1. Introduction

1.1. Setting the Stage. There is a long-standing dispute over the derivation of Arabic conjunct-sensitive agreement (ACSA). There are two approaches and they both capture large swaths of empirical landscape. But as is usual in the sciences, some data points evade explanation. In this paper I attempt three feats. At minimum I seek to add a new vector to the dialectic and bring us closer to the truth, whatever it may be. Second, this analysis hopes to surpass the empirical coverage of previous accounts. Last, judged by the success of the empirical advantages, this paper argues for a novel application of a relatively new theoretical device, further supporting its existence.

The current approaches to ACSA can be classified as bi-clausal on the one hand and mono-clausal on the other. The bi-clausal approach as proposed by Aoun, Benmamoun, and Sportiche (1994, 1999) argues that ACSA sentences are derived via a conjunction reduction operation that renders conjoined clauses superficially mono-clausal. The singular agreement created separately in the initially independent clauses survives the reduction and gives the illusion of conjunct sensitivity. This will be explained in detail below. The mono-clausal approach of Munn (1999) (as well as Bahloul and Harbert 1993 and Benmamoun 1992) argues that ACSA
sentences show singular subject-verb agreement because the conjoined subjects are indeed syntactically singular. They are only semantically plural in the same sense that the English noun “group” is only semantically plural. Again, this will be explicated further below.

In this paper I will discuss a certain type of data that neither account can handle and propose a novel means of accounting for them. Said type of data are coordinated subjects in which one of the conjuncts is a quantified noun phrase. Subjects like these behave differently from non-quantified ones and neither account predicts this behavior. The new account will do exactly that by relying on the decomposition of Merge argued for by Hornstein (2009) and extended for use in derivation coordination by Larson (2010). This new account, coupled with theories of quantifier derivation in Arabic from Benmamoun (1999) and Mohammad (1988), extends the realm of explicable data and does so in a theoretically interesting way.

First, the empirical background.

1.2. **Background.** Sentences dubbed ACSA are of the type shown in (1) below from Aoun et. al. (1999) In this sentence there are two coordinated subjects yet only singular agreement appears on the verb. This contrasts with (2) in which a normal plural noun effects plural agreement on the verb from Aoun et al. (1994).¹

(1) ḵa ʿOmar w ʿKarim. (MA)  
came.sg Omar and Karim  
Omar and Karim came.

¹the examples in this paper are mostly from Moroccan Arabic (MA), but the generalizations extracted from this data carry over to Lebanese Arabic (LA). There are also a few instances of data from LA and Standard Arabic (SA).
Further data that complicate this picture will be introduced throughout the course of the paper as necessary.

1.3. Bi-clausal Analysis. The bi-clausal account derives (1) in the following fashion. Though the sentence appears mono-clausal, this is a PF deception. At a prior stage in the derivation, sentence (1) looked like (3), that is bi-clausal.

\[(3) \ wāfū lā-wlād (MA)\]
stood.pl the-children
The children stood up.

Under a condition of identity, the sentence in (3) can be reduced to (1). In particular, there is za in both conjuncts and such being the case one of them can delete.\(^2\) This gives us the correct order and interpretation.

1.3.1. Advantages. Instances where ACSA is possible are the same as those that allow full agreement.\(^3\) That is, instead of (1) above, sentence (4) is also possible.

\[(4) \ ūza ūmar w ūza Karim. (MA)\]
came.sg Omar and came.sg Karim
Omar came and Karim came.

The above sentence surely could not have been derived via conjunction reduction, and Aoun et. al. agree. According to them, we now have a suitable test of the bi-clausal approach. Sentences like (4) in which the subject is syntactically plural

\(^2\)It is not just verbs, of course, that can undergo this reduction. Were there an object in both conjuncts that too would be deleted.

\(^3\)Though not vice versa as we will see.
at every stage of the derivation should be acceptable with objects or modifiers that require plural subjects. Likewise, sentences like (1) in which the subject is only superficially plural (and this only at a late stage in the derivation) should not be acceptable under the same conditions.

An example of such an element that requires plurality in the subject is reciprocals. As is plain below, (5a) presumably involves traditional subject coordination and the reciprocal is licensed. Compare this to (5b) which has been derived from the ungrammatical (6).

(5)   a.  *Bihibbo Karim w Marwan baʃdun.  (LA)
        love.pl Karim and Marwan each.other
        Karim and Marwaan love each other.

        b.  Bihibbo Karim w Marwan baʃdun.
            love.sg Karim and Marwan each.other
            Karim and Marwaan love each other.

(6)   *Bihibbo Karim baʃdun w Bihibbo Marwan baʃdun.  (LA)
        love.sg Karim each.other and love.sg Marwan each.other
        Karim loves each other and Marwan loves each other.

As such, the bi-clausal analysis seems to capture some interesting ACSA data. The correlation between plural agreement and the licensing of reciprocals falls out fairly easily in this account. But as one might expect, this is not the whole story.

1.3.2. Disadvantages. The bi-clausal analysis is relatively unconstrained and as such it runs the risk of overgeneration. It indeed seems to make false predictions of acceptability as seen in (7).

(7)   Karim w Marwan mšaw/*mša.  (MA)
        Karim and Marwan left.pl/left.sg
Karim and Marwan left.

The sentence above shows that, unlike post-verbal coordinated subjects, pre-verbal coordinated subjects generally obligatorily show plural agreement. Aoun et. al. admit that they have “no explanation for why first conjunct agreement is not systematically possible in the SV order” (Aoun et. al., 1999:678).

Additionally unexplained in their account is the fact that post-subject ACSA is occasionally acceptable, albeit in a severely constrained set of circumstances. Shown below, when the first conjunct is a quantified noun phrase and the second conjunct contains a pronoun bound by that first conjunct, singular agreement is possible.

(8) kull wâld w bba-h, mša. (MA)
    every boy and father-his left.3ms
    Every boy and his father left.

The extent to which Aoun et. al. can explain (8), they cannot explain (7), and vice versa. If it is the case that their approach predicts that post-verbal coordinated subjects can effect singular agreement, then (8) is readily explained but the restrictions in (7) are not. If the converse is true and they can explain the restrictions, then their analysis requires something extra to explain the exceptions.

1.4. Mono-clausal Analysis. The mono-clausal analysis accounts for the paradigm at hand by distinguishing semantic from syntactic plurality and arguing that ACSA stems from the coordinated subjects being only semantically plural. In addition to this, proponents of this view posit that the notion of agreement under government (from Mohammad 1988, Bahloul and Harbert 1993, Benmamoun 1992) can determine which conjunct does the agreeing.
Distinguishing semantic and syntactic plurality works fairly straightforwardly. For example, the English noun *group* effects singular agreement but, being a group, is semantically plural. Compare this with the English noun *scissors* which spurs plural agreement yet is semantically singular. This distinction can be seen in the examples below modified from Munn’s.

(9) a. The group was wearing different hats.
   b. The men were wearing different hats.
   c. *The man was wearing a different hat.
   d. *The scissors were different colors.

With the relevant, non-discourse linked interpretation of *different* the we clearly see a dissociation of semantic and syntactic plurality. The acceptability of the sentences hinges not upon syntactic plurality (see the differing agreement on the auxiliaries) but upon whether the subjects are semantically multiple.

Munn goes on to shown that sometimes that the reverse is also the case. That is, there are elements that require syntactic plurality, independent of semantic plurality. Seen in (10), anaphors must agree with their controllers in their syntactic plurality. For example, even though *the group* is semantically plural, that is insufficient to license the plural reflexive in.⁴

(10) a. *The group is keeping themselves in shape.
   b. The group is keeping itself in shape.
   c. The scissors are by themselves on the table.
   d. *The scissors are by itself on the table.

⁴I happen to disagree with the judgment in (10a).
Munn argues that the coordinated subjects in Arabic function essentially like *the group* above: semantically plural, syntactically singular. This distinction allows us to explain the unacceptability of (11). In Arabic, ‘each other’ happens to require syntactic plurality, semantic plurality is insufficient.

In addition to this distinction, the mono-clausal analysis argues for an possibility of agreement to be mediated through what Munn dubs exceptional government. Exceptional government is a the relation between a head and the specifier of its complement. In (11) X exceptionally governs YP.

\[ (11) \]
\[ \begin{array}{c}
\text{XP} \\
\text{X} \\
\text{ZP} \\
\text{YP} \\
\text{Z}
\end{array} \]

Assuming agreement can be mediated through this relation and assuming the analysis of coordination as adjunction of Munn (1993) and Larson (2010) we are able to derive the sentences in which post-verbal coordinated subjects cause singular agreement. A sentence like (1) repeated here as (12) would have the (simplified) structure like that in (13).

\[ (12) \]
\[ za \quad Omar \quad w \quad Karim. \]
\[ \text{came.sg Omar and Karim} \]
\[ \text{Omar and Karim came.} \]

7
The case with pre-verbal subjects is different. Here agreement is not mediated by exceptional governance but by spec-head agreement. That is, instead of a structure like above the sentence in (7) repeated in part as (14) has the structure like that in (15).

(14) *Karim w Marwan mšaw (MA)*  
Karim and Marwan left.pl  
Karim and Marwan left.

Munn suggests that this configuration might straightforwardly entail plural agreement. Since both the first conjunct DP and the BP are in the specifier position then this might be what requires plural agreement in these cases.\(^5\)

\(^5\) Munn, 1993 claims that conjunction as plural pro-form elements of a sort
As such, the mono-clausal can also handle a good amount of the data. In particular it can predict the fact that pre-verbal subjects effect plural agreement and the fact that post-verbal subjects can effect singular agreement.

1.4.1. *Disadvantages.* The mono-clausal analysis cannot readily explain the fact that plural agreement is an option with post-verbal subjects. Munn admits as much as suggests that this option may be due to some prescriptive overgeneralization. Ignoring the conceptual distaste that such an idea brings with it, it is simply not a strong argument.

A more interesting failing of this account (noted by Aoun et. al.) concerns the collective or distributive readings of coordinated subjects. Aoun et. al. (1999) note the following distinction. With coordination of proper names, there is an ambiguity. The sentence (16) can be understood as meaning that Karim and Marwan laughed together in a single event (a collective reading) and it can also mean that they laughed in entirely separate events, one independent of the other (a distributive reading).

(16)  
Karim w Marwan dəŋku.  
Karim and Marwan laughed.pl  
Karim and Marwan laughed.

However, when a quantified noun phrase is coordinated with a noun phrase containing a bound pronoun, the sentences are unambiguous. They can only have the collective reading.⁶

(17)  
kull raqol w wəld-u dəŋku.  
each man and child-his laughed.3pl  
Each man and his child laughed.

⁶ The interpretations here hold no matter how word order and plurality marking are permuted.
In the mono-clausal analysis, the two sentences above the sentences are structurally identical in the relevant respects. As such, we do not expect them to differ in their event-level interpretations.

1.5. **Summary.** The two accounts presented here cover a great deal of the empirical ground. But there are two central failings that they succumb to. Neither account handles the full range of agreement patterns gracefully. The bi-clausal account can handle the post-verbal agreement facts fine, but it fails to predict the lack of variability in agreement with pre-verbal subjects. The mono-clausal account captures the post-verbal subject’s singular agreement and the invariance of the agreement with pre-verbal subjects, but it fails to predict the variability in the post-verbal facts. This is displayed visually in the table below. Checkmarks indicate that the analysis can handle the relevant data. For example, the bi-clausal analysis can handle the post-verbal plural agreement facts, but the lack of variability in the pre-verbal agreement facts.

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<td>✓</td>
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</table>

Furthermore, both analyses fail in the face of data involving quantified noun phrases being coordinated. The bi-clausal analysis cannot predict the fact that these can cause singular agreement in a pre-verbal position. The mono-clausal analysis cannot predict the differences in ambiguousness between the quantified and non-quantified noun phrases.

In what follows I will present an account that deal with the entire scope of the phenomena as presented in the table in a unified fashion. And in conjunction with
previously established accounts of quantifiers in Arabic, I will use my unified analysis to account for the recalcitrant data concerning quantifiers.

This requires a little background first.

2. Decomposed Merge

2.1. Bare Phrase Theory. With advent of Bare Phrase Structure (BPS) (Chomsky, 1995), categorical labels were no long extrinsic entities with rigid positions along the derived skeleton. Before BPS there existed in the theory such things as $X^\circ$, $X'$, and $XP$ and they had fixed positions and went unchanged throughout the derivation (Jackendoff, 1977). Now, although for practical purposes the above terms are still readily used, they are mere clarificational substitutes for lexical items. That is, in BPS instead of (19) we have (20).

(19) X-bar Theory

\[
\begin{array}{c}
XP \\
Y_P \\
| \\
Y' \\
| \\
Y^\circ \\
Ivan \\
| \\
Z_P \\
| \\
Z' \\
| \\
Z^\circ \\
Ivy \\
\end{array}
\]

BPS

\[
\begin{array}{c}
saw \\
Ivan \\
saw \\
Ivy \\
\end{array}
\]

What were non-lexical entities are now lexical ones. In addition to this, the notions of minimal, intermediate, and maximal projections were relativized. That is, in (18) the $X'$ level was, and always will be, an intermediate projection. In (19), the middle
saw is an intermediate projection, but this was not always so. Before Ivan entered into the structure, saw was a maximal projection. At the time, it was the highest projection of saw and as such, was maximal. Given that these terms are now relational, it becomes clear that there can only be one maximal projection of a given head. This causes a problem with adjunction.

2.2. Adjunction. Hornstein (2009) presents the following conundrum. As we saw in the previous subsection, there can only be one maximal projection per head. Prior to BPS, this was not the case and in particular adjunction extended the tree but did not change the bar level information. As seen in (20), an adjunct could adjoin to a VP and the label dominating that would in turn be another VP.

(20) Ivan \[ VP [ VP saw Ivy ] on Saturday] \]

This was advantageous. Certain operations only worked on maximal projections, say VP-ellipsis. In the above structure VP-ellipsis could operate on the inner (22a) or outer (22b) VP.

(21) Iris saw Ivy on Sunday...

(22) a. ...and Ivan did so on Saturday.
   b. ...and Ivan did so, too.

But with BPS, we can no longer capture these facts. What is considered a maximal projection is now relative and not inherent to any node. As such, the structure in
(20) only has one maximal projection, the outer VP. We no longer have a means of operating on the VP to the exclusion of the adjunct.7

(23) Ivan Ivan \( [V_P [\text{saw Ivy} \text{ on Saturday}]] \)

2.3. **Decomposed Merge.** To solve this dilemma, Hornstein proposes a decomposition of the Merge operation8. Merge, as construed in Chomsky, 1995 takes two syntactic elements and combines them, projecting one of them as the label of said combination (24).

(24) Merge(x,y) \( \rightarrow \) \( \{x,\{x,y\}\} \)

Hornstein instead posits that the above operation should be broken down into two operations: Concatenate (25) and Label (26). The Concatenate operation takes two atomic syntactic units and combines them into a complex of atomic units. Label makes said complex atomic itself by choosing one of the elements of the Concatenation operation to serve as the label of complex.

(25) Concatenate(x,y) \( \rightarrow \) \( \{x,y\} \)

(26) Label(x,\{x,y\}) \( \rightarrow \) \( \{x,\{x,y\}\} \)

According to the theory, normally both of these operations are carried-out, but with adjunction this is not the case. Adjuncts, not being necessary to the derivation, do not necessarily have to undergo Label.

7 See Hornstein, 2009 for arguments against Chomsky’s reformulation of adjunction which could in principle avoid this problem.
8 Precursors to this theory can be found in Chametzky (2000) and Uriagereka (2002) and is further discussed in Hornstein and Nunes (2008).
This decomposition allows for an elegant account of the differential behavior of adverbial modification. When an adverb Concatenates with a verb and does not project (27), the verb+adverb complex is, in Hornstein’s words, “invisible” to the rest of the structure. So when an operation like VP-deletion targets a VP with a Concatenated adverb, the VP deletes leaving the adverb behind (28).

(27)  
\[ \text{VP} \quad \text{A} \\
\text{run} \quad \text{quickly} \]

(28) Ivan ran slowly and Ivy did quickly.

When an adverb is both Concatenated and Labeled into the structure (29), VP-deletion applies to the adverb as well (30).

(29)  
\[ \text{VP} \\
\text{V} \quad \text{A} \\
\text{run} \quad \text{quickly} \]

(30) Ivan ran slowly and Ivy did too.

As shown above, adjunction can be wedded to BPS in an elegant fashion. But more than just adverbs have been argued to be adjuncts. For instance, Munn (1993) argues that coordination is also an adjunction structure (31).

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9 Take the dashed line to indicate Concatenation with Labeling. Note that there is no-c-command relation between the two atomic elements.
2.4. **Extension to Coordination.** Larson (2010) argues that a similar Hornsteinian tack must be taken with respect to coordination. The structural ambiguity that Hornstein posits is also found in coordination. In (32) below, it is possible to target both the topmost VP for deletion and also a lower one. And in (33), it seems that the anaphor can be bound by either to topmost DP or by a lower one.

(32)  
\begin{align*}
\text{a. Ivan } \textit{VP [VP ate an apple] and wrote a letter]} & \text{ in the park} \\
\text{b. } & \text{...while Ivy [did so] in the library} \\
\text{c. } & \text{...while Ivy [did so] and read a book}
\end{align*}

(33)  
\begin{align*}
\text{a. Ivan showed } \textit{DP the man] and the woman to [himself] and herself in the mirror} \\
\text{b. Ivan showed } \textit{DP the man and the woman] to [themselves] in the mirror}
\end{align*}

If we only have one XP per projection, as in BPS, then we need some other way to get these facts. The decomposition of merge discussed in the previous section seems to fit the bill. We simply have structural ambiguity with coordination, just like with traditional adjunction. That is, for example (35a), the structure of the coordination is like in (34).
In the following section I will extend this analysis of coordination to Arabic subjects and show that we can predict the particulars of their effects on verb agreement.

3. Bare Phrase ACSA

As we saw in the earlier discussion there is essentially three ways to do coordinated subject agreement in Arabic. Shown again below, we have post-verbal subjects with singular agreement (36), post-verbal subjects with plural agreement (37), and pre-verbal subjects which only show plural agreement (38).

(36) ẓa ʿOmar w Karim. (MA) 
came.sg Omar and Karim 
Omar and Karim came.

(37) ẓaw Marwan w Karim. 
came.pl marwan and karim 
Marwan and Karim came.

(38) Karim w Marwan mšaw/*mša. 
Karim and Marwan left.pl/left.sg 
Karim and Marwan left.
In this section I will show how my approach to coordination can account for these facts. I will begin with post-verbal subjects with singular agreement.

3.1. Post-Verbal, Singular. With the decomposition of Merge and its relation to adjuncts, we now have two ways to compose coordinated subjects. In this section we will concern ourselves with coordinated elements in which only the Concatenate operation has applied (39).

(39)

\[
\begin{array}{c}
\text{DP} \\
\text{Omar} \\
\& \\
\text{DP} \\
\text{Karim}
\end{array}
\]

Say that the above structure was the coordination of Omar and Karim from (36). The DP Omar in this structure is singular and as such should precipitate singular agreement on any verb it may serve as a subject for. As a DP, Omar is also a targetable entity for introduction as an external argument. The complex Omar \text{w} Karim is however not a targetable atomic entity and as such could not combine with a verb as an external argument.

Given this we build the structure below by Merging \([\text{DP} \text{Omar}]\) as the argument to a V.\(^{10}\) The adjunct phrase, having already Concatenated with the DP, will of course maintain that relationship.

\(^{10}\) I will use this as shorthand for Concatenate and Label.
The verb-head will move to a higher position and eventually a T-head will be introduced into the derivation. Following Pesetsky and Torrego (2004) the T-head will scan its c-command domain and find only \([_{DP} Omar]\) to agree with. This will cause singular agreement to arise on the verb like we see in (36).

3.2. **Post-Verbal, Plural.** Just as it was possible for the coordinated subject to enter into the derivation without having Labeled, so too can it Merge with the V having both undergone Concatenate and Label. This will work like traditional coordination and thus spur plural agreement.

---

\[\text{(40)}\]

The diagram illustrates the structure:

- **VP**
  - **V** `came`
  - **DP** `Omar`
  - **&P** `& Karim`

---

11 Arabic allows in-situ subjects which lets this be possible. Polish and English also allow in-situ subjects and in turn permit such conjunct sensitive agreement. Polish data from Citko (2004).

(i) Do pokoju weszła młoda kobieta i chłopiec.
   - Into the room walked a young woman and boy.

(ii) There was a man and a woman in the room.

I unfortunately lack space to get into a sufficiently comprehensive discussion of cross-linguistic facts.
From this stage, the verb will again raise to a higher position and we will have the verb-subject order we found above. In effect, we have explained the fact that post-verbal coordinated subjects in Arabic can cause either plural or singular agreement on the verb. Recall that this optionality is something that the mono-clausal analysis of ACSA could not predict.

3.3. **Pre-Verbal, Plural.** The structural position of the coordinated subject in (41) does not need to be its final one. As an atomic element and a maximal projection it is a prospective target for a movement operation. Arabic is such that its subject sometimes do move to Spec,TP and we thus expect that coordinated subjects can do so as well, as long as they have undergone both Concatenate and Label. In other words, if there is (coordinated) Subject-Verb order then it is necessarily the case that the coordinated subject was Labeled and thus spurred plural agreement.

Recall that the bi-clausal analysis had not way of predicting this lack of optionality in Subject-Verb constructions other than by pure stipulation. Under this new analysis, this restriction falls out from independent constraints on grammatical operations.
3.4. **Repercussions.** We can now also explain the reciprocal facts discussed earlier. In (5), repeated here as (42), only Labeled coordinated subjects license reciprocal objects.

(42) a. *Biḥibbo Karim w Marwan baṣdun. (MA)
   love.pl Karim and Marwan each other
   Karim and Marwan love each other.

b. *Biḥibb Karim w Marwan baṣdun.
   love.sg Karim and Marwan each other
   Karim and Marwan love each other.

Only coordinated subjects that have undergone Label can fully c-command (and thus license) plural reciprocals. This extends to other instances in which plural agreement correlates with acceptable sentences. Verbs like *meet* when intransitive, require plural (in this case Labeled, coordinated) subjects.

(43) a. *tlaqa 5Omar w Karim (MA)
   met.sg Omar and Karim

b. tlaqaw 5Omar w Karim
   met.pl Omar and Karim
   Omar and Karim met.

Modifiers like *together* also require Labeled coordinated subjects

(44) a. *ža Omar w Karim bžužhum (MA)
   came.sg Omar and Karim together

b. žaw Marwan w Karim bžužhum
   came.pl Marwan and Karim together
   Marwan and Karim came together.

This suggests that Munn was on the right track when claiming that sometimes coordinated subjects in Arabic are syntactically singular. Under this analysis, only a
singular DP is in play syntactically speaking in the instances where there is singular agreement.

3.5. **Summary.** Compared to the previous analyses, the decomposed Merge analysis straightforwardly predicts the fact that agreement varies when the subject is post-verbal but is constrained when the subject is pre-verbal. We can reprise our table from before to show this graphically.

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<tr>
<td>Mono-clausal account</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Decomposed Merge account</td>
<td>✓</td>
<td>✓</td>
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4. **Extending the Analysis**

In this section I will show that the decomposed analysis can account for the additional intransigent data that plagued the other two accounts. In doing so I will further articulate the theory of Decomposed Merge.

4.1. **Quantification.** In discussing the shortcomings of the bi-clausal analysis it was noted that a certain type of coordinated subject could effect singular agreement pre-verbally. As seen below, when a universally quantified noun phrase is coordinated with a noun phrase that contains a bound pronoun, singular agreement is licit. Given the discussion above, how can we account for this fact?

(46) \textit{kull waldi w bba-h mša (MA)}

\begin{tabular}{ccc}
  every boy & and & father-his left.sg \\
  Every boy & and & his father left.
\end{tabular}
For this quantifier-variable binding to work, the quantifier phrase must c-command the pronoun. Under the style of coordination we have worked out thus far, this is no difficult feat.

(47)
```
(\text{DP})
\quad (\text{D})
\quad (\&P)
\quad \text{every} \ \text{boy}
\quad \&
\quad \text{and}
\quad \text{DP}
\quad \text{his} \ \text{father}
```

But if Label had not taken place, there would be no c-command relation between quantifier and pronoun and the sentences would be ungrammatical. If it is necessary to Label in this instance, we fail to predict the variability in agreement. Only plural agreement should be possible, pre- \textit{and} post-verbally. But a deeper look at the way the quantified noun phrases in Arabic work will save us from this unwanted conclusion.

Benmamoun (1993, 2000) argues for analysis of Arabic quantified noun phrases in which the nominal begins the derivation as a specifier to a quantification phrase. The QP head (\textit{every}) head-moves to the commanding DP which derives the quantifier-noun order as in (48).

(48)
```
(\text{DP})
\quad (\text{D})
\quad \text{every}
\quad (\text{NP})
\quad \text{boy}
\quad (\text{QP})
\quad \text{Q}
\quad \text{t}
```

22
Deriving possessive phrases in Arabic involves a very similar operation. Ritter (1987, 1991) and Mohammad (1988) propose that a possessive phrase like (49) stems from a structure in which the possessor is the specifier to a noun phrase that the possessed heads (50).

(49) kitaab t-taalib-i (SA) 
   book the-student-GEN
   the student’s book

(50) DP
    D NP
    DP N
    the-student’s book

This effectively gives us two means of deriving the coordinated subject in (46). The obvious way is to coordinate the DPs from (48) and (50), shown below before any movement.

(51) DP
    DP &P
    DP &
    DP QP &
    NP boy &
    Q every
    DP his
    DP N
    father

23
The DP necessarily undergoes Label so as to be able to create a c-command relation between the conjuncts and license the binding. As stated earlier, this will force plural agreement across-the-board. But this is not the only possible derivation for the subject in (46). Instead of coordinating DPs, NPs could be coordinated.

That is, the NP in (50) could coordinate with then specifier NP in (48). This is shown in (52) prior to movement. In this case, the NP must Label after Concatenating with the &P for the same reason as above. This time however, when the quantifier moves to head the ‘matrix’ DP, it is only a single DP that Merges as a subject into the structure and can thus effect singular agreement. This works regardless of whether the subject is pre- or post-verbal.

In this subsection I have shown that the decomposed merge approach to ASCA can account for not only the restrictions in agreement with normal coordinated subjects, but also the lack of the same restrictions when the coordinated subject contains a quantifier as one of its subcomponents. This is a novel advantage that this approach enjoys.
4.2. **Distributive/Cumulative Readings.** In discussing the shortcomings of the mono-clausal analysis it was noted that normal sentences with coordinated subjects are ambiguous. No matter the verb/subject order or agreement, the sentences can have either cumulative readings or distributive ones. That is, (53) can mean either that Karim and Omar came in one fell swoop or that they came separately.

(53) $\bar{\text{ja}}$ $\text{Omar w Karim. (MA)}$

We want to be able to capture this ambiguity with the tool developed for differences in coordination: differential Labeling.

For the moment, let us say that (intuitively enough) unLabeled coordinations invoke distributive readings and Labeled ones cumulative, and see what this gains us. Sentences verb phrases with structures like that in (54) would eventually be interpreted as distributive: Omar came and Karim came.

(54) 

```
(54) VP
     /\    
    /  \   
   DP  V
     \  / 
      \&P
       \ &
        D
Omar

&
and

&
DP
Karim
```
That said, a sentence like in (55) (in English for ease of explication) would be understood as meaning (56) if no Labeling had occurred. That is, there would be a total of 8 apples eaten.

(55) [[DP Omar] [and Karim]] ate 4 apples.

(56) Omar ate 4 apples and Karim ate 4 apples.

Given the above interpretation of the sentence, the sentence in (55) would be true if there were a total of 8 apples eaten. But it would also be true if only 4 apples were eaten. Eating 8 apples entails eating 4 apples. The implicature that at least apples were eaten is by hypothesis cancelled by the fact that only 4 apples are explicitly mentioned.

As such, coordinated subjects causing singular agreement (like in (53)) are captured as being ambiguous between cumulative and distributive readings.

Coordinated subjects that cause plural agreement are also ambiguous generally. One half of the ambiguity is clear enough to explain. The subject could have entered the derivation having undergone Label and thus forcing both plural agreement and a cumulative reading. Since cumulative readings do not entail distributive ones.\(^\text{12}\)

The subject could also have Merged without having undergone Label. This would allow for the distributive reading, but what about the plural agreement?

4.3. **Decomposing the Extension Condition.** At first glance, once the structure in (57) has been built, it could not proceed to that in (58) without violating the extension condition of Chomsky (1995). There is structure building that is not

\(^{12}\) Omar and Karim ate 4 apples does not entail that Omar ate 4 and that Karim ate 4.
applying to the root. The D-head *Omar* is projecting as the Label of the coordination after having already fully Merged with the verb. This should be as egregious an operation as an element moving from within the VP to become the DP’s specifier. But we will see that this sort of operation should be allowed in a system with Concatenate and Label as operations.

In Chomsky’s original formulation of the extension condition, he couches it as a generalized transformation. In paraphrase, take a phrase marker K and add Ø (which crucially must be external to K), following this substitute α for Ø, thus forming the new phrase marker K*.

When this process is viewed through our decomposed merge lens, a pivot point emerges. After the substitution suboperation, Chomsky takes it as a given that a new
phrase marker labeled K* emerges. This step, essentially Label, is neither necessary nor necessarily immediate.

I have argued earlier that it is not necessary, but given the above conceptualization, it also does not necessarily take place directly after the substitution suboperation to avoid violating the extension condition. Once $\emptyset$, which is external to K, has been added extension has been obeyed. Any further (potentially optional) steps in the process are formally independent of the fundamental extensional aspect of the extension condition. Labeling is one of these further steps. This dissociation is shown graphically below.\(^\text{13}\)

\[(59)\]

\begin{align*}
\text{a. Add}(\text{DP}_1,\emptyset_1) \\
\text{b. Substitute}(\&P,\emptyset_1) \\
\text{c. Add}(V,\emptyset_2) \\
\text{d. Substitute}(\text{DP}_1,\emptyset_2) \\
\text{e. Label}(V,\{V,\text{DP}_1\}) \\
\text{f. Label}(\text{DP}_1,\{\text{DP}_1,\&P\})
\end{align*}

In (a-b) two a DP and a $\&P$ are Concatenated, obeying extension. In (c-d) the same thing happens between a DP and a $V$. The result of the (c-d) operations is Labeled, but this operation is irrelevant to extension per se, it has already been obey. The same goes for the final step.

\(^{13}\) Chomsky considers the Add and Substitute to in reality be in distinguishable derivationally.
As such, we have whittled down the extension condition to merely apply to Add and Substitute. These in turn are the formal equivalent to the Concatenate operation. In sum, we have reduced the extension condition to its minimal parts and the Label operation is not one of them.

4.4. **Distributive/Cumulative Readings Redux.** Given our new understanding of the extension condition, we can explain how the derivation can licitly proceed from (60) to (61).

(60)
```
(60) VP
    \  \(V \quad \text{came}\)
   / \  \(\&P\)
  /   \(\&P\)
D\(P\)
\(\text{Omar}\)
/   \(\&\)
\(\&\text{and}\)  \(\text{DP}\)
\(\text{DP}\)
\(\text{Karim}\)
```

(61)
```
(61) VP
    \(D\)
    \(\text{Omar}\)
    \(\&\)
    \(\&\text{and}\)  \(\text{DP}\)
    \(\text{DP}\)
     \(\text{Karim}\)
```

14 This jibes well with the conception of movement as adjunction (Chomsky (2004)). Movement certainly must obey extension and with movement as adjunction we must be able to define extension in a very minimal sense in light the notion of adjunction advocated here. This decomposition of the extension condition captures this.
Before the DP *Omar* Merges with the verb, it Concatenates with the &P which obeys extension. Once the verb has been Merged with, the distributive reading is a possible interpretation. Later, the DP+&P complex can undergo Label and become available for plural agreement. Coupled with the option of Merging fully before Merging with the verb, we can explain how sentences like (62) are ambiguous. The subject in (61) can also move to a pre-verbal position and thus we correctly predict that (63) is also ambiguous.

(62) \( \text{žaw Karim w Marwan (MA)} \)
    came.pl Karim and Marwan
    Karim and Marwan laughed.

(63) \( Karim w Marwan žaw \)
    Karim and Marwan laughed.pl
    Karim and Marwan laughed.

4.5. **Quantifiers Redux.** Recall that there was a difference in interpretation between coordinated subjects containing quantified elements and regular coordinated subjects. As we saw above, regular coordinated subjects are universally ambiguous whereas the quantified subjects are universally unambiguous.

Neither the bi- nor the mono-clausal analysis broach this subject. But the independently more empirically adequate decomposed merge analysis has suggests a very simple account for this. As we have seen above, coordinated subjects with quantified noun phrases and bound pronouns necessarily Label as well as Concatenate for binding purposes. Labeling being crucial has repercussions for meaning. We are never going to have a situation like (60) above and thus never going to have the possibility of distributive readings with this sort of subject.
This of course depends on the timing of the Label operation. Quantifier variable binding needs to be licit at the very latest by the time the relevant structure is to be interpreted by the semantics. It is then inconceivable that the coordinated subject here could be interpreted as distributive as well as be in a licit configuration for binding. The two are simply at odds with each other. To be licit as a quantifier-variable configuration, c-command between the two conjuncts is required. To be interpreted as distributive, c-command is forbidden. If the binding configuration is not licit, the derivation should crash due to illegibility at the interface. If the distributive configuration is not met, the subject is simply interpreted as cumulative.

From this we can see that the only grammatical sentences with this sort of coordinated subject must have cumulative readings. Which is exactly what the facts are.

4.6. **Summary.** In this section we have seen that, in addition to capture a broader swath of the foundational data, the decomposed merge account can easily be extended to handle data that no previous account could predict. It does so without making unwarranted stipulations and in fact paves the way for a more minimal version of the extension condition.

5. Conclusion

I have argued in this paper that the previous accounts of Arabic conjunct-sensitive agreement are inadequate in the face of the empirical challenge. Instead I offer a theoretically motivated (if not necessary) novel analysis which can explain the range of facts more completely. This novel analysis has been shown to easily extend to murkier
empirical waters and provide plausible and coherent explanations. Conjunct agreement as a whole is explained based on essentially a single concept: the decomposition of merge. This relatively novel theory of Merge, coupled with independently motivation assumptions of mainstream syntax allows us to extend beyond the core data without much hand-wringing.

Furthermore, a theoretical gain is produce. In light of the decomposition of merge, a new, minimalized conception of the extension condition emerges. Labeling is not integral to determining whether an operation obeys extension. Instead, it is only important that the root is targeted for the introduction of a new element and other operations can apply to non-roots, counter-cyclically only superficially.

6. Bibliography


