

Arabic Conjunct-sensitive Agreement and Primitive Operations: A reply to Aoun, Benmamoun, and Sportiche (1994, 1999) and Munn (1999)

Abstract: In some Arabic dialects pre-verbal coordinated subjects cause plural agreement on the verb while post-verbal ones cause either plural agreement or singular agreement. This paradigm has been addressed by Aoun, Benmamoun, and Sportiche (1994, 1999) and Munn (1999) to varying degrees of success. This reply offers an improvement on the previous analyses by utilizing the concept of decomposed merge (Hornstein 2009) whereby merge is reanalyzed as two suboperations. Previously unexplained cases that flaunt the paradigm are explained here by a decomposition of the extension condition (Chomsky 1995) and a derivational account of pronoun binding across coordination.

Keywords: Merge, Coordination, Arabic, Bare Phrase Structure, Binding

Introduction

There is a long-standing dispute over Arabic conjunct-sensitive agreement (ACSA). The two approaches discussed here capture large swaths of empirical landscape, yet some data points still evade explanation. In this reply I offer an account that handles the basic facts and captures recalcitrant cases. Further, this paper argues for the decomposition of Merge into two suboperations and pares down the extension condition of Chomsky 1995.

The approach offered here is that coordinated subjects can optionally Label when Merged together. When Labeling occurs, plural agreement is effected. When Labeling does not occur, only one conjunct can be agreed with, effecting singular agreement. Only

Labeled objects function as constituents (following Hornstein 2009) and as such only they can move to pre-verbal positions. This correctly predicts that pre-verbal coordinated subject must effect plural agreement whereas post-verbal ones can effect either plural or singular agreement.

In section 1 I discuss the bi-clausal approach proposed by Aoun, Benmamoun, and Sportiche (1994, 1999) as well as the mono-clausal approach of Munn (1999). In section 2 I rehearse the motivation behind the decomposition of Merge and extend this argumentation to coordination following Larson 2010. In section 3 I offer a decomposed Merge analysis for the basic paradigm and show that it covers more empirical ground than the previous approaches. Section 4 addresses the recalcitrant data that neither previous approach can account for. These data are coordinated subjects in which one of the conjuncts is a quantified noun phrase and the other has a bound pronoun. The new account captures these via the decomposition of Merge coupled with theories of Arabic quantified NPs from Benmamoun (1999) and Mohammad (1988). Further, I argue that quantifier-variable binding across coordination is subject to derivational constraints.

1 Background

ACSA sentences are exemplified in (1) below from Aoun, Benmamoun, and Sportiche 1999.¹ This sentence has 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, Benmamoun, and Sportiche 1994.²

(1) ža ʕomar w karim (MA)

came.SG Omar and Karim

‘Omar and Karim came.’

(2) wəqfu lə-wlad (MA)

stood.PL the-children

‘The children stood up.’

1.1 Bi-clausal Analysis Advantages

The bi-clausal account derives (1) as follows. The sentence appears mono-clausal, but this is a PF deception. Under conjunction reduction, sentence (3) can be reduced to (1).

(3) ža ʕomar w ža karim (MA)

came.SG Omar and came.SG Karim

‘Omar came and Karim came.’

In addition to (1), sentences like (4) are also possible and clearly could not have been derived via conjunction reduction, as Aoun, Benmamoun, and Sportiche admit.

(4) žaw marwan w karim (MA)

came.PL Marwan and Karim

‘Marwan and Karim came.’

According to them, we have herein a suitable test of their approach. Sentences like (4) where the subject is syntactically plural at every stage of the derivation should be acceptable with elements that require plural subjects. Sentences like (1) in which the subject is only superficially plural should not be acceptable under the same conditions. Reciprocals require plural subjects and the prediction is borne out as shown in (5) below.

- (5) a. gəlsu ʔomar w karim hda bəʔdhum
 sat.PL Omar and Karim near each.other
 ‘Omar and Karim sat near each other.’
- b. *gləs ʔomar w karim hda bəʔdhum
 sat.SG Omar and Karim near each.other

1.2 Disadvantages

The Aoun, Benmamoun, and Sportiche analysis is relatively unconstrained and risks overgeneration. It indeed seems to make false predictions of acceptability as seen in (6).

- (6) 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 ones generally obligatorily show plural agreement. Aoun, Benmamoun, and

Sportiche (1999:678) admit that they have “no explanation for why first conjunct agreement is not systematically possible in the SV order.”

Additionally unexplained in their account is the fact that subject-initial 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.³

- (7) kull wəld w bba-h mša (MA)
every boy and father-his left.SG
'Every boy and his father left.'

The extent to which Aoun, Benmamoun, and Sportiche can explain (7), they cannot explain (6), and vice versa.

1.3 Mono-clausal Analysis Advantages

The mono-clausal analysis of Munn 1999 accounts for the paradigm by distinguishing semantic from syntactic plurality. Doing so is fairly straightforward. For example, the English noun *group* effects singular agreement but, being necessarily composed of multiple entities, 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.

- (8)
- 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* 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 shows that that the reverse is also the case. There are elements that require syntactic plurality, independent of semantic plurality. Seen in (9), anaphors must agree with their controllers in their syntactic plurality. For example, though *the group* is semantically plural, that is insufficient to license the plural reflexive

- (9)
- 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.

Munn argues that the coordinated subjects in Arabic are like *the group* above: semantically plural, syntactically singular. The distinction explains the unacceptability of (5b). In Arabic ‘each other’ requires syntactic plurality; semantic plurality is insufficient.

Munn's analysis argues for the possibility of agreement to be mediated through what he dubs *Exceptional Government*: the relation between a head and its complement's specifier (akin to the notion of agreement under government of Mohammad 1988, Benmamoun 1992, and Bahloul and Harbert 1993). Assuming agreement is mediated through this relation and assuming the analysis of coordination as adjunction of Munn 1993 we are able to derive sentences in which post-verbal coordinated subjects cause singular agreement. The sentence in (1) would have a (simplified) structure like (10).

(10) [TP žā_i [VP [DP [DP ōmar] [&P w karim]] t_i]] (MA)

came.SG Omar and Karim

'Omar and Karim came.'

Pre-verbal subjects are 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 (6) has the structure like that in (11).

(11) [TP [DP [DP karim] [&P w marwan]] mšaw [VP ...]] (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. These differential agreement mechanisms account for the different agreement patterns. Munn’s analysis predicts that pre-verbal subjects effect plural agreement and post-verbal ones singular agreement.

1.4 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 stirs, the extent to which a more formalized explanation can be posited, that explanation should be preferred for at least being more easily falsified.

A more interesting failing of this account noted by Aoun, Benmamoun, and Sportiche 1999 concerns the collective or distributive readings of coordinated subjects. They note that with coordination of proper names, there is an ambiguity. Example (12) can mean that Alya and Marwaan read a single story (a collective reading). It can also mean that they each read a story for a total of two stories read (a distributive reading).⁴

- (12) ʔəryo ʕalya w marwaan ʔəʕʕa (LA)
 read.PL Alya and Marwaan story
 ‘Alya and Marwaan read a story.’

Yet, when a quantified noun phrase is coordinated with a noun phrase containing a bound pronoun, the sentences are unambiguous. They only allow a collective reading.

The sentence only has a reading in which each woman-child pair read one story, not two. In the Munn’s analysis, the sentences (12) and (13) are structurally identical in the relevant respects. As such, we do not expect them to differ in their interpretations.

- (13) ʔəryo kəll mara w ʔəbna ʔəʃʃa (LA)
 read.PL every woman and child.her story
 ‘Every woman and her child read a story.’

1.5 Summary

The two accounts here cover a great deal of the data. But there are two central failings that they succumb to. Neither account handles the full range of agreement patterns. The Aoun, Benmamoun, and Sportiche account handles the post-verbal agreement facts fine, but fails to predict the lack of variability in agreement with pre-verbal subjects. Munn’s account captures the post-verbal subject's singular agreement and the invariability of the agreement with pre-verbal subjects, but fails to predict variability with post-verbal ones. This is shown below. Checkmarks indicate that the analysis can handle the relevant data.

(14)

	SV	VS _{singular}	VS _{plural}
Bi-clausal account		✓	✓
Mono-clausal account	✓	✓	

Further, both analyses fail in the face of data involving quantified noun phrases. The Aoun, Benmamoun, and Sportiche analysis cannot predict the fact that these allow

singular agreement in a pre-verbal position. Munn’s analysis cannot predict the differences in ambiguity between the quantified and non-quantified noun phrases. In what follows I present a unified account that deals with the entire scope of the phenomena.

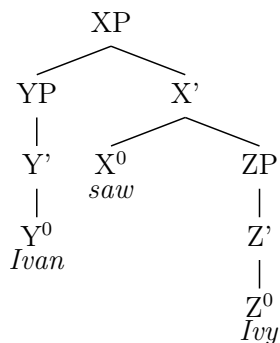
2 Decomposed Merge

Here I revisit the motivation for decomposing Merge (Chomsky 1995). For the sake of space this is but a sketch of the argumentation in Hornstein 2009. The main motivation comes from the differential targeting of adjuncts. Under Bare Phrase Structure (BPS) (Chomsky 1995), capturing adjuncts becomes difficult and the decomposition of Merge is an attempt to correct this. Coordination is taken to be adjunction and should be amenable to a decomposed Merge account. I pursue this here with the aim of applying to it ACSA.

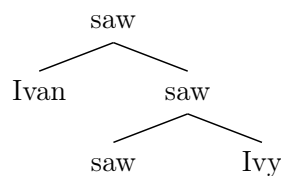
2.1 Bare Phrase Theory

Under BPS, categorial labels are no long extrinsic entities with rigid positions along a derived skeleton. There had existed prior such things as X^0 , X' , and XP and they had fixed positions, unchanged throughout the derivation (Jackendoff 1977). Now they are mere clarificational substitutes for lexical items. Instead of (15) we now have (16).

(15) X-bar Theory



(16) BPS



What were non-lexical entities are now lexical ones. In addition to this, the notions of minimal, intermediate, and maximal projection have been relativized. In (15) the X' level was, and always will be, an intermediate projection. In (16), the middle *saw* is an intermediate projection, but this was not always so. Before *Ivan* was Merged, *saw* was a maximal projection. It was the highest projection of *saw* and as such, maximal.

Given that 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. 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 (17), an adjunct could adjoin to a VP and the Label dominating that would in turn be another VP. This was advantageous. Certain operations only work on maximal projections, say VP-ellipsis. In the above structure VP-ellipsis can operate on the inner (19a) or outer (19b) VP.

(17) Iris [_{VP} [_{VP} felt good] on Sunday]

(18) Iris felt good on Sunday...

(19) a. ...and Ivan did on Saturday.

b. ...and Ivan did, 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 (17) 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.⁵

2.2.1 Decomposed Merge

To solve this dilemma, Hornstein proposes a decomposition of the Merge operation.⁶ Merge, as construed in Chomsky 1995 takes two syntactic elements and combines them, projecting one of them as the Label of said combination (20).

$$(20) \quad \text{Merge}(X, Y) \rightarrow \begin{array}{c} \text{XP} \\ \swarrow \quad \searrow \\ X \quad \quad \text{YP} \end{array} \quad [\text{XP } X \text{ YP}]$$

Hornstein instead posits that the above operation be split into two: Concatenate (21) and Label (22). Concatenate 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.

$$(21) \quad \text{Concatenate}(X, Y) \rightarrow \overline{\text{XP}} \overline{\text{YP}} \quad [\text{XP YP}]$$

$$(22) \quad \text{Label}(X, [\text{XP YP}]) \rightarrow \begin{array}{c} \text{XP} \\ \swarrow \quad \searrow \\ X \quad \quad \text{YP} \end{array} \quad [\text{XP } X \text{ YP}]$$

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.

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 (23), the verb+adverb complex is, in Hornstein's words, “invisible” to the rest of the structure.⁷ So when an operation like VP-deletion targets a VP with a Concatenated adverb, the VP deletes leaving the adverb behind (24).

(23) $\overline{VP} \overline{\quad} \overline{A}$
 run quickly

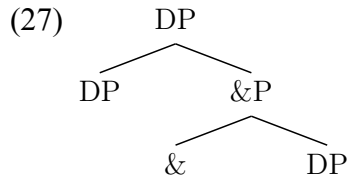
(24) Ivan ran slowly and Iris did quickly.

When an adverb is both Concatenated and Labeled into the structure (25), VP-deletion applies to the adverb as well (26).

(25) \overline{VP}
 $\swarrow \quad \searrow$
 $\overline{V} \quad \overline{A}$
 run slowly

(26) Ivan ran slowly and Iris did, too.

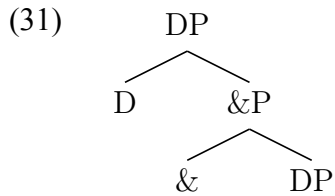
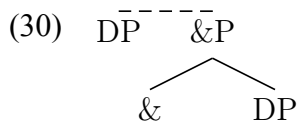
As shown above, adjunction can be wedded to BPS in an elegant fashion. But more than just adverbs have been argued to be adjuncts. For instance, Munn (1993) argues that coordination is also an adjunction structure (27).



Larson (2010) argues for similar tack with respect to coordination. In (28) below, it is possible to target both the topmost VP for deletion and also a lower one. And in (29), it seems that the anaphor can be bound by either to topmost DP or by a lower one.

- (28) a. Ivan [_{VP} [_{VP} ate an apple] and wrote a letter] in the park
 b. ... while Ivy [did] in the library
 c. ... while Ivy [did] and read a book
- (29) a. I showed [_{DP} the man] and the woman to [himself] and herself in the pond.
 b. Ivan showed [_{DP} the man and the woman] to [themselves] in the pond.

If allowed only one XP per projection, there must be some other means of capturing these facts. The decomposition of Merge seems to be sufficient. We simply have structural ambiguity with coordination, just like with traditional adjunction. That is, for example (29a), the structure of the coordination is like in (30). For (29b), the structure is like (31). In the following section I extend this analysis to Arabic coordinated subjects



3 Bare Phrase ACSA

There are essentially three ways to do coordinated subject agreement in Arabic: pre-verbal with plural agreement (32), post-verbal with singular agreement, and post-verbal with plural agreement (33). In this section I show how my approach accounts for these.

(32) karim w marwan mšaw (MA)

Karim and Marwan left.PL

‘Karim and Marwan left.’

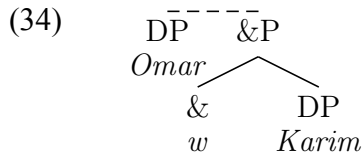
(33) {ža/ žaw} ŧomar w karim

came.SG/PL Omar and Karim

‘Omar and Karim came.’

3.1 Post-Verbal, Singular

Given 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 (34).

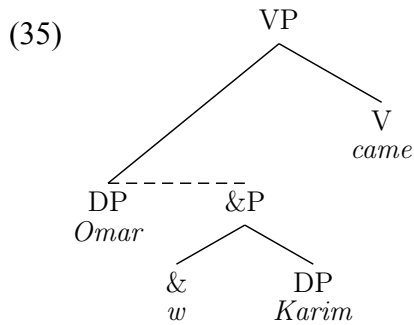


Say that the above structure was the coordination of Omar and Karim from (33) with singular agreement. In this structure *Omar* is singular and as such should precipitate singular agreement on any verb it serves as subject for. As a DP, *Omar* is also targetable as an external argument. The complex *Omar w Karim* is however not a targetable atomic entity and could not combine with a verb as an external argument.⁸

Another difference between the DP+&P concatenate *Omar w Karim* and a regular constituent is that the DP does not c-command the &P. There is no branching node dominating DP that dominates &P. Interface conditions not requiring c-command should have no problem accepting the DP+&P concatenate. It only lacks the ability to be targeted as a unit. Conditions requiring c-command cannot be satisfied by a structure like in (34). The LCA (Kayne 1994) requires this and at the PF such structures must have been Labeled in order to be interpreted. I argue below for optional late-Labeling.

Given this we build the structure below by Merging (Concatenate and Label)

[_{DP} *Omar*] as the argument to a V. The adjunct phrase, having already Concatenated with the DP, will of course maintain that relationship. The DP *Karim* will, by hypothesis, receive the same thematic role as the DP that its host &P Concatenated with.



A T-head will eventually be introduced into the derivation and the verb-head will move to that higher position. Following Pesetsky and Torrego 2004 the T-head will scan its c-command domain and find only [_{DP} *Omar*] to agree with. This will allow singular agreement to arise on the verb like we see in (33).

3.2 Pre- and 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. 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 Aoun, Benmamoun, and Sportiche analysis could not predict.

The initial position of the Labeled coordinated subject 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 Labeled.⁹ In other words, if there is Subject-Verb order then it is necessary that the coordinated subject was Labeled and thus spurred plural agreement. Recall that Munn’s analysis had no way of predicting this lack of optionality in Subject-Verb constructions. Under this analysis, the restriction falls out from independent constraints on syntactic operations.

3.4 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 pre-verbal. We can reprise our table from above to show this graphically.

(36)

	SV	VS _{singular}	VS _{plural}
Bi-clausal account		✓	✓
Mono-clausal account	✓	✓	
Decomposed Merge account	✓	✓	✓

We can now also explain the reciprocal facts discussed earlier. In (5) only plural subjects licensed reciprocal objects. That is, only coordinated subjects that have undergone Label can fully c-command (and thus license) reciprocals.¹⁰ This extends to other instances in which plural agreement correlates with acceptability. Aoun, Benmamoun, and Sportiche (1999) show that “plurality seeking” elements (in the sense

of Schwarzschild (1996:10)) like *meet* (when intransitive) and modifiers like ‘together’ require plural (in this case Labeled) subjects.

4 Extending the Analysis

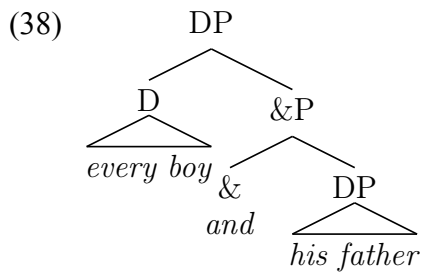
In this section I show that the decomposed analysis handles the intransigent data plaguing the other accounts. In doing so I will further articulate the theory of Decomposed Merge.

4.1 Quantification

In discussing the shortcomings of the bi-clausal analysis it was noted that a certain type of pre-verbal coordinated subject could effect singular agreement. Universally quantified noun phrases coordinated with a noun phrase that contains a bound pronoun cause singular agreement. Given the discussion above, how can we account for this fact?

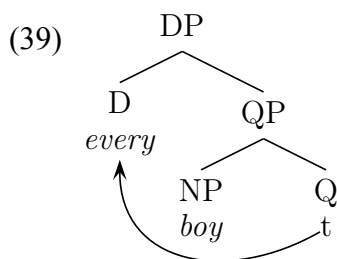
- (37) kull wəld w bba-h mša (MA)
every boy and father-his left.SG
‘Every boy and his father left.’

For quantifier-variable binding to work, the quantifier phrase must c-command the pronoun. Under the style of coordination assumed here, this is not difficult. This is shown below with English words used for Arabic structures for the sake of convenience.



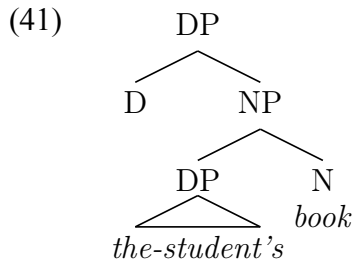
But if Label had not taken place, there would be no c-command relation between quantifier and pronoun and the sentences would be ungrammatical. If it is necessary to Label in this instance, we fail to predict the variability in agreement. Only plural agreement should be possible, pre- *and* post-verbally.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

Benmamoun (1999) argues for an analysis of Arabic quantified noun phrases in which the nominal begins the derivation as a specifier to a quantification phrase. The QP head (*every*) head-moves to the commanding D head position as in (39).

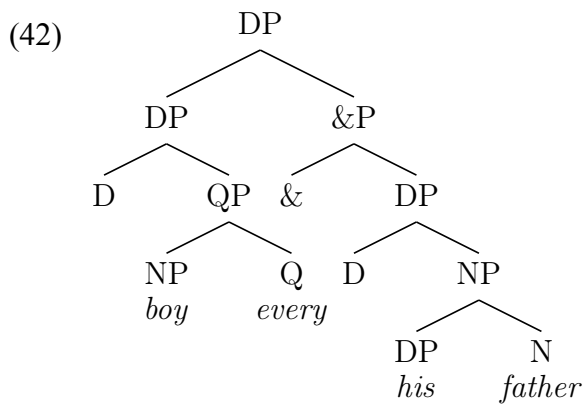


Deriving possessive phrases in Arabic involves a very similar operation. Ritter (1987, 1991) and Mohammad (1988) derive possessive phrases like (40) from a structure in which the possessor is the specifier to a noun phrase that the possessed heads (41)

- (40) *kitaab t-taalib-i*
 book the-student-GEN
 ‘the student’s book’

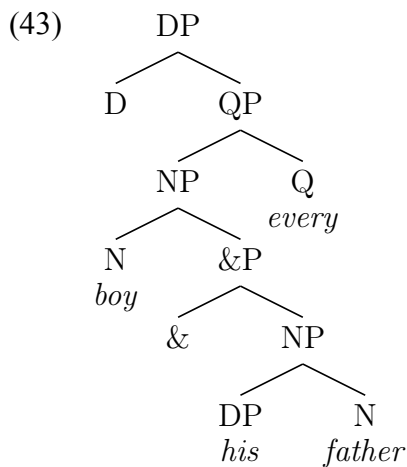


This effectively gives us two means of deriving the coordinated subject in (37). A simple way is to coordinate the DPs, shown below before any movement:



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 (37). Instead of coordinating DPs, NPs could be coordinated.

That is, the NP in (41) could coordinate with the specifier NP in (39). This is shown in (43) before head movement of the Q to D and the cliticization of the possessive pronoun to its host NP. 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 effects singular agreement. This works regardless of whether the subject is pre- or post-verbal.



Note that this structure will not only effect singular agreement, it will also account for the restrictions in agreement with normal coordinated subjects and preclude the licensing of reciprocals and ‘plurality seeking’ adverbials like ‘together’. Structures like (43) are not coordinated DPs but rather single DPs headed by a quantifier that involve coordinated inner NPs. As such, they are expected to pattern like regular DPs headed by *every*. That is, independent of their collective readings, subjects like that in (44) will not license elements like ‘together’. They fail to do so for the same reason that the subject in (45) fails to do so: there is no plural item there to license ‘together’.

(44) *mša kull wəld w bba-h bžužhum (MA)

left.SG every boy and father-his together

‘Every boy and his father left together.’

(45) *mša kull wəld bžužhum (MA)

left.SG every boy together

‘Every boy left together.’

In this subsection I have shown that the decomposed Merge approach can account for not only the restrictions on agreement with normal coordinated subjects, but also the lack of the same restrictions when the subject has a quantifier as one of its components.

4.2 Ambiguous Readings

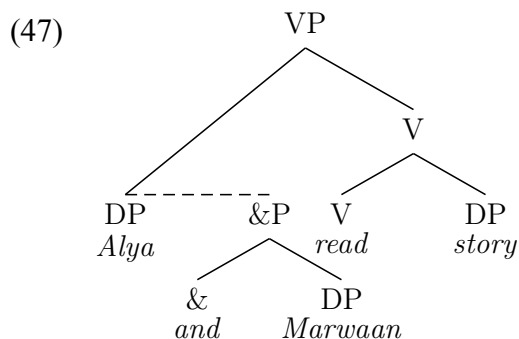
In discussing the shortcomings of Munn’s analysis it was noted that normal sentences with coordinated subjects are ambiguous. No matter the verb/subject order or agreement, the sentences allow both collective readings and distributive ones. That is, (46) can mean either that Alya and Marwaan read a total of two stories or that they read one story.

(46) ʔəryit ʕalya w marwaan ʔəšša (LA)

read.SG Alya and Marwaan story

‘Alya and Marwaan read a story.’

We can capture this ambiguity with the tool developed here: differential Labeling. Assume that unLabeled coordinations invoke distributive readings and Labeled ones collective readings. Labeling collectivizes the DP and going unlabeled effects a distributive reading. This agrees in spirit with Kratzer (2007) who posits that the interpretation of collectivity/distributivity is determined by the plurality of DPs. In her proposed system, there exist features on DPs that must vacate the DP in order to be interpreted. These features move to their sister's head, which in this case would be the verb. I posit that a Labeled coordinated DP has a feature that marks the verb with what will effect a collective reading (similar to what Kratzer herself does for coordinated DPs).¹¹ Structures like (47) fail to have this feature. This effects a distributive interpretation: *Alya read a story and Marwaan read a story.*



With distributive interpretations, sentences with structures like (47) would be true if there were a total of two stories read. But they would also be true if Alya and Marwaan read only one story separately. In short, the distributive reading can be true in the two situations yet only have a single reading (see Pietroski and Hornstein 2002 for a similar point). As such, coordinated subjects causing singular agreement are merely functionally

ambiguous, but have only a distributive syntax and consequently a distributive logical form. That the collective reading can be inferred from the distributive one obscures the lack of structural ambiguity.

This same idea can capture the apparent tension in this analysis with respect to singular agreement and collectivity. Elements requiring plurality like ‘together’ are not allowed with singular agreement. However, ‘together’ usually tracks collective interpretations, which are nevertheless possible with singular agreement. If it is the case that collective agreement interpretations with singular agreement only come about via entailment and that there is in fact no collectivity coded in the syntax or semantics, then it is predicted that the elements like ‘together’ and ‘each other’ will be illicit in ostensibly collective environments as seen in (48).

(48) *ža ʕomar w karim bžužhum (MA)

came.SG Omar and Karim together

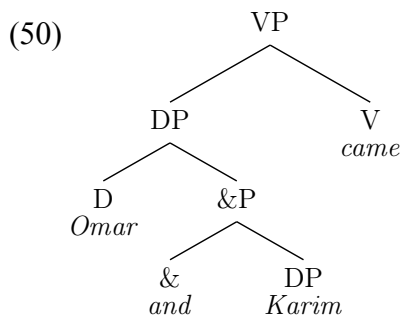
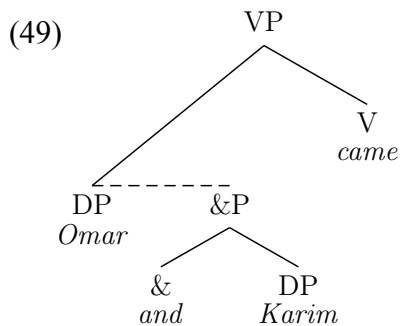
‘Omar and Karim came together.’

In contrast, coordinated subjects that cause plural agreement are actually structurally ambiguous generally. One half of the ambiguity is clear enough to explain. The subject could have Merged with the V having already undergone Label and thus forcing both plural agreement and a collective reading. This is the only reading available since collective readings do not entail distributive ones.

The subject could also have Merged without having undergone Label. This would allow for the distributive reading, but what about the plural agreement? In the following section I examine how the plural agreement could be derived.

4.3 Decomposing the Extension Condition

At first glance, once the structure in (49) has been built, it could not proceed to that in (50) without violating the extension condition of Chomsky 1995. Structure building is not applying to the root. The D-head *Omar* is projecting as the Label of the coordination having already Merged with the verb. 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 phrase marker K and add \emptyset (which must be external to K), following this substitute α for \emptyset , forming a new phrase marker K^* .

This process, viewed through our decomposed Merge lens, reveals a pivot point. After the substitution operation, Chomsky assumes that a new phrase marker Labeled K^* emerges. This emergence (Label), is neither necessary nor necessarily immediate. Given the above conceptualization, Label does not necessarily take place directly after the substitution operation 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.

As such, we have whittled down the extension condition to merely apply to Add and Substitute. These in turn are the equivalent to the Concatenate operation.⁹ We have reduced the extension condition to its minimal parts and Label is not one of them.

Given our new understanding of the extension condition, we can explain how the derivation can licitly proceed from (49) to (50). Once the verb and the DP have Merged, the distributive reading is a possible interpretation. The verb (or whatever analogous object that determines thematic roles) registers this initial Merger. Following the Kratzer 2007, the DP 'releases' features determineing collectivity/distributivity. Merge the singular *Omar* with the verb and a feature that effects a distributive reading is released onto the verb; Merge the plural *Oman and Karim* and a collective reading is released.

If it is assumed that the coordinated subject is introduced into the specifier position

of a phase head (in the sense of Chomsky 2001 and subsequent work), the phasal projection can undergo Spellout and the verb can maintain its collective/distributive reading. If the degree of opacity (the strength of the Phase Impenetrability Condition of Chomsky 2001) after Spellout of the phase is sufficient to preclude any overwriting of the collective/distributive reading on the verb, then the DP+&P complex can undergo Label and become available for plural agreement with the T head once it is Merged into the structure. With cyclic Spellout, the phase in which collective/distributive readings are determined can see the subject as it appears in (49) while the phase in which agreement is determined can see the subject as it appears in (50). We can thus explain why post-verbal coordinations with plural agreement are ambiguous. The subject can also move to a pre-verbal position and thus pre-verbal coordinations are predicted to be ambiguous.

4.4 Quantifiers Redux

As we saw above, regular coordinated subjects are ambiguous with respect to distributivity and collectivity whereas the quantified subjects are unambiguous. Neither the bi- nor the mono-clausal previous analyses handle this. But the decomposed Merge analysis suggests a simple account for this. Pronouns bound by quantifiers must be c-commanded by them as a derivational condition. In order to effect c-command, the coordination must Label immediately and in turn cause collective readings.

Contra proposals such as those found in Chomsky 1993, Fox and Nissenbaum 2004, and Lebeaux 2009 there are alternative arguments that binding conditions are reducible to syntax-internal principles as opposed to LF-interface ones (Lidz and Idsardi

1998, Hornstein 2001, Reuland 2001, Kayne 2002, Zwart 2002, Hicks 2008, Takano 2010, and Drummond, Kush, and Hornstein 2011). According to these, the relevant conditions on binding must hold throughout the derivation. At no applicable time in the derivation of a grammatical sentence is the condition violated.

The derivational approach to binding that I adopt is that at some point in the derivation, coreferential elements are sisters to each other. As in (51) In the course of the derivation α will move and serve as the antecedent to β . The binding constraints are then predicted to track the movement restrictions on α (roughly as in Kayne 2002).

(51) $[\alpha \beta] \rightarrow [\alpha_i [\gamma [\dots t_i \beta \dots]]]$

The restrictions on quantifier-pronoun binding across coordination can similarly be accounted for in a manner that tracks movement restrictions. The derivation of (52) would involve a stage in the derivation where *every boy* and *his* are sisters (53). As the configuration in (53) is not yet coordinated with anything it should not be subject to the coordinate structure constraint. Movement of *every boy* to the root in (54) is allowed.

(52) every boy and his dog

(53) [$\&$ [[every boy his] dog]]

(54) [[every boy]_i; [$\&$ [[t_i his] dog]]]

However, if instead of the initial movement of *every boy* a different noun were introduced, this would create the full coordinate structure (55). Movement of *every boy* should no longer be possible and binding across coordination should not occur across non-adjacent conjuncts. Indeed, the pronoun in (56) does not have the bound reading.

(55) [& [the instructor [& [[every boy his] dog]]]]

(56) Every boy (and) the instructor and his dog.

It is possible to give a derivational account of the restrictions on this particular binding configuration and the movement must result in a c-command relation between the moved element and the pronoun. When a pronoun in the second conjunct is not c-commanded by the relevant quantified NP, the sentence lacks a bound pronoun reading:

(57)a. *[A lunchlady from [every school]_i] and its_i janitor attended

b. *[[Every president_i's] daughter] and his_i wife attended.

If the antecedent must c-command the pronoun for cross-coordination binding purposes and this is part of a derivational constraint, then it must be that the Label sub-operation occurs as soon as possible in these cases. This binding requires c-command and the c-command in turn requires Label. The fact that Labeling is immediate here has repercussions for meaning. We are never going to have a situation like (49) above and thus never going to have the possibility of distributive readings with this sort of subject.

The Label operation always occurs prior to Merger of coordinated subject and verb. From this we can see that the only grammatical sentences with this sort of coordinated subject must have collective readings. They can never avoid Label and in turn distributivity.

This makes a prediction. If a language does not have a c-command condition on the binding of pronouns by quantifier expressions across coordination, then it should allow ambiguous distributive/collective readings of those constructions (and vice versa). If a language has such a c-command condition, it will only allow collective readings.

This is borne out. LA and MA only allow collective readings in the relevant constructions. They also require quantified expression to c-command their co-indexed pronouns across coordination. In the sentences below, the relevant pronoun is feminine and the only c-commanding antecedent is masculine. Native speakers find that the feminine pronoun necessarily referred to a third party female and could not be bound by the quantified expression that is not in a c-commanding position.

(58) a. *[ʔəsteez [kəll mara]_i] w ʔəbna_i daraho (LA)

teacher each woman_i and child.her_i left.PL

‘The (male) teacher of each woman and her child left.’

b. *[wəld [kull mra]_i] w xu-ha_i mšaw (MA)

child each woman and brother-her left.PL

‘The (male) child of each woman and her brother came.’

However, a reviewer notes that the analogous sentence in Egyptian Arabic (EA) does not require c-command:

- (59) [bint [kul raʔiis]_i] wi-miraat-u-_i kaan-uu fi-l-ḏaflah
daughter every president_i and-wife-his_i were.PL at-the-party
‘The daughter of every president and his wife were at the party.’

As is predicted, for the reviewer the equivalent of ‘Every man and his son got-in.sg’ is ambiguous between collective and distributive readings in (EA). That is, c-command is not an obligatory condition on the binding of pronouns by quantified expressions across coordination in that dialect. Without the need for c-command, Labeling should be optional here and if Labeling is optional we expect ambiguity.

5 Conclusion

I have argued in this reply that the previous accounts of Arabic conjunct-sensitive agreement are inadequate. Instead I offer analysis which explains data more completely by means of decomposed Merge. Further, a new conception of the extension condition emerges. Labeling is not relevant to 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.

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¹For the sake of continuity, in the Arabic examples used here I recruit the same quasi-IPA representation that is used by Aoun, Benmamoun, and Sportiche.

² For simplicity's sake, the generic use of *Arabic* in this paper and in the title refers to Moroccan Arabic and Lebanese Arabic. The examples in this paper are mostly from Moroccan Arabic (MA), but the generalizations extracted from this data carry over to

Lebanese Arabic (LA). I note the few examples for which the speakers differ.

³Aoun, Benmamoun, and Sportiche, an anonymous *LI* reviewer, and my informants note that singular agreement in these instances correlates with an intonation break between the conjuncts. Another reviewer disagrees with grammatical status attributed to example (8). I do not have an account for these facts, though I do address the difference between plural and singular agreement in these instances in a later section.

⁴The interpretations here hold no matter how word order and plurality marking are permuted. It should be noted that one Lebanese Arabic speaker found singular marking to unambiguously correlate with a distributive reading. I have no account for this fact. My Moroccan Arabic informants uniformly found the sentences ambiguous.

⁵See Hornstein 2009 for arguments against Chomsky's reformulation of adjunction as pair-Merge which could potentially avoid this problem.

⁶Precursors to this theory can be found in Chametzky 2000 and Uriagereka 2002 and is further discussed in Hornstein and Nunes 2008.

⁷Take the dashed line to indicate Concatenation with Labeling. Note that there is no c-command relation between the two atomic elements.

⁸The question understandably arises as to exactly what kind of syntactic object the DP+&P concatenate is. The only real distinction between it and a traditional constituent is that, being un-labeled, it cannot be targeted as a single entity or unit. Its constituent parts, the two things Concatenated, can indeed be targeted, but since the grammar can only manipulate constituents, the constituent parts cannot be addressed together in any operation.

⁹The analysis here crucially relies on syntactic movement of the subject from a VP-internal position to a VP-external one. This is an assumption that is not without controversy. Demiredache 1989 (as well as Fassi Fehri 1993 and Soltan 2006, 2007) argue that subject-verb word order in Arabic is derived via base-generation of the subject in the left periphery. I follow Aoun, Benmamoun, and Sportiche (as well as Tucker 2007) in assuming that the subject moves to spec,TP from a lower, VP-internal position.

¹⁰Harbert and Bahloul 2002 note that this does not extend to Standard Arabic. Singular agreement with reciprocals is licit. The analysis offered here cannot account for this. See Soltan 2006, 2007 for a good account for this and other Standard Arabic agreement facts. The Soltan approach is similar to the present one. He argues for the optional late Merger of coordinated subjects qua adjuncts. However, this approach cannot (among other things) account for the differences in agreement with quantifiers discussed here.

¹¹Kratzer's system is considerably more complex than this, but the idea that the nature of the arguments determines semantic features of the verb is maintained.

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