

## Two scope ambiguities in support of overt quantifier movement in European French\*

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### 1. Introduction

This paper is about a class of split-DP constructions in French involving certain nominal quantifiers and their restrictors. This construction is known as Quantification At a Distance and has been the topic of much work starting with Kayne 1975 (*see* Burnett 2009 for an overview). In (1), the quantifier *trop* ‘too much’ is pronounced next to its restrictor *de vin* (Canonical Quantification), and in (2), it is pronounced discontinuous from its restrictor, before the verb (Quantification At a Distance). The fact that the restrictor is obligatorily marked with the particle *de* (from now on *deP*), while interesting and probably crucial for a complete analysis, will not be addressed further.

- (1)    *Éva a bu trop de vin.*            (2)    *Éva a trop bu de vin.*  
Eva has drunk too.much DE wine            Eva has too.much drunk DE wine  
Éva drank too much wine.                    Éva drank too much wine.

Two kinds of analysis could derive the dependency between the operator and *deP*. Under a movement analysis, the quantifier is base-generated next to *deP* and can move overtly to a preverbal position, whereas under a base-generation analysis, the quantifier is base-generated in the position where it appears and a dependency is established between the quantifier and its restrictor. The consensus in the literature concerning QAD split-DP constructions is that they do not involve movement of the quantifier. However, the literature has not looked at cases where the quantifier in question is a comparative quantifier, henceforth CAD, as in (3).

- (3)    a.    *Éva a bu plus d' eau que de vin.*  
Eva has drunk more DE water than DE wine  
Éva drank more water than wine.

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- b. Éva a *plus* bu *d' eau* que *de vin*.  
Eva has more drunk DE water than DE wine  
Éva drank more water than wine.

The base generation account has taken the shape of an adverbial analysis in Doetjes 1997 and Burnett 2009. In those analyses, not only does the quantifier in preverbal position have scope over the VP, but it actually modifies it. Modification in CAD is not supported by any evidence. In fact, I show that certain scope facts from CAD provide support to the movement analysis against the base-generation analysis. We see cases where the comparative quantifier is interpreted below the position where it appears. The movement analysis can derive such readings using syntactic reconstruction of the comparative quantifier. No such device is available to the base generation analysis. Whether the argument for movement from CAD extends more generally to QAD is left for future work.

The structure of the paper is the following. Section 2 presents evidence from the interaction of the comparative quantifier with a modal. After characterizing the readings yielded by the different scope configurations, I show that when the quantifier appears before the modal in CAD, it can be interpreted below it, and crucially this is not the result of modal raising. In section 3, we will see that the standard of comparison in a CAD construction can be interpreted *De Dicto* with respect to an intensional predicate (that follows the comparative quantifier) and that this constitutes more evidence that quantifiers can be interpreted lower than where they appear.

## 2. DegP scope and intensional verbs

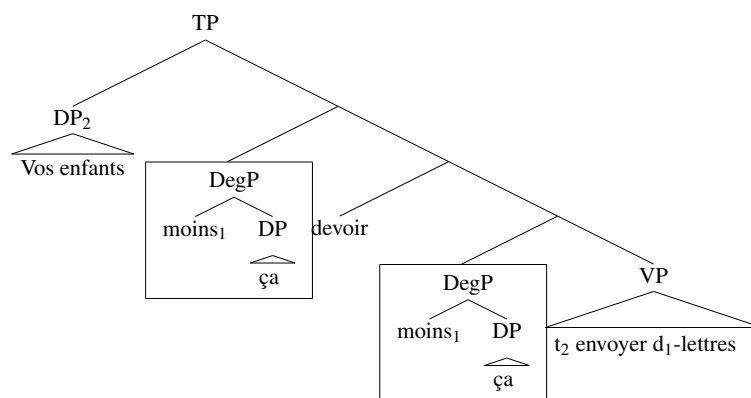
### 2.1 Ambiguity in comparatives and DegP movement

Comparatives like (4) are ambiguous. Like quantifiers over individuals can be assumed to QR, Heim (2001) argues that quantifiers over degrees need to raise for interpretation. The presence in the structure of an intensional verb creates an additional position for a quantifier to be interpreted. Thus the quantifier can be interpreted below *devoir* ‘must’ or above. These scope configurations map to two distinct sets of truth-conditions if the quantifier is downward monotonic, hence my use of *moins* ‘less’ in this section.

- (4) Vos enfants vont devoir envoyer moins de lettres que ça (= 50 letters).  
Your children go must send fewer DE lettres than this  
Your children will have to send fewer letters than that.

The surface reading of (4) *devoir* >> *moins* corresponds to the LF in (5a) where DegP moves above VP for interpretation but stays in the scope of the modal. The interpretation of this LF (5b) yields a ‘maximal requirement’ reading: your children will send fewer books than 50 in every acceptable world, *i.e.* your children will not be allowed to send more than 50 letters. It is a bit difficult to show that this reading exists independently because it entails the minimal requirement reading which corresponds to *moins* taking scope over the modal (5c), but I will show below that the two readings are indeed distinct.

(5) a.



b. Maximal requirement (devoir >> moins):

$$\llbracket \text{TP} \rrbracket = \forall w' \in \text{Acc}(w_0)$$

$$\text{Max}\{d \mid \text{Your children will send } d\text{-letters in } w'\} < 50 \text{ letters}$$

c. Minimal requirement (moins >> devoir):

$$\llbracket \text{TP} \rrbracket = \text{Max}\{d \mid \forall w' \in \text{Acc}(w_0) \text{ Your children will send } d\text{-letters in } w'\} < 50 \text{ letters}$$

The 'minimal requirement' reading (5c) corresponds to the LF in (5a) where DegP moves out of the scope of the modal. It can be paraphrased as follows: the maximal number of letters,  $d$ , such that your children will send  $d$  letters in every single acceptable world is smaller than 50, *i.e.* the minimal number of letters that your children will have to send is lower than 50. We can conclude that (4) has this reading because it is felicitous in context (6) which makes the maximal requirement reading false and the minimal requirement reading true.

(6) Minimal requirement context:

Parents are gathered together in their children's classroom for a meeting with their teachers. The children are all going to apply for an internship over the summer. One teacher tells the parents that one year, a child sent out 50 application letters. Of course, children are free to send as many or even more letters but it's also definitely not necessary for them to send as many.

We conclude that, somewhat unsurprisingly, comparative constructions in which the quantifier appears next to the gradable predicate are ambiguous (as in English). This has enabled us to identify the readings corresponding to the relative scope of *devoir* and *moins*. Now the question that this section has been building up to: when the quantifier appears before the modal in CAD, can it be interpreted below the modal?

## 2.2 Availability of reconstructed reading

Consider example (7) which is identical to the one we examined in the previous section except that the comparative quantifier now appears before the modal. We want to know where this quantifier can be interpreted, and crucially, whether it can be interpreted lower.

- (7) Vos enfants vont moins devoir envoyer de lettres que ça.  
Your children go less must send DE letters than this

First I show that this example has the minimality reading corresponding to the surface scope of *moins* and *devoir*. Recall that this reading says that the minimal number of letters that the children are required to send is less than 50. It says nothing about an upper end, leaving open that they are allowed to send more letters. The sentence has this reading because its use is felicitous in context (6) repeated in (8).

- (8) Minimal requirement context:  
Parents are gathered together in their children's classroom for a meeting with their teachers. The children are all going to apply for an internship over the summer. One teacher tells the parents that one year, a child sent out 50 application letters. Of course, children are free to send as many or even more letters but it's also definitely not necessary for them to send as many.

The maximal requirement reading corresponds to *devoir* having scope over *moins*, that is the inverse scope of what we see on the surface. It can be paraphrased as follows: the maximal number of letters that the children are allowed to send is less than 50. That such a reading is available is harder to show because it entails the minimal requirement reading: if the highest possible number is 50 then it is also true that the lowest possible number is less than 50. So the only way to show that those two readings are distinct (i.e. that there exist two different sets of truth conditions) is by having the stronger reading be false and the weaker reading true. A more complicated task needs to be used: a falsity judgment task.

In what follows, subjects were asked to judge whether a dialogue between two speakers was coherent. The scenario in (9) sets up the minimal requirement reading while making the maximal requirement reading false. The scenario tells us that two parents are talking about a parent / teacher meeting that happened earlier. Speaker A utters the test sentence in (9a). Speaker B reacts to A's utterance by denying the stronger maximal requirement reading. For the dialogue to be coherent, it has to be the case that A's utterance has the maximal requirement reading, otherwise B's denying it would not be judged coherent.

- (9) Coherence judgment task:  
Parents are gathered together in their children's classroom for a meeting with their teachers. The children are all going to apply for an internship over the summer. One teacher tells the parents that one year, a child sent out 50 application letters. Of course, children are free to send as many or even more letters but it's also definitely not necessary for them to send as many. Two parents are talking.
- a. Les enfants vont moins devoir envoyer de lettres que ça(= 50 lettres).  
The children go less must send de lettres than this

## Two scope ambiguities in support of overt quantifier movement in European French

- b. Mais c' est faux voyons ! Au contraire ... s' ils le veulent, ils  
But this is false see ! On.the contrary if they it want they  
peuvent en envoyer toutes les entreprises du pays.  
can them send to every the company in.the country  
But that's not true, come one! If they want, they can send letters to every single  
company in the country!

In a questionnaire filled out by 6 native French speakers, 4 judged that the dialogue in (9) was coherent. This along with my own intuitions suggests that when *moins* 'less' appears before *devoir* 'must', *moins* can be interpreted in the scope of *devoir*. It is difficult to interpret the other 2 judgements and a more extensive study should be conducted.

The fact that *moins* can be pronounced to the left of the modal but be interpreted beneath it is a consequence of reconstruction under the movement analysis.

### 2.3 Not about PPIhood

For the scope argument with intensional verbs to hold it is crucial that the scope-bearing element should not be able to raise covertly, otherwise covert movement of this scope-bearing element could give it scope over *moins* where it is pronounced. Modals in French have been argued not to be able to move covertly by Hacquard (2006, p. 44). A challenge is that Homer (2011, p. 217) claims that *devoir* 'must' is a PPI, which can escape out of the scope of a DE operator by moving covertly out of its scope.

Here is how the challenge might be answered. If the scope relation *devoir* >> *moins* obtained because *moins* created a DE environment in its scope that *devoir* wanted to escape, then we would expect negative polarity items to be licensed under *moins*. The examples in (10) show that NPI's are not licensed in the scope of *moins* so there is reason to think that *moins* does not create a DE environment in its scope. Therefore, according to Homer's theory, *devoir* is not antilicensed and does not need to escape.

- (10) a. \*Jean va moins faire quoi que ce soit que son frère.  
Jean goes less do anything than his brother  
b. \*Jean va moins dormir de la semaine que son frère.  
Jean goes less sleep in a week than his brother

### 3. DegP scope and De Re / De Dicto ambiguity

von Stechow (1984) and Heim (2001) show that the Russell ambiguity in (11a) is a case of *De Re/De Dicto* ambiguity. Example (11b), in which the world variable on the predicate in the DegP is locally bound, expresses the contradictory *De Dicto* reading and (11c), where that world variable is non-locally bound, expresses the coherent *De Re* reading.

- (11) a. John thinks the yacht is longer than it is.  
b. John thinks<sub>w</sub> λ w' [[-er than λ d it is d-long<sub>w'</sub> ] the yacht is d-long<sub>w'</sub> ]  
∀w' ∈ Acc(w): max {d: long<sub>w'</sub>(y,d)} > max {d: long<sub>w'</sub>(y,d)}

- c. John thinks<sub>w</sub> λ w' [[-er than λ d it is d-long<sub>w</sub> ] the yacht is d-long<sub>w'</sub> ]  
 $\forall w' \in \text{Acc}(w): \max\{d: \text{long}_{w'}(y,d)\} > \max\{d: \text{long}_w(y,d)\}$

If DegP has wide scope, the VP world variable in DegP cannot be bound by the same world variable as VP in the main clause is. These facts suggest the entailment in (12).

- (12) If a DegP is interpreted *De Dicto*, then it is in the scope of the intensional operator.  
 (Heim 2001)

Assuming that there is ellipsis and that its resolution works the same way in French as in English, this entailment can be used to provide another hint in order to know where the degree word is interpreted in French nominal comparatives. Particularly, if a *De Dicto* interpretation of DegP is available when the quantifier is pronounced before an intensional verb, then we have another hint that the quantifier can be interpreted below the verb. This crucially relies on the assumption, made in this paper, that the scope of Deg is determined by the scope of DegP (Bhatt & Pancheva 2004).

First let us look at a sentence in which the degree word *plus* ‘more’ is pronounced in CQ position below *vouloir* ‘want’ (13a)<sup>1</sup>. The sentence has both *De Re* (14) and *De Dicto* (15) readings: it is true in context (13b) and context (13c). (I am only considering narrow scope of *plus* ‘more’ relative to *vouloir* ‘want’.)

- (13) a. Jean va vouloir faire plus de kilomètres que Bill.  
 Jean goes want do more DE kilometers than Bill  
 Jean will want to drive more than Bill. (lit. do more kilometers)
- b. *De Re* context: Christine is going on holiday with several friends. Two of them don’t know each other yet: Jean and Bill. They are going to take turns driving Bill’s car: Bill has agreed to drive the first 400 km (after that, he’ll need to work in the backseat). Christine knows that Jean will want to drive for at least 500 km because he needs to complete a driving assignment in order to get his driver’s license. Christine says the sentence to a friend.
- c. *De Dicto* context: Jean and Bill are friends and they love car racing. This Saturday, they are both leaving for a car rally in the Moroccan desert. They have 5 days to go as far as possible. Jean wants to defeat all his competitors, especially Bill.

When DegP scopes below the intensional verb, the world variable on the VP may be bound either locally (*De Dicto*) or non-locally (*De Re*).

- (14) vouloir >> DegP : De Re  
 $[[S]] = \forall w' \in \text{Jean's desire}(w_0)$   
 $\max\{d: \text{Jean does}_{w'} d\text{-km}\} > \max\{d: \text{Bill does}_{w_0} d\text{-km}\}$

<sup>1</sup>I am interested in the cases where the ellipsis in the standard of comparison is *que Bill en fera* ‘than Bill will (do kilometers/drive)’.

- (15) vouloir >> DegP : De Dicto  
 $[[S]] = \forall w' \in \text{Jean's desire}(w_0)$   
 $\max\{d: \text{Jean does}_{w'} d\text{-km}\} > \max\{d: \text{Bill does}_{w'} d\text{-km}\}$

In (16), when *plus* is pronounced to the left of *vouloir* ‘want’, both the *De Dicto* and narrow scope *De Re* readings are available too: this sentence can be used felicitously in the contexts (13b) and (13c).

- (16) Jean va plus vouloir faire de kilomètres que Bill.  
 Jean goes more want do DE kilometers than Bill  
 Jean will want to drive more than Bill. (lit. do more kilometers)

That the *De Dicto* reading is available in (16) is a further hint that DegP may be interpreted lower than where it is pronounced. If *plus* were base-generated and interpreted above *vouloir* ‘want’ as (17) illustrates : the *De Dicto* reading should not be available because DegP would be out of the scope of *vouloir* ‘want’, making it impossible for the VP world variable in DegP to be bound by *vouloir* ‘want’. Alternatively, leaving DegP in the scope of *vouloir* ‘want’ makes local world variable binding possible (15) contrary to what the base-generation / adverbial analysis predicts.

- (17) \**De Dicto* truth-conditions  
 $\max\{d: \forall w' \in \text{Jean's desire}(w_0): \text{Jean does}_{w'} d\text{-km}\}$   
 $> \max\{d: \forall w'' \in \text{Bill's desire}(w''): \text{Bill does}_{w''} d\text{-km}\}$   
 This is not a possible interpretation because DegP is not in the scope of main clause *vouloir* ‘want’

In this section I have shown that *plus* ‘more’ can be interpreted below the position where it is realized. An advantage of using the *De Dicto* reading as a diagnostic of DegP low scope is that it works with all the comparative quantifiers. Once again, those facts have a straight-forward explanation if quantifiers are base-generated next to deP and move.

#### 4. Conclusion

I have presented two observations that, I argue, make an analysis in terms of overt quantifier movement plausible. Those two observations have to do with the fact that a comparative quantifier in CAD can be interpreted in a lower position than the one in which it appears. We saw that this becomes apparent in two contexts: quantifiers before certain modals can be interpreted in their scope and quantifiers before intensional verbs allow a *De Dicto* interpretation of DegP. In Pasquereau 2015, I present other arguments in favor of analyzing CAD as the result of overt quantifier movement.

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