in HA along its lines. We believe that his analysis of FCA in LA can be adapted with minor changes of details to account for the data in HA.

4. Possible analysis
As discussed above, coordinated subjects in HA may appear either pre-verbally or post-verbally as the case in all varieties of Arabic. If they appear post-verbally, either FCA or full agreement with the verb is realized (29). If they appear pre-verbally, only full agreement is realized (30).

Since Chomsky (2000) agreement is seen as a reflex of the application of an operation AGREE which establishes a syntactic relation (i.e. agreement or Case checking) between two elements: a Probe (\(a\)) and a Goal (\(\beta\). We assume that AGREE has the following definition provided by Crone (2017:183) which roughly follows Chomsky (2000, 2001)\(^5\):

\(^4\) Crone (2017) adopts an analysis previously proposed for FCA in Hebrew (Doron, 2000), Bavarian (van Koppen, 2008; Walkow, 2013) and Dutch (van Koppen, 2012).

\(^5\) Crone’s (2017) does not follow Chomsky (2000, 2001) in assuming the ‘activity condition’ which requires the goal to have some uninterpretable features (normally structural Case) which renders it active (i.e. able to implement Agree operation).
Furthermore, we assume that HA has the same clause structure suggested by Tucker (2011) for MSA. Verbs originate in V and then move in a successive-cyclic fashion through v and AspP into T. Subjects, on the other hand, are base generated in spec-vP and then raise to a higher position: either Spec-AspP or spec-TP. A part of this clause structure that is relevant to our analysis is sketched in (32).

(32) A functional head F (the “probe”) agrees with a node X (the “goal”) iff:
   a. F has uninterpretable φ features ($u\phi$ features).
   b. X has interpretable φ features.
   c. F c-commands X.
   d. There is no node Y such that F c-commands Y, Y asymmetrically c-commands X, and Y has interpretable φ features.

Note that Tucker (2011) assumes an additional functional phrase AspP between vP and TP. Tucker (2011) provides a number of arguments for the existence of AspP in the clause structure of Arabic, but we are not going to discuss them here for reasons of space and complexity. However, the existence of AspP is crucial to Crone’s (2017) analysis, and so to ours, since it accounts for cases involving mixed agreement, where there is an auxiliary realizing FCA and a main verb realizing full agreement within the same clause. Thus, when an auxiliary appears in the structure, it will be merged in T and the verb moves to Asp. We will return later to the analysis of sentences containing auxiliaries. Let us now consider the analysis of sentences containing just a lexical verb with no auxiliary.

Under Crone’s (2017) analysis, the optionality of FCA as in (29) follows from a locality constraint on AGREE that requires both the coordinated phrase (ConjP) and its first conjunct (DP₁) to be equally local to a c-commanding head (a probe). Both the first conjunct and its maximal projection have interpretable φ-features and neither of them asymmetrically c-commands the other. Given that in (32) verbs move from V to T if no auxiliary is present, T serves as a probe by virtue of having uninterpretable φ-features which searches for an appropriate goal in its local domain. T will locate...
two potential goals to agree with: either the whole conjunction phrase (ConjP) or the first conjunct (the DP₁) since both are equally local to T. It should be noted here that Crone assumes that the coordinated subject is located in Spec-AspP. This agreement relation results in either FCA or full agreement as illustrated in (33) below. In accordance with (31d), agreement between T and the second conjunct is blocked since the first conjunct asymmetrically c-commands the second.

On the other hand, the absence of FCA in SV constructions like (30) above relies on two constraints: the Coordinate Structure Constraint (CSC) of Ross (1967)⁶ and another constraint on movement requiring the operation MOVE to accompany AGREE (Chomsky, 2000).⁷ A key assumption in the derivation of SV constructions is that the probe T has an EPP feature besides its uninterpretable features, unlike the case in VS constructions. As seen in (33), the probe T can agree with either the whole conjunction phrase (ConjP) or with the first conjunct (DP₁) by virtue of both being equally local to it.

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⁶ The Coordination Structure Constraint states that ‘in a coordination structure, no conjunct may be moved, nor may any element contained in a conjunct be moved out of the conjunct’ (Ross, 1967:161)

⁷ Given that Chomsky in recent work (2004, 2007, 2008) sees MOVE as Internal MERGE, it must apply to the same elements as ordinary Merge.
We turn now to discuss the derivation of clauses containing both an auxiliary and a main verb. As discussed in section 2.2, the phenomenon of mixed agreement occurs when the auxiliary precedes, and the main verb follows, the coordinated subject. In such cases, the auxiliary may realize FCA or full agreement, whereas the main verb always realizes full agreement as shown in (35) repeated from (15) above. Theoretically, this means that, unless a constraint prevents it, the EPP feature on T can be satisfied by moving one of these two elements to spec-TP. Luckily, the above two constraints will insure that only the ConjP moves to Spec-TP. Moving the first conjunct will violate the CSC. Thus, in order for the EPP feature to be satisfied, T has to agree with the ConjP only. This results in the movement of the ConjP to Spec-TP, and hence full agreement is realized as sketched in (34).

(35) a. kaan/kaanuu ʕali w ʔahmad yadrusuun fi harfard (HA)
b. ʕali w ʔahmad kaanuu yadrusuun fi harfard
Ali and Ahmad be.3.M.PL study.3.M.PL in Harvard
‘Ali and Ahmad were studying at Harvard.’
To account for mixed agreement constructions, we assume following Crones (2017) that they involve two different AGREE relations. Given that the main verb is located in Asp when there is an auxiliary present, Asp serves as a probe by virtue of having uninterpretable φ features and an uninterpretable EPP feature. The probe locates two potential goals in its domain: the ConjP and the first conjunct. However, the two above-discussed constraints on movement apply here too, which ensures that Asp agrees with the whole conjunction to satisfy its EPP feature. Note that AGREE is a prerequisite for movement of ConjP to Spec-AspP and that movement of the first conjunct is blocked by the CSC. This agreement relation yields the realization of full agreement on the main verb. Consider the structure in (36).

(36)
Later on, the auxiliary is merged in T which has another set of uninterpretable $\phi$ features, but no EPP feature. This entails that there is no movement to Spec TP and the auxiliary can either agree with the first conjunct or with the whole conjunction. This what derives (35a) above. As for (35b), the key assumption is that both Asp and T have EPP features which requires the conjoined DP to raise to Spec AspP and then to Spec TP. The verb in AspP and the auxiliary in T enter a separate agree relationship with the full conjunction to satisfy their EPP features.

5. Conclusion

We have discussed in this paper subject-verb agreement patterns in coordinated structures and the mechanisms by which first conjunct agreement operates in HA. We have shown that HA, similarly to other modern Arabic varieties, offers FCA optionality when coordinated subjects appear postverbally. We have argued that the data in HA can be best accounted for under Crone’s (2017) analysis which relies on employing some general constraints on the operation AGREE and the operation MOVE and on the interaction between them. We have also provided evidence that other recent minimalist analyses that treats FCA in terms of late MERGE or decomposed MERGE are inadequate to account for the data in HA.

References


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أنماط توافق الفعل والفاعل في تركيب العطف في اللهجة الحجازية في
ظل نظرية الحد الأدنى

د. عبدالرحمن عبدالعزيز القرشي
أستاذ مساعد قسم اللغات الأوربية وآدابها
كلية الآداب والعلوم الإنسانية

عبدالرحمن الجابري
قسم اللغات الأوربية وآدابها
كلية الآداب والعلوم الإنسانية

مستخلص
تهدف هذه الورقة إلى البحث في أنماط تواجد الفعل والفاعل في اللهجة الحجازية، مع التركيز على تركيب العطف. تحلول من خلال هذه البحث استكشاف الآليات التي تعمل من خلالها أنماط تواجد الفعل والفاعل في تركيب العطف في اللهجة الحجازية في ظل نظرية الحد الأدنى. كما تناقش الورقة أيضاً المنهجيات السابقة لتفسير ظاهرة التوافق بين الفعل والفاعل المعطوف في اللهجات العربية وتقدم بعض الحجج ضد تلك النظريات التي تعامل هذا التوافق من حيث تأخر عملية إدمان المعطوف عليه داخل التركيب. وتوضح هذه الدراسة أن أنماط تواجد الفعل والفاعل داخل تركيب العطف في اللهجة الحجازية يمكن استيعابها في تحليل (2017) المفترض Crone لتفسير الظاهرة في اللهجة اللبنانية والتي يعتمد على استخدام بعض القيود العامة على عملية AGREED وعملية MOVE وتفاهمهما.