

# Against the lexical view of cumulative inferences<sup>1</sup>

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**Abstract.** Ionin and Matushansky (2002) propose, based on data from comitatives in Russian, that distributivity is associated only with the spec,TP position. In this paper, I (i) present data from the Lebanese Arabic double subject construction that supports Ionin and Matushansky’s conclusion that the availability of distributive readings is sensitive to syntactic position and (ii) argue for a novel theory of how this arises. In particular, I propose that pluralization operators are the only sources of cumulative inferences and that they are restricted in distribution such that they can only apply to predicates derived by movement and never to lexical predicates. I show that this predicts a set of facts from the double subject construction all indicating that there is a relationship between the availability of a distributive reading over a DP and whether that DP moves. This proposal argues against an influential approach where cumulativity is taken to be an inherent property of lexical predicates (Krifka, 1992; Kratzer, 2007).

**Keywords:** Plural predication, cumulative inferences, lexical cumulativity

## 1. Introduction

Ionin and Matushansky (2002) argue from the alternation between singular and plural comitatives in Russian that distributivity is associated only with the spec,TP position. In the singular comitative in (1a), only collective readings are available: (1a) is not true in a scenario where Alexandra and Boris danced alone or with different people. On the other hand, the counterpart in (1b) is true as long as both Alexandra and Boris danced. Ionin and Matushansky argue that in both (1a) and (1b), *Aleksandra s Borisom* starts out as a comitative coordination. In (1a), the first conjunct moves to spec,TP, while in (1b) the entire coordinated DP moves, thus explaining the difference in word order between (1a) and (1b). Furthermore, the verb agrees with the subject in spec,TP, giving rise to singular agreement in (1a) and plural agreement in (1b). They propose that the restriction to collective readings with singular comitatives is due to distributivity being associated only with the spec,TP position: since the coordinated DP is not in spec,TP in (1a), it can’t get distributed over.

- (1) a. **Aleksandra** tancevala **s Borisom**.  
Alexandra-NOM danced.SG.F with Boris-INST.  
Alexandra danced with Boris.
- b. **Aleksandra** s **Borisom** tancevali.  
Alexandra-NOM with Boris-INST danced-PL.  
Alexandra and Boris danced.

The Lebanese Arabic double subject construction (2a) exhibits an alternation with standard conjunction (2b) that bears a striking similarity to (1) above. The double subject construction (Mohammad, 1989; Aoun et al., 1994) is exemplified in (2a), in which there is thematically one subject (*Rasha and Hadi*), but two realized DPs: the higher subject *Rasha* and the lower

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subject *her and Hadi*. Note that the pronoun in the first conjunct agrees in person and number with the higher subject. Crucially, the double subject construction only allows for collective readings when the two conjuncts are atomic: (2a), like (1a), is only true if Rasha and Hadi danced together. This differs from the case with standard coordination in (2b), which like (1b) is true as long as both Rasha and Hadi danced.

- (2) a. **Rasha** raʔasit            **hiyye w Hadi**.  
**Rasha** danced.3SG.F **her and Hadi**.  
Rasha and Hadi danced with each other.
- b. **Rasha w Hadi** raʔaso.  
**Rasha and Hadi** danced.3PL.  
Rasha and Hadi danced.

I argue, in parallel with Ionin and Matushansky, that the only difference between (2a) and the counterpart with standard coordination in (2b) is the position of the conjoined DP: in (2a), *Rasha* moves to spec,TP, leaving behind a resumptive pronoun in its base position, while in (2b) the entire conjoined DP moves to spec,TP. This alternation manifests here with a standard conjunction rather than the comitative found in Russian. Furthermore, the presence of the resumptive pronoun provides evidence that the higher subject moved from within the coordinated DP. The double subject construction therefore supports Ionin and Matushansky's conclusion that the availability of a distributive reading is sensitive to syntactic position.

Ionin and Matushansky's account leaves unanswered the question of how it comes about that distributivity is only associated with the DP in spec,TP. In this paper, I investigate this question through looking in detail at the meaning restrictions in the double subject construction. I adopt a theory of plural predication where the pluralization operator \* (Link, 1983) is the source of the distributive reading in (2b) and argue that all pluralization operators, including \* and \*\*, can only apply to predicates derived by movement. I argue that in (2a), the conjoined DP *Rasha w Hadi* must be interpreted in its base position and therefore can't scope above a pluralization operator in order to be distributed over. On the other hand in (2b), the conjoined DP undergoes movement from its base position to spec,TP and therefore can take scope above a pluralization operator. This proposal is able to predict a range of additional data beyond the basic case in (2) and the cases that Ionin and Matushansky consider, including co-distributive readings that arise when both conjuncts are plural and the availability of distributive readings in the double subject construction in certain cases when auxiliaries are present.

I show that this conclusion that the availability of distributive readings over a DP is sensitive to the scope of that DP is incompatible with a prominent view that argues that lexical predicates are inherently pluralized (Krifka, 1992; Kratzer, 2007 a.o.). Plural predication in natural language gives rise to a certain set of inferences, called cumulative inferences. This is illustrated for 1-place predicates in (3a). One view on the source of inferences like (3a) attributes them to a universal property of lexical predicates (Krifka, 1992; Kratzer, 2007 a.o.). The generalization to draw from these examples is that whenever a predicate is true of a set of subparts of a plurality that add up to the plurality, then it is true of the plurality. This can be formalized as shown in (3b) for 1-place predicates.

- (3) a. Context: John and Mary are students.  
[[John danced]]  $\wedge$  [[Mary danced]]  $\rightarrow_C$  [[The two students danced]]

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- b. **Cumulativity universal:** For any lexical predicate  $P_{\langle\alpha,t\rangle}$ ,
- $$\forall x_{\alpha}y_{\alpha}[(P(x) \wedge P(y)) \rightarrow P(x \oplus y)]$$

Another view is that predicates are not inherently cumulative, but rather pluralization operators, which modify predicates and make them cumulative, are solely responsible for cumulative inferences. For 1-place predicates, this operator is Link's \* operator (4a). \* closes the extension of a predicate under sum formation (Link, 1983). For example, when both a and b are atomic individuals \*f(a⊕b) is true under the conditions given in (4b).

- (4) a.  $\llbracket * \rrbracket = \lambda f_{\langle\alpha,t\rangle} . \lambda x . \exists g_{\langle\alpha,t\rangle} [\forall y [g(y) = 1 \rightarrow f(y) = 1] \wedge x = \oplus g]$   
 b.  $*f(a \oplus b) = 1$  iff  $(f(a) \wedge f(b)) \vee f(a \oplus b)$ .

To see how this view generates cumulative inferences consider the example in (3a). If  $\llbracket \text{dance} \rrbracket$  is true of John (j) individually and Mary (j) individually (a),  $\llbracket * \text{dance} \rrbracket$  will be true of j and m individually but also of their sum (j⊕m). The starred predicate is therefore always true of a plurality when the unstarred predicate is true of the subparts of that plurality. Starred predicates necessary allow for distributive readings, since a starred predicate can be true of a plurality in virtue of it being true of its atomic subparts.

- (5) a.  $\llbracket \text{dance} \rrbracket = \{ j, m \}$   
 b.  $\llbracket * \text{dance} \rrbracket = \{ j, m, j \oplus m \}$

I will argue that a satisfactory account of the meaning restrictions in the double subject construction is incompatible with lexical cumulativity. Assuming that the predicate  $\llbracket \text{dance} \rrbracket$  applies to the plurality denoted by *her and Hadi* in (2a), lexical cumulativity incorrectly predicts that we should get a distributive reading in (2a). In particular, lexical cumulativity would ensure that (2a) is true as long as it is true that Karim danced and that Rasha danced, therefore incorrectly predicting that (2a) is true in a distributive scenario where Karim and Rasha danced with different people or alone. On the other hand, the proposal I argue for assumes that pluralization operators are the only sources of cumulative inferences. Therefore, by ensuring that pluralization operators can't scope below the lower conjoined DP in (2a), we can predict the restriction to collective readings in the double subject construction.

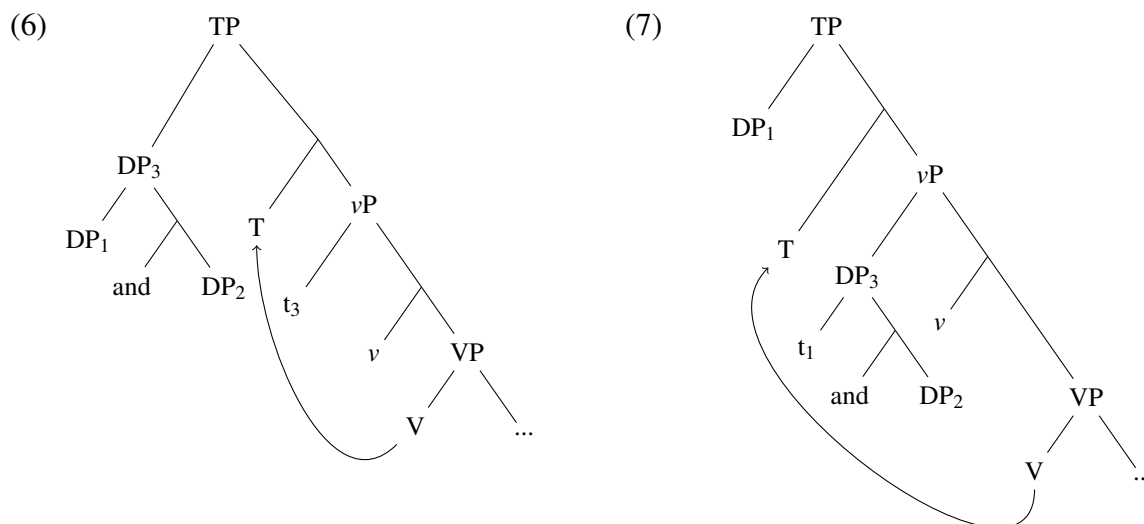
The rest of the paper is structured as follows. In section 2, I argue for a set of syntactic assumptions regarding the double subject construction and show the differences in meaning between the double subject construction and standard coordination when the two conjuncts are atomic. In section 3, I present my initial proposal and extend it to cases where the two conjuncts are plural. In section 4, I discuss the interplay between restrictions on movement and on the distribution of pluralization operators required to derive the LFs proposed in section 3 and argue for the restriction that pluralization operators can only apply to derived predicates. Section 5 concludes by discussing further implications of my proposal beyond cumulative inferences.

## 2. The LA double subject construction

### 2.1. Syntax of the double subject construction

In this section, I argue that the double subject construction and the counterpart with standard coordination have the structures in (6) and (7) respectively. In particular, the conjoined DP is always base-generated in spec,vP. In the double subject construction, the first conjunct moves to spec,TP, leaving behind a resumptive pronoun which is pronounced in the

base position. On the other hand, in the counterpart with standard coordination, the whole conjoined DP moves to spec,TP and nothing is pronounced in the base position. Additionally, the verb moves from V to T in both. This derives the word orders we observe in (2a) and (2b)<sup>2</sup>.



There is syntactic evidence that both the higher and lower DPs in the double subject construction are in fact in subject positions. One might wonder whether the double subject construction simply involves topicalization or left-dislocation rather than movement of the first conjunct to spec,TP. Two pieces of evidence show that the higher DP does in fact move to a subject position (spec,TP). First, the verb in the double subject construction obligatorily agrees with the higher DP, as illustrated in (2a) above, but verbs don't in general agree with topicalized DPs in LA<sup>3</sup>. Additionally, negative quantifiers can't be topicalized (Cable, 2010), as shown in (8b) for LA, but a negative quantifier can be the higher subject of the double subject construction (8a).

- (8) a. wala telmiz daras howwe w Hadi.  
 no student study.PFV.3SG.M him and Hadi.  
 No student studied with Hadi.  
 b. \*wala telmiz, Rima hikit maʕ-o.  
 no student, Rima talk.PFV.3SG.F with-him.

As for the lower DP, we can also show that it is in a subject position, as evidenced by the fact that it can also be the target of an agreement probe when auxiliaries are present, and it can control the subject of an obligatory subject control verb, such as *try*. As shown in (9), when the lower subject precedes the verb (this happens when auxiliaries are present), the verb can agree with the lower subject. In (10), we see that the lower subject can control a PRO in the embedded subject position of the obligatory subject control verb 'try'. The coordinated DP in (10) is in the higher clause, as shown by the fact both Hadi and Karim are both the agents of *try*. I therefore conclude that the lower DP is also in a subject position (spec,vP).

<sup>2</sup>Note that word order is somewhat flexible in Lebanese Arabic, so other word orders are available in (2a) and (2b). I will not discuss the issue of how alternative word orders are derived in this paper.

<sup>3</sup>There is evidence that what we see in (2a) is not first conjunct agreement, which would be a possible confound here. In particular, first conjunct agreement is not possible when modifiers which require a plural subject, like *together*, are present (Aoun et al., 1994), but with the double subject construction we obligatorily get agreement with the higher subject even when *together* modifies the verb.

- (9) Karim ke:n                      howwe w   Hadi ʕam   yilʕabo  
 Karim be.PFV.3SG.M him      and Hadi PROG play.3PL  
 Karim and Hadi were playing.
- (10) Karim jarrab                    howwe w   Hadi yhaddro   ʕasha.  
 Karim try.PFV.3SG.M 3SG      and Hadi make.3PL dinner.  
 Karim and Hadi tried to make dinner.

I have therefore provided evidence that for the trees assumed in (6) and (7). Note that the only difference between the double subject construction and standard coordination under these assumptions is whether the first conjunct or the entire conjoined DP moves to spec,TP.

## 2.2. Meaning restrictions

This section discusses a preliminary set of meaning restrictions that arise in the double subject construction. I show that when the two conjuncts denote atomic individuals, only collective readings are available. To illustrate this, I begin by considering the behavior of the double subject construction with a class of predicates that are underspecified with respect to whether they give rise to a distributive or collective interpretation. One classical example of such a predicate is *lift the piano*. Consider the example in (11) where *lift the piano* is predicated of a plural DP. (11) can be true in either the collective scenario in 1 or the distributive scenario in 2.

- (11) The two students lifted the piano.  
 a. **Scenario 1:** The two students lifted the piano together.  
 b. **Scenario 2:** Each of the two students independently lifted the piano.

The analogous example to (11) where the subject is a conjoined DP again can be true in either a distributive or collective scenario. This is shown with standard conjunction in Lebanese Arabic in (12). This parallel between definite plurals and conjoined DPs motivates an analysis of DP conjunction as denoting a plural individual <sup>4</sup>.

- (12) Rasha w   Hadi himlo                      l   piano.  
 Rasha and Hadi lift.PST.PFV.3PL the piano.  
 Rasha and Hadi lifted the piano.  
 a. **Scenario 1:** Rasha and Hadi lifted the piano together.  
 b. **Scenario 2:** Rasha walked in and lifted the piano by herself and then Hadi came in later and lifted the piano by himself.

Unlike standard coordination in (12), the double subject construction only allows for the collective reading. As shown in (13) <sup>5</sup>, the counterpart of (12) with the double subject construction can only be true in a scenario where Rasha and Hadi lifted the piano together <sup>6</sup>. Given that we have been assuming that the only difference between standard coordination and the double

<sup>4</sup>See Schein (2017) for an alternative which argues *and* is always a sentential connective.

<sup>5</sup>The order of object (*the piano*) and the lower DP (*him and Hadi*) in (13) is interchangeable.

<sup>6</sup>Several speakers reported that the string in (13) does allow for a distributive reading if there is a pause after *piano* and focus on the pronoun *hiyye*. There is evidence that this is a completely different construction, which could potentially be due to ellipsis. For example, this reading is no longer available when the conjoined DP is in the scope of a negative quantifier, as in (8a), or in a polar question, while the standard collective reading with the double subject construction remains in these environments.

subject construction is the scope of the conjunctive DP, this difference in meaning is surprising. In particular, taking the double subject construction at face value, we can conclude that the availability of distributive readings must be sensitive to scope.

- (13) Rasha himlet l piano hiyye w Karim.  
 Rasha lift.PST.PFV.3SG.F the piano her and Karim.  
 Rasha lifted the piano with Karim.
- a. **Scenario 1:** Rasha and Hadi worked together to lift the piano.
  - b. **#Scenario 2:** Rasha walked in and lifted the piano by herself and then Hadi came in later and lifted the piano by himself.

The double subject construction shows similar restrictions with other predicates. To illustrate this with a simple predicate, consider the examples with *dance* in (14) and (15). Again, we see that the standard coordination can be true in either a scenario where the Rasha and Hadi danced together or in one where they each danced alone or with different people. On the other hand, the double subject construction is only true in **Scenario 1** where they danced together.

- (14) **Scenario 1:** There was a party and Rasha and Hadi danced together.
- a. Rasha w Hadi raʔaso.  
 Rasha and Hadi danced.3PL.  
 Rasha and Hadi danced
  - b. Hadi raʔas howwe w Rasha.  
 Hadi danced him and Rasha.  
 Hadi danced with Rasha.
- (15) **Scenario 2:** There was a party; Rasha and Hadi danced with different people.
- a. Rasha w Hadi raʔaso.  
 Rasha and Hadi danced.3PL.  
 Rasha and Hadi danced
  - b. #Hadi raʔas howwe w Rasha.  
 Hadi danced him and Rasha.  
 Hadi danced with Rasha.

The data discussed so far in which the two conjuncts are singular parallels how Ionin and Matushansky (2002) characterize the meaning restrictions imposed by singular comitatives in Russian. It is not obvious how the Lebanese Arabic double subject construction can be attributed to such a comitative construction. In particular, *w* is used for standard cases of conjunctions, and Lebanese Arabic does have a dedicated comitative preposition *maʕ*, shown in (16a). Unlike *w*, *maʕ* can't intervene between two DPs (16b), suggesting that it is a VP rather than a DP adjunct.

- (16) a. Rasha ʔakalit maʕ Hadi.  
 Rasha ate.3SG.F with Hadi.  
 Rasha ate with Hadi.
- b. \*Rasha maʕ Hadi ʔakalo.  
 Rasha with Hadi ate.3PL.

We can reasonably conclude that the only difference between standard coordination and the double subject construction in Lebanese Arabic is the scope of the lower subject. In order to capture the meaning restrictions in the double subject construction, we therefore have to have a theory where whatever is responsible for distributive readings is sensitive to the scope of the subject. In the next section, I develop such an analysis, based on Ionin and Matushansky (2002) proposal where distributivity is taken to be associated with the spec,TP position.

### 3. Proposal

I will start by outlining a baseline theory of plural predication. I assume that predicates enter the derivation unpluralized and therefore that lexical cumulativity does not hold. Unpluralized

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predicates can still apply to pluralities, and there can be lexical restrictions on when an unpluralized predicate is true of a plurality. To make things more concrete, consider a predicate like  $\llbracket \text{lift the piano} \rrbracket$ . This view predicts that the cumulative inference in (17) doesn't hold. Nevertheless,  $\llbracket \text{lift the piano} \rrbracket$  can be true of a plurality under certain conditions (those where the plurality collectively lifted the piano).

$$(17) \quad \llbracket \text{lift the piano} \rrbracket(a) \wedge \llbracket \text{lift the piano} \rrbracket(b) \not\rightarrow \llbracket \text{lift the piano} \rrbracket(a \oplus b)$$

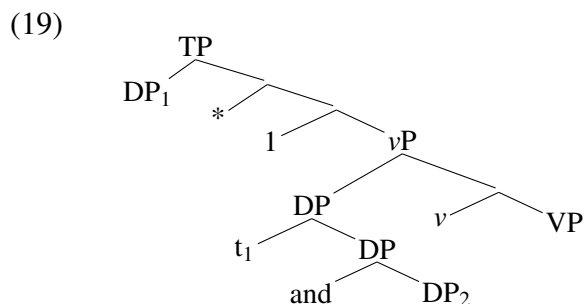
Given this view where lexical predicates are not cumulative, pluralization operators must be the sources of cumulative inferences. I assume that pluralization operators, like  $*$ , are present in the syntax and are solely responsible for cumulative inferences with plural predication. The lexical entry for  $*$  is repeated in (18), where  $\oplus g$  denotes the sum of all  $x$  s.t.  $g(x)=1$ .

$$(18) \quad \llbracket * \rrbracket = \lambda f_{\langle e,t \rangle} . \lambda x . \exists g_{\langle e,t \rangle} [\forall y [g(y) = 1 \rightarrow f(y) = 1] \wedge x = \oplus g] \quad (\text{Link, 1983})$$

Under this view of plural predication, the meaning restrictions in the double subject construction can be made to follow from ensuring that the lower subject can't take scope above a  $*$  operator. In what follows, I begin to outline a theory that delivers this result. As mentioned in the introduction, my proposal adopts from Ionin and Matushansky the idea that only the higher DP in spec,TP can be distributed over but embeds this within a particular theory of how distributive readings arise compositionally and what restricts the availability of distributivity. I show in this section that this proposal is able to explain the basic cases where the second conjunct is atomic (S 3.1), in addition to what happens when the second conjunct is plural, where I argue that the second conjunct can QR and take scope above a pluralization operator (S 3.2).

### 3.1. Preliminary proposal

I propose the preliminary LF in (19) for the double subject construction. The higher subject is in spec,TP, while the pronoun in the first conjunct is locally bound below the  $*$  operator. Crucially,  $*$  takes scope below the higher subject but above the lower subject in the double subject construction. On the other hand, with standard coordination, the coordinated subject in spec,TP scopes above  $*$ . I propose that  $*$  can only apply to predicates derived by movement, therefore ruling out an alternative LF where  $*$  applies directly to the VP below the conjoined DP in spec,vP. I will return in section 4 to the questions of how we ensure that conjoined DP in (19) can't move and take scope above a  $*$  operator and why an alternative theory where we simply stipulate that  $*$  has to be right below spec,TP makes incorrect predictions.



While the LF in (19) can be derived by movement of the lower subject to a position higher than  $*$  and predicate abstraction below  $*$  (following a similar derivation to Sauerland, 1998; Beck and Sauerland, 2000), the relationship between the higher and the lower subject does not have

to be due to movement. In particular, it could be that the higher subject is externally merged and the lower pronoun bound by an abstractor below the \* operator. This has the advantage of avoiding a violation of the coordinate structure constraint (CSC), which bans movement out of a conjoined DP. In particular, one might have thought that what licenses movement out of the first conjunct in the double subject construction is the presence of a resumptive pronoun in the position of the lower copy, but resumptive pronouns do not seem to be able to rescue CSC violations in general, as shown in (20) for LA.

- (20) \*maʕ min ʔakalit Rasha howwe w Hadi?  
 With who eat.PFV.3SG.M Rasha him and Hadi?

We are now in a position to evaluate how the meaning restrictions when the lower conjunct is singular follow from this account. I assume, following Link (1983), that in a conjunction of two individuals,  $\llbracket \text{and} \rrbracket$  takes the two individuals as arguments and returns their sum (21)<sup>7</sup>. The truth-conditions in (22a) and (22b) are predicted for the standard coordination and the double subject construction respectively when the two conjuncts are atomic. In particular, in the double subject construction, the unpluralized predicate applies to the plurality, but in standard coordination, the pluralized predicate  $\llbracket *VP \rrbracket$  applies to the plurality.

(21)  $\llbracket \text{and} \rrbracket = \lambda x. \lambda y. x \oplus y$

- (22) a. **Normal coordinated subject:**  
 $\llbracket \text{Karim and Hadi} [* 1 [t_1] VP] \rrbracket = 1$  iff  $(*\lambda x. \llbracket VP \rrbracket (x))(k \oplus h) = 1$   
 iff  $\llbracket *VP \rrbracket (k \oplus h) = 1$  iff  $\llbracket VP \rrbracket (k \oplus h) = 1 \vee (\llbracket VP \rrbracket (k) = 1 \wedge \llbracket VP \rrbracket (h) = 1)$
- b. **Double subject construction:**  
 $\llbracket \text{Karim} [* 1 [t_1 \text{ and Hadi}] VP] \rrbracket = 1$  iff  $(*\lambda x. \llbracket VP \rrbracket (x \oplus h))(k) = 1$   
 iff  $\llbracket VP \rrbracket (k \oplus h) = 1$

Looking at the examples with *dance*, repeated in (23), we can now predict the differences in truth-conditions between standard coordination and the double subject construction. As shown in (24a), (23a) is predicted to be true if either  $\llbracket \text{dance} \rrbracket$  is true of both Rasha and Hadi or if it is true of the plurality denoted by the conjunction. On the other hand, (23b) is predicted to be only true if  $\llbracket \text{dance} \rrbracket$  is true of the plurality (24b). If we assume that  $\llbracket \text{dance} \rrbracket$  is true of a plurality if and only if the plurality collectively participated in the dancing (i.e. danced together), we predict the differences in truth-conditions between (23a) and (23b): (23b) can only be true if Rasha and Hadi danced together (Scenario 2) while (23a) can also be true when  $\llbracket \text{dance} \rrbracket$  is true of Rasha and Hadi separately (for example, in Scenario 1). Crucially, this account allows the unpluralized predicates to be true of a plurality under a restricted set of conditions, here in the collective scenario.

- (23) a. Rasha w Hadi raʔaso.  
 Rasha and Hadi danced.  
**Scenario 1:** Rasha and Hadi danced with different people.  
**Scenario 2:** Rasha and Hadi danced together.

<sup>7</sup>Note that we need to rule out the availability of an alternative LF with a Boolean  $\llbracket \text{and} \rrbracket$ , where the two conjuncts are lifted to GQs, an operation that is arguably independently needed for coordinated DPs like *Mary and every professor* (Link, 1987). This LF would give rise to a distributive reading regardless of the scope of the conjunction. One possibility is that lifting individuals of type e to GQs is only available when a DP of type e and a quantifier DP are being conjoined, but this issue deserves more careful consideration.



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- b. Rasha raʔasit hiyye w Hadi.  
 Rasha danced her and Hadi.  
**#Scenario 1:** Rasha and Hadi danced with different people.  
**Senario 2:** Rasha and Hadi danced together.

- (24) a.  $\llbracket (23a) \rrbracket = 1$  iff  $(\llbracket \text{dance} \rrbracket(r)=1 \wedge \llbracket \text{dance} \rrbracket(h)=1) \vee \llbracket \text{dance} \rrbracket(r \oplus h)=1$   
 b.  $\llbracket (23b) \rrbracket = 1$  iff  $\llbracket \text{dance} \rrbracket(r \oplus h) = 1$

These restrictions on when a predicate can be true of a plurality are incompatible with lexical cumulativity. Taking the example with *dance* in (23b), we clearly see that the cumulative inference does not hold over the lower conjunction (25): the predicate  $\llbracket \text{dance} \rrbracket$  applies to the plurality  $r \oplus h$  in (23b), and in the scenario given in (25),  $\llbracket \text{dance} \rrbracket$  is true of Rasha (r) (25a) and true of Hadi (h) (25b) without it being true of their sum ( $r \oplus h$ ) in the double subject construction. We therefore see that under the syntactic assumptions I motivated above, we can't account for the restrictions while maintaining lexical cumulativity.

- (25) Scenario: Rasha and Hadi danced with different people.  
 a. Rasha danced: True  
 b. Hadi danced: True  
 c. Rasha danced her and Hadi: Not True

One possible response in defense of lexical cumulativity is that there is an ambiguity in the lexical entry of *w* (*and*) rather than a difference in scope that is responsible for the meaning differences between the double subject construction and standard coordination. Under this account, there would be two different lexical entries for *w*, where the one used in the double subject construction somehow blocks a distributive interpretation. I return to this question in section 4 and show that distributive readings are in fact available in the double subject construction under certain conditions where the lower subject can take scope above a \* operator. This shows that it is not any idiosyncrasy of this construction that forces the collective reading but rather the fact that the lower subject has to scope below \* in the cases we have seen so far.

Since the predicate applies to the conjoined DP before \* applies, the double subject construction provides us a window to directly observe the lexical meaning of predicates before they are pluralized, something which is not possible in a language like English where the subject always scopes higher than the \* operator. In order to identify underspecified or collective predicates in English, the standard diagnostic is to test whether the predicate can be true of a plurality without being true of the atomic parts of that plurality. For example, in (26), *lift the piano* is true of *John and Mary* ( $j \oplus m$ ) without being true of *John* (j) and *Mary* (m) individually. We can therefore conclude that  $\llbracket \text{lift the piano} \rrbracket$  can be true of plural individuals when unpluralized.

- (26) Scenario: Mary and John lifted the piano together.  
 a. Mary and John lifted the piano.  
 b. # Mary lifted the piano.  
 c. # John lifted the piano.

It is possible that there is a class of predicates which can be true of plural individuals when unpluralized but nevertheless gives rise to distributive inferences, making it impossible to identify them in the same way as *lift the piano* above. Consider the example with *eat* in (27). We know that *eat* licensed distributive inferences such that whenever *John and Mary ate* is true, *John ate*

and *Mary ate* are also true. Therefore, we can't test whether unpluralized  $\llbracket \text{eat} \rrbracket$  can be true of a plurality with the test used above for *lift the piano*. It could be that  $\llbracket \text{eat} \rrbracket$  can only apply to atomic individuals (27a) or that  $\llbracket \text{eat} \rrbracket$  applies to pluralities too under certain conditions (27b). When  $\llbracket \text{eat} \rrbracket$  is pluralized, these two lexical entries are collapsed, so we can't directly detect in English whether  $\llbracket \text{eat}_1 \rrbracket$  or  $\llbracket \text{eat}_2 \rrbracket$  corresponds to the correct lexical entry for *eat*.

(27) Scenario: John and Mary ate together.

- a.  $\llbracket \text{eat}_1 \rrbracket = \{j, m\}$
- b.  $\llbracket \text{eat}_2 \rrbracket = \{j, m, j \oplus m\}$
- c.  $\llbracket * \text{eat}_1 \rrbracket = \llbracket * \text{eat}_2 \rrbracket = \{j, m, j \oplus m\}$

The double subject construction allows us to distinguish  $\llbracket \text{eat}_1 \rrbracket$  from  $\llbracket \text{eat}_2 \rrbracket$ . In (28), we see that *Karim ate him and Rasha* is true in a scenario where Karim and Rasha ate together but not in a scenario where they ate separately. This shows that unpluralized  $\llbracket \text{eat} \rrbracket$  can be true of a plurality but only when the plurality ate together. Thus, we can conclude that *eat* is in fact an underspecified predicate in that it can be true of both atomic individuals and pluralities when unpluralized, such that  $\llbracket \text{eat}_2 \rrbracket$  corresponds to the correct extension in (27).

(28) Karim ?akal howwe w Rasha.

Karim ate him and Rasha.

Karim ate with Rasha.

- a. **Scenario 1:** Karim and Rasha ate together.
- b. **# Scenario 2:** Karim and Rasha ate separately.

The account proposed here predicts that we should be able to get a distributive reading over the higher subject in the double subject construction. This is because the higher subject takes scope above the \* operator. This prediction is borne out, as shown in (29). (29) is true in Scenario 1, where there is distributivity only over the higher subject and in Scenario 2, where the 3 individuals collectively lifted the piano. On the other hand, it is not true in Scenario 3, which requires distributivity over each of the 3 individuals. This is exactly what is predicted, as shown by the truth-conditions in (30). In particular, (29) is predicted to be true if  $\llbracket \text{lift the piano} \rrbracket$  is true of the plurality  $r \oplus h \oplus k$  or if it is true of  $r \oplus k$  and  $h \oplus k$  separately.

(29) Rasha w Hadi himlo 1 piano henne w Karim.

Rasha and Hadi lift.PST.PFV.3PL the piano them and Karim.

Rasha and Hadi lifted the piano with Karim.

- a. **Scenario 1:** Rasha and Hadi each lifted the piano with Karim.
- b. **Scenario 2:** Rasha, Hadi and Karim lifted the piano together.
- c. **# Scenario 3:** Rasha, Hadi and Karim each lifted the piano separately.

(30)  $\llbracket (29) \rrbracket = 1$  iff  $(*(\lambda x. \llbracket \text{lift-the-piano} \rrbracket (x \oplus k))(r \oplus h) = 1$  iff  
 $\llbracket \text{lift-the-piano} \rrbracket (r \oplus h \oplus k) \vee (\llbracket \text{lift-the-piano} \rrbracket (r \oplus k) \wedge \llbracket \text{lift-the-piano} \rrbracket (h \oplus k))$

### 3.2. Extension: when the second conjunct is plural

Assuming that the second conjunct does not move from its base position at LF, the account predicts that there can't be a distributive reading over the second conjunct in the double subject construction, since it takes scope below \*. This prediction is not borne out. Consider the example in (31). The LF proposed in (19) predicts that (31a) is true iff unpluralized  $\llbracket \text{met} \rrbracket$  is

## Against the lexical view of cumulative inferences

true of the plurality composed of Mary and all of the students. Assuming that  $\llbracket \text{met} \rrbracket$  is true of a plurality iff they all met together, we predict that (31a) should only be true if Mary met with all of the students together. In fact, (31a) is true in any scenario where Mary met with all the students, whether individually or in groups. For the distributive reading in (31) to be predicted, the DP *the students* has to QR to a position above the \* operator in order to get distributed over.

- (31) **Scenario** Mary was supposed to have 1-1 meetings with a set of students and faculty, but she only had meetings with the students.
- a. Mary jtamaʔit                      hiyye w l tle:miz.  
     Mary met.PST.PFV.3SG.F her    and the students.  
     Mary met with the students.

In cases where both of the conjuncts are plural, we get co-distributive readings with respect to the first and second conjunct positions. This will be made more explicit below, but to consider a concrete example, we see that (32a) can be true in a scenario where the actors danced with the singers in pairs. Again, if the second conjunct stays in its base position, (32a) is predicted not to be true in this scenario.

- (32) **Scenario:** Everyone had to pick partners to dance with. There were 10 actors and 10 singers and the actors all decided to pick singers as their partners.
- a. l mmasli:n raʔaso                      henne w l mitirbi:n.  
     the actors    danced.PST.PFV.3PL them   and the singers.  
     The actors danced with the singers.

Crucially, for (32a) to be true, it has to be that for every actor, there is a singer that they danced with, and for every singer, there is an actor that they danced with. This differs from the counterpart standard conjunction, which doesn't impose any requirement on who danced with who. For example, in the scenario in (33), where all of the actors and singers danced but only some actors danced with singers, the double subject construction in (33a) can't be uttered felicitously, while the counterpart standard coordination (33b) can. The double subject construction therefore seems to be imposing a restriction here which can't be captured by simply allowing distributivity over the conjunction as a whole. Instead, we seem to be maintaining the collective reading with respect to the pairs of actor-singers while allowing us to distribute to individual events of actors and singers dancing together.

- (33) **Scenario:** Everyone had to pick partners to dance with. There were 10 actors and singers and 4 of the actors decided to pick singers as their partners, while the other 6 danced with other actors, leaving the other 6 singers to pick each other as partners.
- a. #l mmasli:n raʔaso                      henne w l mitirbi:n.  
     The actors    danced.PST.PFV.3PL them   and the singers.  
     The actors danced with the singers.
- b. l mmasli:n w l mitirbi:n raʔaso.  
     The actors    and the singers   danced.

This co-distributive reading is parallel to the cumulative readings observed with transitive predicates (Scha, 1984). For example, (34) is true iff (roughly) every student killed a mosquito and (roughly) every mosquito was killed by a student<sup>8</sup>. In order to capture these cumulative read-

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<sup>8</sup>I'm putting aside the availability of non-maximal readings for the purposes of this paper.

ings, Krifka (1986) proposes that a 2-place version of the \* operator is needed, which he calls \*\*. The operator \*\* closes the extension of a 2-place predicate under sum-formation. The lexical entry for \*\* is given in (35).

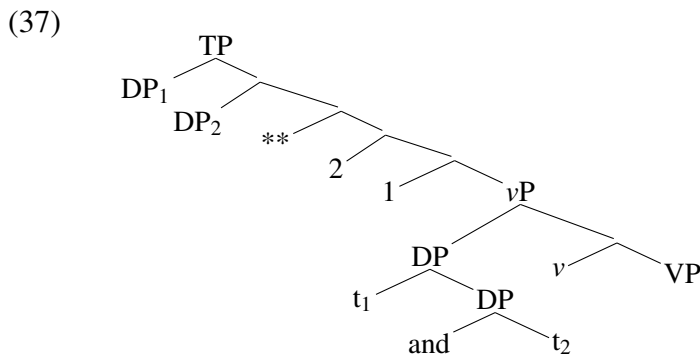
(34) The students killed the mosquitos.

$$(35) \quad \llbracket ** \rrbracket = \lambda f_{\langle e, \langle e, t \rangle \rangle} . \lambda x . \lambda y . \exists g [\forall x' , y' [g(x')(y') = 1 \rightarrow f(x')(y') = 1] \wedge x = \bigoplus \lambda x . \exists y [g(x)(y)] \wedge y = \bigoplus \lambda y . \exists x [g(x)(y)]]$$

Applying  $\llbracket ** \rrbracket$  to the predicate  $\llbracket \text{killed} \rrbracket$  in (34) predicts the co-distributive reading of (34). The truth-conditions are given in (36): there is a set of mosquitos which were killed by students in  $\llbracket \text{the students} \rrbracket$  and the sum of individuals in that set adds up to  $\llbracket \text{the mosquitos} \rrbracket$ , and there is a set of students which killed mosquitos in  $\llbracket \text{the mosquitos} \rrbracket$  and the sum of individuals in that set adds up to  $\llbracket \text{the students} \rrbracket$ . In other words, (36) is correctly predicted to be true if and only if every student killed a mosquito and every mosquito was killed by a student.

$$(36) \quad \llbracket ** \rrbracket (\llbracket \text{killed} \rrbracket) (\llbracket \text{the mosquitos} \rrbracket) (\llbracket \text{the students} \rrbracket) = 1 \text{ iff} \\ \exists g [\forall x' , y' [g(x')(y') = 1 \rightarrow \llbracket \text{killed} \rrbracket (x')(y') = 1] \wedge \llbracket \text{the mosquitos} \rrbracket = \bigoplus \lambda x . \exists y [g(x)(y)] \\ \wedge \llbracket \text{the students} \rrbracket = \bigoplus \lambda y . \exists x [g(x)(y)]]$$

The co-distributive reading therefore suggests the \*\* is at play in the cases where both conjuncts in the double subject construction are plural. I argue that the data in this section can be accounted for if we assume that the second conjunct covertly moves to a position higher than the pluralization operator, tucking in below the higher subject and creating a two-place predicate that the cumulativity operator \*\* can apply to. The resulting LF is given in (37), where \*\* applies to a two-place predicate created by predicate abstraction over the indices 1 and 2 and both conjuncts scope above \*\*. This LF is analogous to structures proposed by Sauerland (1998) and Beck and Sauerland (2000) to account for certain co-distributive readings which arise over derived predicates.



Consider now the example in (32a) (*the actors danced them and the singers*). The truth-conditions in (38) are predicted: (32a) is true iff every actor danced or is part of a plurality of actors that danced with at least one singer and every singer danced or is part of a plurality of singers that danced with at least one singer. Therefore, in a situation where some of the actors danced with each other and not with singers, (32a) is correctly predicted to not be true. The co-distributive reading over the two conjuncts is therefore correctly predicted.

$$(38) \quad \llbracket \text{the actors danced them and the singers} \rrbracket = 1 \text{ iff} \\ (** \lambda y . \lambda x . \llbracket \text{dance} \rrbracket (x \oplus y)) (\llbracket \text{actors} \rrbracket) (\llbracket \text{the singers} \rrbracket) = 1$$

There is a question here about whether covert movement of the second conjunct to create the structure in (37) is obligatory, at least when the second conjunct is plural. In particular, one could imagine that there is an alternative LF available where the second conjunct is below the \* operator at LF and where we do not get distributive readings over the second conjunct. This type of analysis will make the double subject construction ambiguous in cases where the lower subject is plural. In the cases that we have looked at so far, we can't tell whether QR of the second conjunct is obligatory. This is because in upward-entailing environments, the proposition denoted by (37) is asymmetrically entailed by the one corresponding to leaving the second conjunct in its base position <sup>9</sup>.

The LF in (37) also predicts the correct truth-conditions for the simpler cases discussed earlier. When both conjuncts denote atomic individuals, the contribution of \*\* is trivial and we get only collective readings (39). This allows us to capture the basic facts in section 2 even when \*\* is present. When one of the subjects is singular and the other is plural, we correctly predict that we can get distributivity only over the plural conjunct but not the conjunction as a whole, as shown in (40). This allows us to predict that we can get a distributive reading over the second conjunct in cases like (31).

(39)  $(**\lambda y.\lambda x.f(x\oplus y))(b)(a) \leftrightarrow f(a\oplus b)$ , when *a* and *b* are atomic individuals.

(40)  $(**\lambda y.\lambda x.f(x\oplus y))(b)(a) \leftrightarrow (*\lambda y.f(a\oplus y))(B)$ , when *a* is an atomic individual but *B* is a plurality.

The final theory adopted here requires covert movement out of the second conjunct, which raises the issue of how this CSC-violating movement is licensed. While I won't be able to offer a satisfactory answer to why the CSC can be violated in the double subject construction, I provide independent evidence that covert movement of the second conjunct is in fact licensed. In particular, when the two conjuncts are quantifiers, we can get both surface scope readings where the quantifier in the first conjunct scopes over the one in the second conjunct and inverse scope reading where the quantifier from the second conjunct takes the higher scope. This is illustrated in (41). Given that QR out of the second conjunct is independently needed to account for cases like (41), this provides support for the account proposed in this section, where the second conjunct QRs.

(41) 3 tle:miz jtamaŋo henne w kel ?iste:z.  
3 students met them and every teacher.

**Surface scope reading:** 3 students are such that they met with every teacher.

**Inverse scope reading:** Every teacher is such that 3 students met with them.

#### 4. Deriving the desired LF

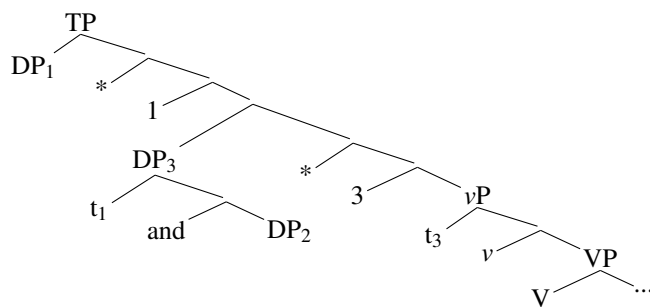
In section 3, I proposed that the correct truth conditions for the double subject construction are predicted given an LF where the pluralization operator must scope above  $\nu$ P and the conjoined DP is interpreted in its base position in  $\text{spec},\nu$ P. The success of the proposal therefore relies on the assumption that the conjoined DP can't move out of  $\nu$ P to a position where it can be interpreted above a \* operator. In this section, I will consider in more detail what restrictions on

<sup>9</sup>This relates to a larger question of whether plural DPs must always move to a position above a pluralization operator. In order to answer this, we have to consider the behavior of the double subject construction in downward-entailing environments, which I'm doing in ongoing work.

movement and on the distribution of \* are required to ensure that the lower subject must always be interpreted below \* in the cases we have looked at so far. I argue that the conjoined DP in the basic cases can't move out of its base position due to independently motivated constraints on movement, and I present further data where the conjoined DP can in fact move from its base position in the double subject construction and where we do get a distributive reading.

Given that the second conjunct can QR to a position above \* in (37), this raises the question of why the conjoined DP can't QR to an intermediate position between spec,vP and the higher subject in spec,TP, where it can be interpreted above a \* operator. An example of such an LF is given in (42). Note that the LF in (42) would incorrectly predict a distributive reading for the double subject construction, since the conjoined DP scopes above a \* operator.

(42)



One direct way to rule out the LF in (42) is to stipulate that in each clause, there is a single position in the clausal spine where \* can be inserted, such that \* can only occur below the higher spec,TP in (42). This would predict that when there are distributive readings over multiple DPs in a single clause, the DPs have to move above a single n-place starred predicate, creating a structure like (37). This ensures that the conjoined DP can't move to a position where it can be distributed over. Namely, if there is a single \* operator below DP<sub>1</sub>, the conjoined DP (DP<sub>3</sub>) would have to move above that operator to be distributed over, but this requires DP<sub>3</sub> to move above the binder index 1, and we would end up with an unbound trace (t<sub>1</sub>) at LF.

The initial explanation proposed above commits us to a very stringent requirement on the distribution of \*. I will argue for an alternative below, where LFs like (42) are ruled out by a generalized version of the ban on improper movement in the examples we have seen so far. This allows us to maintain a less stringent requirement on the distribution of pluralization operators, where they can apply to any predicate derived by movement. The explanation I propose predicts that when there are intermediate A-positions between spec,vP and spec,TP, an LF like (42) should be licensed. I argue that this prediction is borne out when auxiliaries are present, where we can get a distributive reading over the conjoined DP in the double subject construction under certain conditions.

I assume that there is an agreement probe on T which has an EPP feature. When the subject is not a coordinated DP, the probe always agrees with the subject in spec,vP and moves it to spec,TP. When the subject is a conjoined DP, the probe can optionally target either the first conjunct or the entire conjoined DP, triggering movement of whichever DP it targets. Therefore, in the double subject construction, the probe targets the first conjunct, moving it to spec,TP and the verb agrees with the first conjunct. On the other hand, with standard conjunction, the probe targets the entire conjoined DP, which moves to spec,TP. This explains the correlation we see between agreement and whether the first conjunct or the whole coordinated DP moves.

Crucially, this movement from spec,vP to spec,TP is an instance of A-movement.

In order to derive an LF like (42), the conjoined DP has to first QR to an intermediate position between spec,vP and spec,TP and then the first conjunct has to move to spec,TP. Note that the first step of this movement would be an instance of A-bar movement, while the second, which is triggered by the agreement probe on T is an instance of A movement. This kind of derivation has been independently argued to be unlicensed, violating a generalized version of the ban on improper movement which targets sub-extraction. In particular, chains of movement where A movement targets a sub-constituent of a phrase which has undergone A-bar movement have been argued not to be licensed (43) (Sakai, 1994; Abels, 2007; Keine, 2020).

(43) **Improper sub-extraction:** A-extraction out of an A-bar moved constituent is not possible.

Note that this ban on the LF in (42) relies on an assumption that the first step of movement where the conjoined DP moves to an intermediate position is an instance of A-bar movement. If the conjoined DP can move to an intermediate A-position between spec,vP and spec,TP, there would be no violation of (43) and we would be able to get a distributive reading in the double subject construction. This commits us to a strong position about the availability of intermediate A positions<sup>10</sup>. I will argue below that when auxiliaries are present, they make available intermediate A-positions, licensing an LF like (42) where the lower subjects moves to an intermediate position and gets distributed over.

Consider the example in (44). (44) makes available a distributive reading in the double subject construction, as shown by the fact that it is true in the distributive scenario below, where Rasha and Hadi are dancing with different people. I propose that this is due to the presence of the auxiliary, which makes available an intermediate A position for the coordinated DP to move to, thus allowing it to take scope above a \* operator. In (44) the verb can also optionally agree with the higher subject *Rasha*, but in this case the distributive reading is no longer available. We therefore see a correlation between agreement and the availability of the distributive reading.

(44) **Scenario:** Rasha and Hadi were both dancing yesterday but with different people.  
 Rashe ke:nit hiyye w Hadi ʕam yiriso mbe:rih.  
 Rasha was.3SG.F her and Hadi PROG dance.3PL yesterday.  
 Rasha and Hadi were dancing yesterday.

Note that in (44) we still have the double subject construction, but there is an added auxiliary present *ke:nit* and the lower subject intervenes between the auxiliary and the main verb. Note also that the auxiliary and verb mismatch in agreement: the auxiliary agrees with the higher subject *Rasha*, getting third-person singular marking, while the main verb agrees with the lower conjoined DP, getting third plural agreement. We therefore conclude that there are two agreement probes here, one corresponding to agreement on the verb and one corresponding to agreement on the auxiliary.

In the case where we have an auxiliary present like (44), we still see a correlation between

<sup>10</sup>An alternative is to propose that if there are intermediate A-positions they must target the same DP that the probe on T targets. If movement is always triggered by a probe, one way to implement this could be by assuming that intermediate probes on A-positions must inherit the probe on T and therefore agree with the same DP that the probe on T agrees with.

distributivity and movement. If the lower DP follows that main verb as shown in (45), the distributive reading is no longer available, as shown by the fact that (45) can't be used in the distributive scenario. Here, both the auxiliary and the main verb agree with the higher subject.

(45) **Scenario:** Rasha and Hadi were both dancing yesterday but with different people.

#Rasha ke:nit      ʕam terʔos      hiyye w Hadi mbe:riħ.  
 Rasha was.3SG.F PROG dance.3SG.F her and Hadi yesterday.  
 Rasha was dancing with Hadi yesterday.

We therefore see a correlation between movement, agreement and the availability of a distributive reading. Let's consider the two cases in (44) and (45). The availability of the distributive reading in (44) can be explained if the presence of the auxiliary makes available an additional A position. In (44), the agreement probe corresponding to the main verb targets the whole conjoined DP, moving it to the specifier position corresponding to the probe. The \* operator can therefore occur below the moved DP and the distributive reading is predicted to be available. On the other hand, in (45), since both the auxiliary and the main verb agree with the higher subject, the probe corresponding to both targets the higher subject and the conjoined DP remains in its base position. In this case, the conjoined DP can't scope above a pluralization operator and therefore only the collective reading is available in (45).

This relationship between movement of the conjoined DP and the availability of the distributive reading over that DP provides evidence for the restriction on the distribution of \* repeated in (46). In the basic cases we saw in section 2, where no intermediate A-positions are available, the conjoined DP has to be interpreted in its base position and therefore \* can't apply below it. On the other hand, when intermediate A-positions are available, as in (44) and (45), \* can apply below the lower subject if it moves to the intermediate A-position (44) but not if it stays in its base position (45). An alternative proposal that requires \* to apply specifically below spec,TP can't account straightforwardly for these facts <sup>11</sup>.

(46) **Restriction on \* :** Pluralization operators can only modify derived predicates (i.e. predicates formed by predicate abstraction).

The data with the auxiliaries therefore further solidifies the conclusion that it is the scope of the conjoined DP and not any idiosyncrasy of the double subject construction that results in the unavailability of the distributive reading, since the distributive reading is in fact available with the double subject constructions when the conjoined DP can take scope above \*.

To summarize, I argued that in the double subject construction, the higher DP undergoes A-movement out of the conjoined DP, thus requiring that the conjoined DP to stay in its base position unless intermediate A positions are available. I proposed that pluralization operators can only modify derived predicates and therefore can't apply below the conjoined DP unless it moves, thus deriving the meaning restrictions in the double subject construction. This proposed restriction on \* raises some interesting conceptual questions: why should the distribution of \* be sensitive to whether a predicate is derived by movement or not and do we see similar

<sup>11</sup>It is possible to argue that in (44), there is a bi-clausal structure, where the conjoined DP is in spec,TP of the lower clause. This would allow us to maintain a theory where \* applies specifically below spec,TP but requires additional assumptions about the structure corresponding to (44).



restrictions on \* in the nominal domain for example?

## 5. Conclusion

This paper has argued that the meaning restrictions in the double subject construction can be explained straightforwardly if we abandon lexical cumulativity and restrict the distribution of pluralization operators such that they can only apply to predicates derived by movement. The account proposed here is able to predict a range of data, including the interpretation of the double subject construction when the conjuncts are plural and the relationship between the availability of the distributive reading and whether the lower DP moves out of its base position when auxiliaries are present. In short, the availability of a distributive reading over a DP is determined by whether it can move and take scope above a pluralization operator.

I will end with some notes about how the double subject construction can be used to tease apart the contribution of pluralization operators and lexical semantics beyond cumulative inferences, which were the focus of this paper. In particular, if some property of plural predication is due to the lexical semantics of the verb, then the account proposed here predicts that it should behave the same in the double subject construction and standard coordination, since in both cases the verb applies to the plural conjoined DP. On the other hand, if it is due to the contribution of pluralization operators, then we should not observe it over the lower subject in the double subject construction which has to scope below pluralization operators. I briefly discuss one such application to homogeneity below.

The phenomenon of homogeneity is illustrated in (47): neither (47a) nor its negated counterpart in (47b) is true in a scenario where only one of Karim and Rasha danced. This apparent truth-value gap is referred to as *homogeneity*, where there seems to be a requirement that the atomic subparts of the plurality *Karim and Rasha* are homogeneous with respect to whether or not the predicate is true of them. In parallel to the debate about the sources of cumulative inferences, there is a debate about the source of homogeneity. Križ (2015) argues that homogeneity is an inherent property of lexical predicates, where roughly speaking the predicate *dance* in (47) is true of a plural individual if all atomic subparts of it danced and false if no atomic subparts of it danced. On the other hand, alternative approaches argue that pluralization operators are responsible for homogeneity (Schwarzschild, 1994; Bar-Lev, 2019).

- (47)
- a. Karim and Rasha danced is **true iff** both Karim and Rasha danced.
  - b. It is not the case that Karim and Rasha danced is **true iff** neither of them danced.
  - c. **Neither is true iff** only one of Karim and Rasha danced.

The double subject construction allows us to test whether homogeneity comes from the lexical semantics of the verb or from pluralization operators. If it is the latter, then we expect that there will be no homogeneity over the conjoined DP in the double subject construction, since the predicate that applies to the conjoined DP is unpluralized. On the other hand, if it is the former, then we expect the double subject construction and standard coordination to behave the same with respect to homogeneity. In fact, as we see in (48), there is no homogeneity over the lower conjoined DP in the double subject construction: (48) is true in scenarios where only Rasha danced, where only Karim danced and where both Rasha and Karim danced but not together. The interaction of the double subject construction with negation therefore supports a theory

