

*Towards a unified analysis of French floating quantifiers**

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ABSTRACT

In French, a quantifier can appear in various positions outside of the NP it quantifies over, whether this NP is the subject or the (direct or indirect) object of the sentence. This phenomenon, often referred to as ‘floating’, has been investigated since the early stages of the generative framework, and several analyses have been proposed to account for both the quantifier subject and the quantifier object in a unified way. However, to my knowledge, none of them has succeeded in providing such a unified account without recourse to non-explanatory restrictions. The main aim of this paper is to propose an analysis that does not require any such restrictions. The focus will be on anaphoric quantifiers (i.e. quantifiers that have to be linked to some other argument position in order to be interpretable), the analysis of which will be shown to extend straightforwardly to pronominal and adverbial quantifiers, according to the principles of Government and Binding theory.

The study of floating quantifiers raises the broader question of how to account for locality requirements in a satisfactory way. Basically, there are two possible ways to account for the restrictions on the distribution of floating quantifiers: either they flow from derivational restrictions, or they are subject to representational restrictions. I will argue in favour of the latter.

The analysis proposed here is essentially syntactic. However, reference will be made to the semantic interpretation of various structures: the position occupied by the floating quantifier at S-structure will be shown to constrain its interpretation. The semantics of floating quantifiers will however not be investigated beyond this.

INTRODUCTION

The specific characteristic of floating quantifiers is that they can appear in various positions in the sentence, outside of the NP which they quantify over and agree with, as shown in (1)–(3)¹ below. This NP, which I will refer to as

* I would like to thank D. Adger, J. Emonds and B. Plunkett for very helpful and encouraging comments on early versions of this paper.

¹ In these examples, the NP in question is underlined and the floating quantifier appears in bold. All examples in the text are mine, unless otherwise specified.

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the ‘antecedent’ of the floating quantifier, can be either subject (as in (1)), direct object (as in (2)), or indirect object (as in (3)).

- (1) *Les éléphants_i sont tous_i partis.*
 the elephants are all-*M Pl*² gone-*M Pl*
 ‘The elephants are/have all gone.’
- (2) *Les fourmis les_i ont toutes_i piquées.*
 the ants-*F* them-*F*-have all-*F* stung-*F Pl*
 ‘The ants (have) stung them all.’
- (3) *Je leur_i ai toutes_i demandé.*
 I (to)-them-*F* have all-*F Pl* asked- *M Sg*
 ‘I asked them all.’

I will use SQ (subject quantifier) to refer to floating quantifiers whose antecedent NP is a subject (as in (1)), and OQ (object quantifier) to refer to floating quantifiers whose antecedent NP is an object (as in (2) and (3)). In the following sections, Q stands for quantifier.

Besides the anaphoric quantifiers exemplified in (1), (2) and (3), French also displays instances of pronominal floating quantifiers (as in (4)) and adverbial floating quantifiers (as in (5)).

- (4) *J’ai tout avoué.*
 I have all-*M Sg* admitted (to)
- (5) *J’ai beaucoup mangé de panais.*
 I have a-lot eaten of parsnips

In this paper, I will concentrate on the anaphoric quantifier *tou(te)s*, the analysis of which will be shown to extend straightforwardly to pronominal quantifiers as well as adverbial quantifiers.

I AGAINST AN ADVERBIAL ANALYSIS OF FLOATING QUANTIFIERS

It is often claimed in the literature that floating quantifiers appear in adverbial positions, from which it is inferred that floating quantifiers are themselves adverbs (see Kayne, 1975; Williams, 1982; Dowty and Brodie, 1984; Pollock, 1989; Hoekstra *et al.*, 1989). Such a view finds its justification in the apparently similar distribution of adverbs and floating Qs,³ and is supported by the fact

² M stands for masculine, F for feminine; Pl stands for plural and Sg for singular. When unspecified, gender and number in the French examples are similar to the one of their English translation given in the glosses.

³ Like adverbs, floating Qs cannot appear between the subject and the (finite) verb, nor between the complementiser and the subject. (i) below shows that the sentence is ungrammatical if the floating Q appears in one of these positions.

- (i) a. *Il est important que tu tous les recoues.
 it is important that you all-*M Sg* them-mend
 a’. *Il est important que tous tu les recoues.
 it is important that all-*M Sg* you them-mend

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that the floating Q seems to modify the VP in the way that some adverbs do. Kayne (1975) stresses that not only can the floating Qs occupy adverbial positions (in his view, typically the specifier of the VP), they are also banned from positions in which adverbs cannot occur.

I see two empirical reasons to reject an adverbial analysis of floating quantifiers.⁴ The first one is based on the relative distribution of adverbs and floating quantifiers, and the second on an analysis of the Canadian floating quantifier *toute*.⁵

In De Cat (in press), I investigate the distribution of French adverbs on the basis of Jackendoff's (1972) classification (originally designed for English). As pointed out by Jackendoff, only one adverb per class can be inserted in any given sentence. This is confirmed by the data provided in De Cat (in press), and permits the following reasoning: take a French sentence 'saturated' with adverbs (i.e. containing as many adverbs as possible) and then try to insert floating quantifiers. Since the output is still grammatical,⁶ this suggests that

- b. Il est important de *tous* les recoudre.
'It is important to mend them all.'

If we replace the quantifier in the above examples with an adverb, the grammaticality judgements are the same:

- (ii) a. *Il est important que tu *bien* les recoues.
it is important that you well them-mend
a'. *Il est important que *bien* tu les recoues.
it is important that well you them-mend
b. Il est important de *bien* les recoudre.
'It is important to mend them well.'

⁴ Sportiche (1988) also argues against an adverbial analysis of floating quantifiers, but I do not find his argumentation compelling. He compares the distribution of three classes of adverbs (from Jackendoff, 1972) with that of floating quantifiers, and suggests that even subject-oriented adverbs, which he presents as the closest to floating quantifiers, cannot be assimilated to the latter, for semantic reasons. I see two problems with Sportiche's analysis: first, he does not look at the fourth class of adverbs defined by Jackendoff, namely the *Merely-type* adverbs, whose distribution is closer to floating quantifiers than that of subject-oriented adverbs. Second, all the examples of adverbs are in English, when the phenomenon under analysis is French. This is based on the assumption that adverbs behave in the very same way in English and French, which is disputable (see De Cat, in press, for discussion of these two points).

⁵ The spelling *toute*, which is widely used to designate the Canadian quantifier, reflects the pronunciation /tut/ and does not indicate a feminine ending.

⁶ As shown by the contrast between the (a) sentences and their (b) counterpart, only a floating quantifier (i.e. not an adverb) can be inserted when all the adverbial slots are filled. See De Cat (in press) for a detailed argumentation.

- (i) a. Elles_i les_j avaient donc simplement toutes_i déjà tous_j vite remis à leur place.
they-F them-M-had thus simply all-F Pl already all-M Pl quickly put-back at their place
b. Elles les avaient donc simplement *patiemment déjà *furtivement vite remis à leur place.
they-F them-M-had thus simply patiently already swiftly quickly put-back at their place
(ii) a. Elles_i avaient pourtant toutes_i intelligemment tout travesti en fête catholique.
they-F had however all-F Pl cleverly all-M Sg disguised in party catholic

floating quantifiers do not appear in adverbial positions, and that there is thus no reason to postulate that floating quantifiers are adverbs.

Another possibility would be that floating quantifiers constitute an extra class of adverbs altogether, not included in Jackendoff's (1972) analysis. At first sight, an adverbial status would explain why, for speakers of Canadian French, the quantifier *toute* can appear with plural NPs (as in (6)) without agreement taking place.⁷

- (6) J'ai toute mangé les chocolats.
I have all-Sg eaten the chocolates-Pl
'I've eaten all the chocolates.'

However, this use of *toute* (pronounced /tut/ in all cases) seems to be particular to Canadian French. In standard French, adverbial *tout* can only modify an adjective, a preposition or another adverb, but not a VP, as illustrated in (7 a-d) below:

- (7) a. Elle était tout étonnée.
'She was all surprised.'
b. Viens tout près.
'Come very close.'
c. Il marchait tout fièrement dans la ville.
'He was walking very proudly in the town.'
d. *La cuisinière a tout préparé de délicieux rutabagas.
the cook has all-M Sg prepared some delicious swedes

In (7a-c), *tout* can be replaced by *vraiment*, itself an adverb. Replacing *tout* by an adverb renders (7d) grammatical:

- (8) La cuisinière a amoureusement préparé de délicieux rutabagas.
'The cook lovingly prepared some delicious swedes.'

Several facts indicate that this Canadian use of *toute* is not an instance of OQ: (i) it can appear when the object NP is in its internal VP position, which is impossible for OQs,⁸ (ii) it does not vary, and (iii) it can be replaced by the adverb *entièrement* in some cases. Consider the sentences below:

- (9) a. Il a toute pris les crayons. (Canadian French)
'He's taken all the pencils.'
b. *Il a tous pris les crayons. (standard French)
he has all-M Pl taken the pencils
c. *Il a tout pris les crayons. (standard French)
he has all-M Sg taken the pencils
(10) Il a toute mangé les écrevisses. (Canadian French)
'He's eaten all the crayfish.'

b. Elles avaient pourtant *évidemment intelligemment *vite travesti la chose en fête catholique.
they-F had however obviously cleverly quickly disguised in party catholic

⁷ For an analysis of Canadian *toute* as an adverb, see Léard & Beauchemin (1991), Junker (1995).

⁸ See section 2.1 on distribution restrictions on OQ and section 2.2.2 (on the licensing of floating quantifiers) for a detailed explanation.

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- (11) a. On a toute repeint la maison. (Canadian French)
'We've completely redecorated the house.'
or 'We've redecorated the whole house.'
b. On a entièrement repeint la maison.
'We've completely redecorated the house.'

(9 b,c) are potential equivalents to the Canadian (9a), but they are not accepted in standard French. As we will see in section 2.2.2.2, (9 b) is ungrammatical in standard French because the *tous* is not c-commanded by its antecedent (*les crayons*) and (9 c) is ungrammatical because *tout* cannot have an antecedent in its governing category. In (10), the *toute* does not vary even though the object NP is marked for feminine and plural. This suggests that *les écrevisses* is not an antecedent for *toute* in the same way as it is in standard French. In (11), *toute* appears to be synonymous with *entièrement*, and to be interchangeable with it. If invariant *tout*, as I suggest, is an adverb, all these facts are readily explained. As for the position it occupies in the sentence, I take it to be adjoined to V', like other quantifier adverbs (see section 3).

An adverbial analysis of floating Qs in general is undesirable because it would fail to characterise the differences between the Canadian French *toute* and the (standard French) floating quantifiers OQ and SQ. In this paper, I will show that the positions available to floating Qs are in fact not available to adverbs (contrary to what the examples in note 3 seem to suggest), and that adverbs, as opposed to floating quantifiers, can in fact never occupy specifier positions.

I would like to suggest that the very nature of adverbs and quantifiers prevents them from being considered syntactically identical: the one trait that infallibly distinguishes adverbs from other elements in French is their invariant nature.⁹ If we take this to be the minimal property of this class, it renders the comparison with quantifiers rather difficult: quantifiers do show some sort of agreement with their antecedent:¹⁰ they have the same gender, number and case.¹¹ For this reason I think it is contradictory to their nature to be placed in

⁹ This characteristic of adverbs is much more striking in French than in English, because of the richer inflectional system. In French, not only nouns and verbs but also adjectives and determiners vary in number and often in gender, and adverbs are commonly referred to, whether appropriately or not, as "the invariant class of words".

¹⁰ This of course does not apply to quantifier adverbs, which, like adverbs, are invariant (see section 3).

¹¹ We have seen that floating quantifiers agree in gender and number with their antecedent. Sentences like (i) below suggest that they also agree in case:

(i) Je leur_i ai (à) tous_i donné une invitation.
'I gave them all an invitation.'

The morphological system of French is not rich enough for there to be an inflection of *tous*, but the optionality of the preposition *à* indicates that *tous* does bear something like a dative case. The *à* is redundant with the (invisible) dative case, and the only function of *à* is to compensate for this "invisibility".

positions typically filled by invariant elements. If, however, the specifier positions of ν and VP respectively are available to floating Qs but not to adverbs (see analysis below), the difference between the two is captured in a principled way, all the more as specifiers are known to host elements taking part in an agreement relationship.

If floating quantifiers are not adverbs, what are they? In the next section, I will concentrate on the anaphoric quantifiers SQ and OQ, and propose an entirely unified analysis, which will be shown to account for the other types of quantifiers as well.

2 AN ANALYSIS OF ANAPHORIC QUANTIFIERS

Most analyses of the quantifier *tou(te)s* have to appeal to some non-explanatory restrictions to account for the differences of distribution of SQ and OQ. I will start by showing what those restrictions are.

2.1 Restrictions on the distribution of Object Quantifiers

As shown in section 1, floating quantifiers can be distinguished on the basis of the NP they quantify over. This NP can be either a subject or an object. The first case is exemplified here in sentences (12) and (13).

- (12) *Elles_i ont toutes_i décidé de s'inscrire.*
 they-*F* have all-*F Pl* decided to themselves-register
 'They have all decided to register.'
- (13) *Les couturières_i ont décidé de toutes_i se désinscrire.*
 the seamstresses have decided to all-*F Pl* themselves-de-register
 'The seamstresses have all decided to de-register.'

The second case, where the floating Q quantifies over the object, is exemplified here in (14)–(16) below.

- (14) *Tu as voulu toutes_i les_i mettre au grenier.*
 you have wanted all-*F Pl* them-*Pl* - (to) put in-the attic
 'You wanted to put them all in the attic.'
- (15) *Tu as toutes_i voulu les_i mettre au grenier.*
 you have all-*F Pl* wanted them-*Pl* - (to) put in-the attic
 'You wanted to put them all in the attic.'
- (16) *Je vous_i ai tous_i bien eus.*
 I you -have all-*M Pl* well had
 'I got you all.'

Contrary to SQ, OQ can float only if its antecedent is not its canonical VP internal position, as we can see from the contrast between the examples below.

- (17) * *Elles ont tous_i voulu manger les escargots_i.*
 they-*F* have all-*M Pl* wanted (to) eat the snails

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- (18) Elles ont tous_i voulu les_i manger.
they-*F* have all-*M Pl* wanted them-(to) eat
'They wanted to eat them all.'

The ungrammaticality of (17) is due to the fact that the antecedent is in its VP internal position, as opposed to grammatical (18), (19) and (20), in which the antecedent has been moved. This condition on the position of the antecedent seems at first to render OQ different to SQ. Most analyses account for these restrictions in a rather descriptive way, generally by stipulating that the object NP has to be moved to a higher position (see for instance Jaeggli, 1982; Kayne, 1975): in (19), the object is moved to a *wh*-position, and in (20), it is cliticised.

- (19) Les microbes_i, qu'elles avaient tous_i analysés, s'étaient transformés.
'The bugs, which they had all analysed, had transformed themselves.'
(20) Quand les_i ont-elles tous_i photographiés ?
'When did they photograph them all?'

In this paper, I will propose an analysis of floating Qs as anaphors that does not require any non-explanatory restrictions to account for the apparent difference between OQ and SQ in terms of position of their antecedent.

2.2 On the licensing of (anaphoric) floating quantifiers

In order to determine what allows anaphoric quantifiers to appear in their 'floating' positions, two questions have to be answered: (i) which positions permit floating? and (ii) what licenses quantifiers in those positions? I will tackle them in that order.

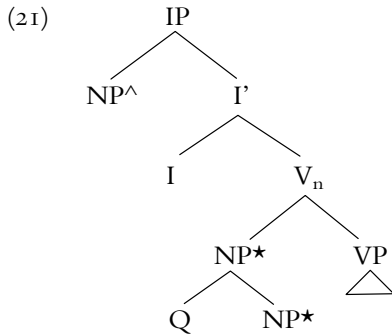
2.2.1 'Floating' positions

If we assume, as has been argued in section 1, that floating quantifiers do not appear in adverbial positions, we are faced with the following question: does their insertion require the creation of a new projection, or are they inserted in a pre-existing position? In this section, I will argue in favour of the second possibility, on the basis of Sportiche's (1988) analysis of the subject quantifier.

2.2.1.1 A discussion of Sportiche (1988)

Sportiche (1988) argues that 'floating' is the result of the movement of an NP from a position adjacent to the quantifier. In the case of the subject quantifier, that NP raises to [spec, IP] to get case, leaving the quantifier behind. The anaphoric relation is thus between the moved NP and its trace, and not between the floating quantifier and its antecedent. The structure Sportiche proposes is given in (21), where NP[^] has been moved from the lower NP* position, and where V_n¹² is a small clause containing a subject (the higher NP*) and a predicate (VP).

¹² In a Minimalist framework, V_n could be replaced by *v* ('little *v*'), in the specifier position of which agentive subjects are said to originate.



In the case of the object quantifier, the quantifier itself undergoes movement and is left-adjoined to VP. Sportiche claims this is an overt manifestation of Quantifier Raising,¹³ which does not affect subject quantifiers (that are ‘stranded’, not moved).

Sportiche argues that the distribution of floating quantifiers follows from the theory of control and the theory of the movement of NPs: if a quantifier cannot appear in a certain position, it is because there is no NP position available there, as floating quantifiers always appear adjacent to an empty NP.

The definition of positions specific to SQ and OQ enables Sportiche to account for their relative ordering in most cases:¹⁴ SQ appears in the subject base-position, and is stranded there when the subject raises to get case, while OQ appears left-adjoined to VP, so SQ always precedes OQ. This is illustrated by (22) below.

- (22) Les grammairiens_i les_j ont tous_i toutes_j condamnées.
 ‘The grammarians have all condemned them all.’

There is, however, a major problem underlying this analysis, namely the need to treat SQ and OQ differently.¹⁵ This is all the more puzzling as Sportiche claims that ‘quantifiers are of the same logical type in both floating and nonfloating structures’ (Sportiche, 1988:446). In other words, SQ and OQ are said to be different in nature because they do not have the same distribution, but determiner quantifiers (as in (23)) and floating quantifiers (as in (24)) would essentially be the same type of elements.

- (23) Tous les navires ont chaviré.
 ‘All the boats capsized.’
 (24) Les navires ont tous chaviré.
 ‘The boats all capsized.’

¹³ ‘Quantifier Raising’ refers here to the LF process postulated by May (1985) among others.

¹⁴ But see the discussion on the ‘ban on crossing’ of SQ and OQ, in section 2.4.

¹⁵ In Sportiche’s analysis, OQ is overtly ‘Quantifier Raised’, while SQ is not affected by overt movement.

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Although it is true that the interpretations of (23) and (24) overlap, they are not equivalent. (23) favours a group reading, where all the boats capsize in the same event, whereas (24) favours a ‘multiple events’ (distributive) reading. An analysis along these lines is developed in Junker (1995). Junker defines the quantifiers *tous* and *chacun* as distributivity operators, whose effect varies according to the position they occupy at S-structure in the sentence. Their role is to determine syntactically the co-domain of a distributivity function, which operates at the conceptual level. It is the position of the quantifier that constrains the interpretation. At the syntactic level, the quantifier ‘tags’ the constituent XP it is adjoined to as the co-domain of the distributivity function. At the conceptual level, the distributivity function matches each element of its domain to an element of its co-domain. A treatment of quantifiers that does not distinguish determiner quantifiers¹⁶ from floating quantifiers fails to predict their differences in interpretation.

In the same line of reasoning, it is clear that SQ and OQ should be analysed as two manifestations of a single phenomenon: in both cases, what is induced is a quantification on the event. Sportiche’s (1988) analysis, however, seems to suggest the opposite: only the object quantifier is said to undergo QR. Rightward Q-Float (i.e. the stranding of the subject quantifier), on the other hand, ‘is not a process affecting quantifiers’ (Sportiche, 1988:435). Analysing OQ as an instance of QR is theoretically undesirable, as it suggests that the interpretation of object quantifiers occurs in the syntax, whereas that of subject quantifiers is delayed until LF. Also, if the movement of OQ is an instance of QR, one still has to explain why OQ does not raise to, as is the case with overt instances of wh-movement. Sportiche (1988) provides no such explanation.

It seems to me that the necessity for Sportiche to recourse to QR is due to the absence of NP-position left-adjoined to VP, where he claims object quantifiers appear. If, however, OQ was analysed as being in the [spec, VP] position,¹⁷ this would no longer be a problem, and it would enable us to account for the distribution of object quantifiers in a principled way (see section 2.2.2.2), which Sportiche’s analysis cannot do.

2.2.1.2 Floating quantifiers appear in specifier positions

What I propose is that both SQ and OQ appear in the specifier position of the

¹⁶ My denomination of ‘determiner quantifiers’ (as illustrated in (i)) corresponds to that of Junker’s (1995) and Sportiche’s (1988), which they distinguish from ‘partitive quantifiers’ (illustrated in (ii)).

- (i) *Tous les hommes sont mortels.*
‘All men are mortal.’
- (ii) *Tout homme est mortel.*
‘Every man is mortal.’

¹⁷ In Sportiche (1988), the subject is considered to be base-generated in the specifier position of V_{in} , and VP adverbs are adjoined to V' , so nothing prevents the floating quantifier from appearing in the [spec, VP] (for an analysis of adverbs as attached at X' level, see De Cat, in press).

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constituent they quantify over. In the case of SQ, it is [spec, ν], where the subject originates, and in the case of OQ, it is the [spec, VP].¹⁸ Contrary to Sportiche (1988), I consider floating quantifiers to be elements that are referentially dependent upon another category (i.e. both SQ and OQ are anaphors). In my view, both SQ and OQ are generated in their surface position.

2.2.2 Licensing conditions

Situating SQ and OQ in the specifier positions of ν P and VP respectively does not have any explanatory value unless it is motivated by the licensing of the floating quantifiers. In this section, I show that these are licensed in these positions by a *c-command* relationship with their antecedent. Such an analysis can predict when floating is (or is not) allowed.

2.2.2.1 The problem

The idea that floating quantifiers need to be *c-commanded* by their antecedent is not new. Jaeggli (1982) and Kayne (1984), to cite but two, have suggested that floating Qs are anaphors that need to be *c-commanded*¹⁹ by their antecedent in their *governing category*, which is typically the minimal containing clause (see Chomsky, 1981:188).²⁰

For Jaeggli, it is the agreement element in floating quantifiers which is an anaphor. In order to be licensed, floating quantifiers have to be *c-commanded* by their antecedent, which is why they must be to the right of the NP they modify. Jaeggli does not envisage – and cannot account for – sentences like (25), which are grammatical in spite of the fact that the quantifier appears higher than its antecedent.

(25) Elles_i ont tous_i voulu les_i prendre.
they-*F* have all-*M Pl* wanted them-(to)take

For Kayne, there are two ways that French renders *tous* interpretable: it has to be linked to some argument position, either as an anaphor or as a quantifier. SQ is anaphoric in all cases, but OQ's status varies according to its position in the sentence. OQ, when it is higher than its antecedent, loses its anaphoric status and acquires a 'quantifier' status, as in (25). In that case, it is the floating quantifier that *c-commands* the trace of the clitic (i.e. a variable) and renders it interpretable.²¹ Kayne also has to explain why the Q can bind, qua quantifier,

¹⁸ In the Minimalist Program, [spec, ν P] is the position in which the θ -role of the subject is introduced. See Bowers (1993) and Collins (1997), among others.

¹⁹ The definition of *c-command* on which such proposals are based is the following: "A *c-commands* B if (i) A does not dominate B and (ii) any C that dominates A also dominates B".

²⁰ I come back to the definition of a governing category for floating Qs in section 2.2.2.3.

²¹ As was pointed to me by an anonymous reviewer, the trace of the clitic in (25) is still interpretable if we remove *tous* from the sentence. Either Kayne's analysis has to allow for two different mechanisms in order to interpret the trace of the clitic (depending on the presence of a floating quantifier), or it is not the floating quantifier but another type of element that renders the trace of the clitic interpretable in sentences such as (25).

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the trace of a clitic, but not a lexical NP, as shown by the contrast between sentences a and b in (26).

- (26) a. Il_i les_i a tous_i expliqués.
he them-has all-*M Pl* explained-*M Pl*
b. *Il a tous_i expliqué ces problèmes_i.
he has all-*M Pl* explained-*M Sg* those problems

The idea is that the relation between *tous* and the trace left by Clitic Placement is comparable to that holding between the quantifier NP and the pronoun in sentences such as *Everyone loves his children* where the pronoun is interpreted as a bound variable. Kayne extends this to the trace of Clitic Placement, which accounts for the grammaticality of (26a). This analysis relies crucially on the relative ordering of the floating quantifier and its antecedent, since it is what determines whether OQ behaves syntactically as an anaphor or a quantifier. It does not provide a principled explanation of why OQ should be allowed a double status, and why this does not extend to SQ.

In this section, I will propose a unified analysis of SQ and OQ, that predicts their distribution only on the basis of their licensing conditions, with no special treatment of OQ. This analysis will be shown to account for the sentences below, which are either considered problematic or unnoted in the literature. In (27 a,b) the quantifier seems to appear outside the clause containing its antecedent, and in (28) there seems to be a ‘ban on crossing’ of the floating quantifiers.

- (27) a. Elles_i ont tous_j voulu les_j renier.
they-*F Pl* have all-*M Pl* wanted them-(to)renounce
b. Elles_i ont voulu toutes_i les_j renier.
they-*F Pl* have wanted all-*F Pl* them-(to)renounce
(28) *Elles_i ont tous_j voulu toutes_i les_j renier.
they-*F* have all-*M Pl* wanted all-*F Pl* them-(to)renounce

2.2.2.2 The c-command analysis revisited

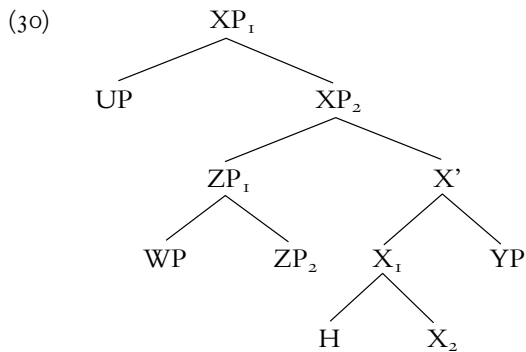
The definition of c-command has evolved quite significantly since it was created. The version most widely accepted is that given in note 19, and indeed it is the one retained in Chomsky’s (1995) Minimalist Program. However, in order to account for the distribution of floating quantifiers, I would like to go back here to one of the early formulations of the c-command definition (from Chomsky, 1981), and show that some of the distinctions it then captured have been lost, which reappear somewhere else in the system (in the distinction between checking domain vs. object domain). I believe that going back to Chomsky’s (1981) definition of c-command is not an *ad hoc* move, but a justifiable reinterpretation of a central notion in the light of the present state of the theory.²²

²² Because this version of c-command is broader than the one generally accepted today, I will from now on refer to it as C-command.

The 1981 definition of C-command is, at first sight, rather obscure.²³ I believe that the following three principles (in (29)) give a fair reinterpretation of it.

- (29) (i) Heads C-command everything in their ‘absolute maximal’ projection (where YP is the ‘absolute maximal’ projection of XP if YP immediately dominates XP and X, Y belong to the same category).
 (ii) Specifiers C-command the complements and adjuncts of the maximal projection that immediately dominates them.
 (iii) Complements do not C-command the specifier nor the adjuncts of the maximal projection that immediately dominates them.

I would like to draw a parallelism between the restrictions at work in the C-command principles above and the definition of checking domain vs. internal domain. Consider the following sentence structure, from Chomsky (1995: 177):



As defined in Chomsky (1995), the checking domain of X in (30) is {UP, ZP, WP}, and the internal domain of X is its minimal complement domain, i.e. {YP}. Chomsky points out that the elements of the internal domain are typically internal arguments of X, while the checking domain is typically involved in checking inflectional features. In the same way as complements (but not specifiers) are excluded from the checking domain, complements (but

²³ α c-commands β if and only if
 (i) α does not contain β
 (ii) Suppose that $\gamma_1, \dots, \gamma_n$ is the maximal sequence such that
 (a) $\gamma_n = \alpha$
 (b) $\gamma_i = \alpha^j$
 (c) γ_i immediately dominates γ_{i+1}

Then if δ dominates α , then either (I) δ dominates β , or (II) $\delta = \gamma_i$ and γ_i dominates β . Note (my addition) that in (I) the distance between δ and α needs to be restricted. I suggest that the following restriction (italicised) should be added: (I) δ dominates β , with δ immediately dominating α . In (II), no such restriction is needed: δ is forced to be a projection of α (because $\delta = \gamma_i = \alpha^j$), so there is no risk that α would be able to c-command elements too remote.

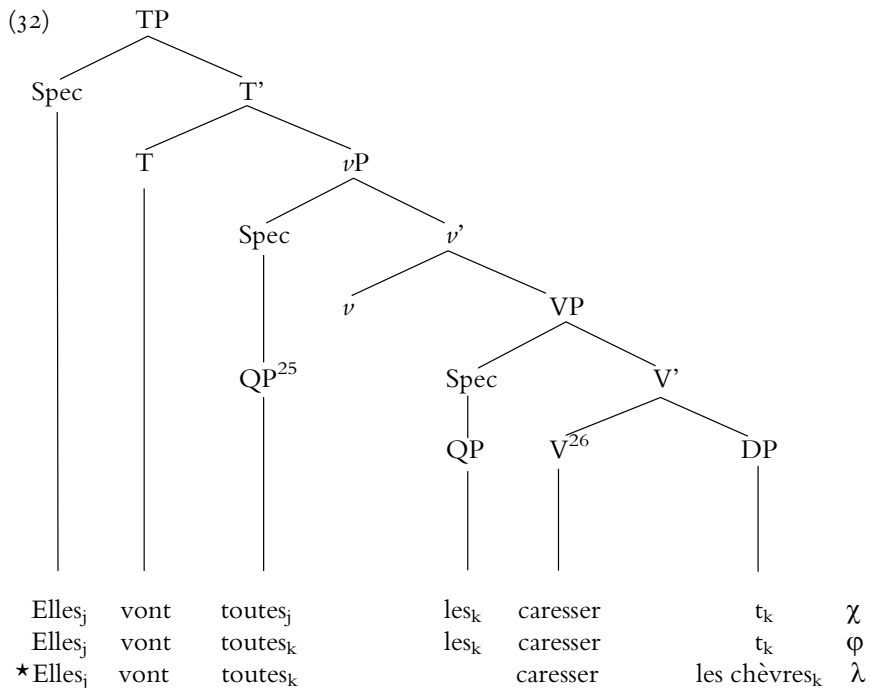
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not specifiers) are unable to C-command the rest of the projection containing them. It seems that the C-command relationship cannot be ‘triggered’ from outside of the checking domain: no element in a given complement domain can C-command an element in the corresponding checking domain.

Let us now go back to the data, to see how this revised definition of C-command accounts for the relationship between OQ and SQ and their respective antecedents. My hypothesis is that C-command is *enough* to account for both OQ and SQ.²⁴ The tree in (32) below gives the structure for the potentially ambiguous sentence in (31).

(31) Elles_j vont toutes_{j/k} les_k caresser.
 they-*F* will all-*F Pl* them-stroke

In this sentence, either the *toutes* quantifies over *elles* (see line χ below the tree) and is situated in the [spec, v], or it quantifies over *les* (see line φ below the tree) and is situated in the spec (VP).



In part χ of (32), the subject *elles* is immediately dominated by the TP, which

²⁴ The binding process involved here is a purely syntactic process, which assigns the right indices on the appropriate syntactic categories. The semantic interpretation of floating quantifiers is not itself explained by this process.

²⁵ In all cases, it is possible to add a modifier to the floating quantifier *tou(te)s*. For this reason, I have labelled the projection above the quantifier ‘QP’, even though in this case it only

dominates *toutes*, so *elles* C-commands *toutes*. In part φ of (32), the clitic *les*, which is incorporated into the head V, is immediately dominated by V',²⁷ itself dominated by VP. As the VP dominates the quantifier *toutes* (in [spec, VP]), the grammaticality of the sentence is accounted for.²⁸ In part λ of (32), the potential antecedent for the OQ is 'les chèvres', but it cannot C-command the *toutes* from the complement position.

The sentences in (33 a-c) below, in which an adverb has been inserted, provide a disambiguating test that supports the structural distinction established above.

- (33) a. Elles_j vont toutes_j gentiment les_k caresser.
 'They_j will all_j stroke them_k kindly.'
 b. Elles_j vont gentiment toutes_k les_k caresser.
 'They_j will stroke them_k all_k kindly.'
 c. *Elles_j vont gentiment toutes_k caresser les chèvres_k.

As we have seen from the analysis of (31), this analysis automatically explains why a lexical object prohibits a floating quantifier, while no such limitation applies in the case of subjects. It is thus no longer necessary to have recourse to exceptions nor restrictions on the licensing of OQ to account for this apparent difference between OQ and SQ.

The C-command condition on its own is however not sufficient to account

contains the head Q. The examples below are modifications of the ones presented in the text (the numbers in bracket refer to the original examples), with the floating QP bracketed.

- (i) Les éléphants_i sont [presque tous]_i partis. (1)
 (ii) J'ai [vraiment tout] avoué. (4)
 (iii) Elles_i ont [toutes les trois]_i décidé de s'inscrire. (12)
 (iv) Elles_i ont [absolument tous]_i voulu les_i prendre. (25)

²⁶ Situating the non-finite verb in V seems to be incompatible with Chomsky's (1995) assumption that V raises to *v*. However, some of the issues related with this assumption have not yet been resolved in Minimalism. In this paper, I will assume that the non-finite verb does not raise overtly in French. Another possibility is that further functional structure intervenes between *v* and V: either a participial projection, or an Aspectual projection (as suggested in Travis, 1992).

²⁷ As suggested to me by J. Emonds, the content of the clitic can be considered to be part of the verb. This matches Kayne's (1975) claim that the clitic incorporates into its host at S-Structure.

²⁸ In this note, the same explanation is provided according to Chomsky's (1981) definition of c-command given in footnote 23. The Greek letters in parenthesis refer to the ones in the definition in question. In part χ of (32), the subject *elles* (= α) is immediately dominated by the TP (= δ) which dominates *toutes*, so *elles* c-commands *toutes*. In part φ of (32), the clitic *les* (= α) is immediately dominated by V' (= $\delta = \gamma_i$), and the VP (= γ_i) dominates *tous*, which is in the [spec, VP]. Thus *les* c-commands the L-Q *tous*. In part λ of (32), the object NP *les chèvres* (= α) is immediately dominated by V'. Because the V' and the NP *les chèvres* belong to different syntactic categories (i.e. V' does not belong to the maximal sequence $\gamma_1, \dots, \gamma_n$), the only way for the NP to c-command the *tous* would be that the V' dominates *tous* (i.e. V' would = δ , and δ dominates $\beta = tous$). This is not the case, so *les chèvres* cannot act as a c-commanding antecedent for *toutes*. The ungrammaticality of (32 λ) is thus predicted.

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for the ungrammaticality of (34) below, in which, according to (29), *ils* can in fact C-command *tous*.

- (34) **Ils_i* ont voulu que je pousse *tous_i*.
they-*M* have wanted that I push all-*M Pl*

This is what the following section will address.

2.2.2.3 The governing category of SQ and OQ

Ungrammatical sentences like (34) above or (35 a-c) below, which are uninterpretable in spite of the presence of the floating quantifier in a position normally available to it (namely [spec, *v*] or [spec, VP]), indicate that there is a limitation to the ‘distance’ allowed between the floating Q and its antecedent.²⁹

- (35) a. **Les maharajas_i* ont lu le livre dont le nom est *tous_i* tenu secret.
the maharajas have read the book of-which the name is all-*M Pl* kept secret
b. **Ils_i* ont murmuré qu’elle était *tous_i* celle qu’ on attendait.
they-*M* have whispered that she was all-*M Pl* the-one-*F* that one waited-for
c. **Un chameau les_i* mena là où le ciel est *tous_i* violet.
a camel them-took there where the sky is all-*M Pl* purple

In (35 a), the antecedent is too far from the SQ *tous* in the relative clause. In (35 b), the antecedent is too far from the SQ in the embedded complement clause. In (35 c), the antecedent *les* is too far from the OQ in the embedded complement clause. However, in all these sentences, the antecedent C-commands the floating quantifier, according to (29). These examples suggest that the floating quantifier has to be in the same clause as its antecedent.

In (36), however, the SQ and its overt subject antecedent are not in the same clause, and yet the sentence is grammatical.

- (36) *Elles_i* ont demandé de *toutes_i* pouvoir y aller.
they-*F* have asked to all-*F Pl* be-allowed (to) there-go

But in (36), there is a PRO in the subject position of the embedded clause, and this PRO, which is coindexed with *elles*, acts as the antecedent of *toutes*. Evidence for the C-commanding properties of the PRO is provided (*a contrario*) by the contrast between (a) and (b) in (37) below.

- (37) a. *Elles leur_i* ont demandé de PRO_i *tous_i* déguerpir.
‘They asked them all to clear off.’
a’. *Elles leur_i* ont demandé qu’ils_i déguerpissent *tous_i*.
they-*F* them-have asked that they clear-off-*subj.* all-*M Pl*

²⁹ (i) below gives the grammatical counterparts to these sentences:

- (i) a. *Les maharajas ont tous lu le livre dont le nom est tenu secret.*
‘The maharajas have all read the book whose name is kept secret.’
b. *Ils ont tous murmuré qu’elle était celle qu’ on attendait.*
‘They all whispered that she was the one that was waited for.’
c. *Un chameau les mena tous là où le ciel est violet.*
‘A camel took them all where the sky is purple.’

C. De Cat

- b. *Elles leur_i ont dit qu'elles allaient tous_i partir.
they-*F* them-have said that they-*F* were-going all-*M Pl* (to) leave

In (37 a), *leur* cannot act as the antecedent of the floating quantifier, because the *tous* quantifies over the subject, not over the object of the embedded clause, as the paraphrase in 37a') indicates.³⁰ The antecedent of *tous* has to be a subject, and only the subject *tous* can be coindexed with the PRO in the embedded clause. So, as the sentence is grammatical, we can conclude that it is the PRO that acts like the antecedent of *tous* and C-commands it. As for (37 b), one might object that its ungrammaticality is due to an intervening potential antecedent between *tous* and *leur* (i.e. the *elles* subject of the embedded clause). In answer to this, consider (38).

- (38) Les partitions_i, Ø_i qu'il m'avait toutes_i volées t_i sans aucun scrupule, étaient intactes.
'The music sheets, which he had all stolen from me without any scruples, were intact.'

In (38), the potential antecedent for *toutes* is the clitic *me*, which intervenes between the floating Q and the 'real' antecedent of *toutes*. This antecedent is the lexically empty operator that binds the trace in the object position of *volées* (see Labelle (1988) for a detailed analysis of the French relatives).

2.3 Restructuring verbs

Now that the licensing conditions of floating quantifiers have been defined, let us go back to the problematic cases to be accounted for, represented by (28) above. This section is dedicated to cases like (28 a), otherwise exemplified in (39) below.³¹

- (39) a. S'il sait qu'il y en a encore à vendre, il va **tous** vouloir [les acheter].
'If he knows that there are still some for sale, he'll want to buy them all.'
b. J'ai cassé trois tasses, mais elle a **toutes** pu [les recoller].
'I've broken three cups, but she could glue them all back together.'
c. Tes gros bouquins de math, elle a **tous** su [les lire en une semaine].
'Your big maths books, she could read them all in a week.'

All three sentences have been judged grammatical by all the eleven native speakers I presented them to, and yet the floating quantifier they contain (in bold) is apparently not in the same clause (bracketed) as its antecedent.³²

³⁰ Note that the floating quantifier in (37 a) and (37 a') is in both cases in the [spec, *v*] position. In (37 a), the verb does not raise because it is non-finite.

³¹ This section is inspired by Emonds' (1997) analysis, but does not rely on it crucially. Alternatively, French restructuring verbs could be accounted for by following Bok-Bennema and Kampers-Manhe (1994), who show that T-incorporation causes the transparency of the complement of 'climbing verbs' (their denomination of what is here called 'restructuring verbs').

³² I have deliberately omitted to label the brackets in (39), which will be given a detailed structural analysis later.

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Emonds (1997) proposes that late transformations such as *there*-insertion, *do*-insertion and others, can be accounted for by the late insertion of lexical items belonging to closed classes, in the phonological component of the grammar. His theory of lexical insertion thus distinguishes two levels: DL (Deep Lexicalisation), which applies at Deep Structure, before transformations, and PL (Phonological Lexicalisation), which applies after any operation contributing to Logical Form. DL inserts open class items, i.e. items characterised by purely semantic features *f*. PL inserts closed class items, i.e. items characterised by purely contextual or non-interpretable features. In the sentence below, *dormir* has been inserted via DL, and *vais* has been inserted via PL.

(40) Je vais dormir.
'I'm going to sleep.'

Consider now (41) below.

(41) J'ai voulu aller dormir.
'I had wanted to go to sleep.'

I would like to suggest that *vouloir*, in (41), can be analysed as a restructuring verb. Emonds (1997:43) defines such verbs as 'grammatical verbs, specified for interpretable syntactic features *F* but for no purely semantic features'.³³ Contrary to purely lexical verbs, they can be inserted at either of the two levels defined above. In (41), only *dormir* is inserted at DL, as Deep Lexical insertion occurs only once per phrase (= XP). Late syntactic insertion can subsequently take place into the left side of the head inserted at the previous level (i.e. DL): both *aller* and *voulu* are the result of late insertion.³⁴

Emonds's (1997) analysis sheds light on the contrast between the sentences in (39) above and those in (42) below: in (39), all three sentences contain a grammatical verb allowing optional restructuring in Italian and Spanish,³⁵ whereas in (42), there is no such verb, which explains why my informants have all rejected the four sentences in question.³⁶ The potential candidate for being a restructuring verb is in bold in these examples.³⁷

³³ *Vouloir, pouvoir, savoir* receive a similar analysis in Rowlett (1998: chs 1/4), where they are treated as pseudo-modals.

³⁴ The features carried in French by the syntactic heads inserted via PL could be conveyed by bound morphemes instead of free lexical items.

³⁵ What remains to be explained is why French "flat structures" do not seem to allow clitics on the higher verbs while both Italian and Spanish do (as well as Middle French).

³⁶ Contrast (39) above with (i) below, from Kayne (1975: (43 b)):

(i) *Il aurait tout voulu ne dire qu'à son avocat.

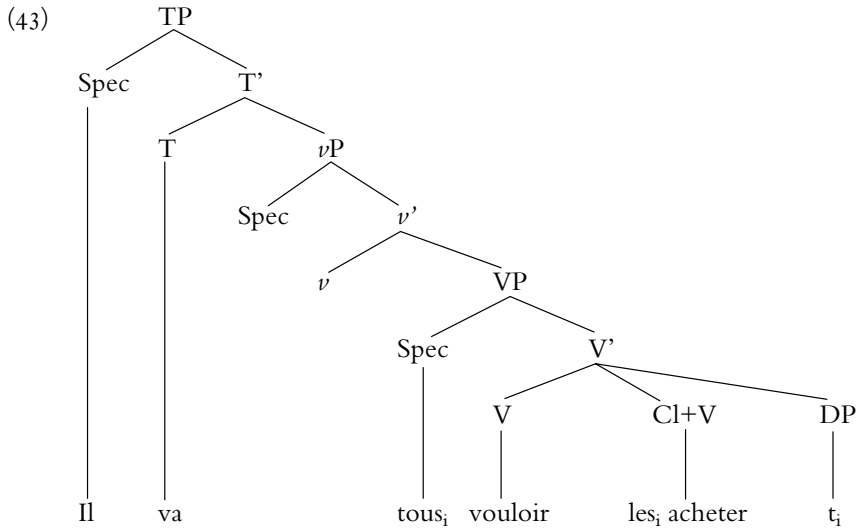
In this sentence, *vouloir* does not behave as a restructuring verb. Instead, it subcategorises a non-finite clause. Only if the *tout* was inside the embedded clause could it be licensed, as in (ii) below.

(ii) Il n'aurait voulu tout dire qu'à son avocat.

³⁷ It has been mentioned to me that some speakers of French (marginally) allow for a floating quantifier to appear outside of the subjunctive clause containing its antecedent, as illustrated in (i a,b). However, I have not been able to replicate this, as none of my eleven informants allow such constructions.

- (42) a. *Tu as tous **dit** les avoir reconnus à temps.
 you have all-*M Pl* said them-(to) have recognised in time
 b. *J'ai tous **commencé** à les fréquenter vers mai 68.
 I have all-*M Pl* started to them-see around May 68
 c. *J'ai tous **accepté** de les rencontrer, ces vieux trognons.
 I have all-*M Pl* agreed to them-meet these old fellows
 d. *J'ai tous **pensé** les jeter, ces vieux papiers.
 I have all-*M Pl* thought them-(to) throw-away these old papers

(43) gives the flat VP structure I propose for the matrix clause of (39 a), which can then account for (39 b,c):



In (32), exactly as needed, the clitic *les* C-commands the *tous* in the [spec, VP], according to the first C-command principle (given in (29)), or, to use Chomsky's terms, according to case (II) of the C-command definition (given in note 23).

- (i) a. ??Je veux tous qu' ils viennent.
 I want all-*M Pl* that they-*M P* come-*subj*
 'I want them to all come.'
 b. ??Il faut tous que tu les lises.
 it must all-*M P* that you them-read- *subj*
 'You must read them all.'

If it is correct that certain speakers allow floating of a quantifier in sentences like (i a,b), it could be accounted for by an extension of the binding domain of the quantifier object, allowed by the defective Tense of the subjunctive clause (see Bok-Bennema and Kampers-Manhe, 1994). In such sentences OQ would appear in its usual [spec, VP] position, while the subjunctive clause would be generated as a complement of V.

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2.4 The ‘ban on crossing’ of floating quantifiers

Let us now tackle examples (27) and (28), repeated below as (44) and (45).

- (44) a. Elles ont tous_j voulu # les_j renier.
 they-*F Pl* have all-*M Pl* wanted them-(to)renounce
- b. Elles_i ont # voulu toutes_i les renier.
 they-*F Pl* have wanted all-*F Pl* them-(to)renounce
- (45) *Elles_i ont tous_j voulu toutes_i les_j renier.
 they-*F Pl* have all-*M Pl* wanted all-*F Pl* them-(to)renounce

In (44), the hatch signs (#) indicate the alternative (grammatical) positions for the floating quantifiers. Both the object quantifier (in (44 a)) and the subject quantifier (in (44 b)) can appear either in their higher or in their lower position. However, as (45) shows, a sentence with OQ in the higher position and SQ in the lower one is ungrammatical. Only if SQ is higher than OQ can they both appear in the same sentence, as we can see from (46 a-c) below.

- (46) a. Elles_i ont [_{vP} toutes_i [_{VP} tous_j voulu les_j renier.]]
 b. Elles_i ont voulu [_{CP} [_{vP} toutes_i [_{VP} tous_j les_j renier]].
 c. Elles_i ont [_{vP} toutes_i voulu [_{CP} [_{VP} tous_j les_j renier]].

In (46 a), SQ appears in the [spec, *v*] and OQ in the [spec, VP] of the matrix clause. In (46 b) SQ appears in the [spec, *v*] and OQ in the [spec, VP] of the embedded clause (the full structure is given in (47)). In (46 c), SQ appears in the [spec, *v*] of the matrix clause and OQ in the [spec, VP] of the embedded clause.

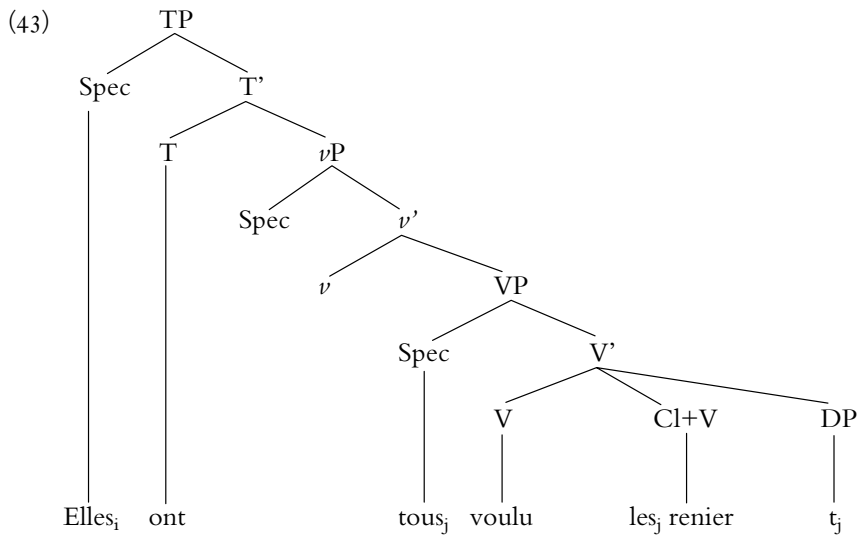
What (45) seems to indicate is that there is a ban on the crossing of SQ and OQ. To my knowledge, this question has never been raised before in the literature. Under the analysis developed in this paper, it receives a straightforward answer, which is backed up by interpretative evidence, as I will show below.

Let us consider again (46 a,b). These two examples contain *voulu*, which has been shown to allow restructuring. However, as the bracketing indicates, only in (46 a) has restructuring taken place: in (46 b), which almost all my informants have judged grammatical, if the licensing conditions I have defined are correct, there is (at least) a *vP* between the two non-finite verbs (the specifier position of which hosts the SQ), and an antecedent (PRO) for that SQ in the [spec, TP] of the lower clause. The full structure of (46 b) (given in (47) below) is thus different to that of (46 a) (in which *voulu les renier* is a flat structure).

- (47) Elles_i ont [_{vP} [_{VP} voulu [_{CP} [_{TP} PRO_i [_{vP} toutes_i [_{VP} tous_j les_j renier]]]]]].

My analysis correctly predicts that in (47), there is no possibility for the OQ to appear in the higher [spec, VP], because it would then not be in the same clause as its antecedent anymore (i.e. *les*). The only possibility for the OQ to appear higher than *voulu* is if there is restructuring, which does not allow for a

ν P between *voulu* and *renier*. (48) gives the structure of (46 a): we can see that there is no position available to SQ between *voulu* and *les renier* because of the flat structure of the VP [*tous voulu les renier*].



The ungrammaticality of (45), repeated below as (49 a), is thus predicted, as well as that of (49 b,c).

- (49) a. *Elles_i ont tous_j voulu [_{CP} toutes_i les_j renier].
 they-F have all-MPl wanted all-F Pl them- (to) renounce
 b. *Elles_i ont [_{νP} tous_j [_{VP} toutes_i voulu les_j renier].
 they-F have all-MPl all-F Pl wanted them-(to) renounce
 c. *Elles_i ont voulu [_{CP} tous_j [_{VP} toutes_i les_j renier].
 they-F have wanted all-MPl all-F Pl them- (to) renounce

In (49 a), the OQ *tous* cannot be licensed because it is not in the same clause as its antecedent (*les*). In (49 b), there is only one [spec, ν P] and one [spec, VP] between *ont* and *voulu* (it is impossible for there to be a clause boundary), so the only possible parsing is with *tous* in the [spec, ν P] and *toutes* in [spec, VP], i.e. that *tous* be the SQ and *toutes* the OQ. This is impossible, as the coindexing shows. In (49 c), there is only one [spec, ν P] and one [spec, VP] of the matrix clause (it is impossible for there to be a clause boundary), so the only possible parsing is with *tous* in the [spec, ν P] and *toutes* in [spec, VP] of the embedded clause, i.e. that *tous* be the SQ and *toutes* the OQ. This is impossible, as the coindexing shows.

Confirming evidence for the analysis proposed above is that the difference in structure between (46a) and (46b) (repeated as (50a,b) below) is coupled with a difference in interpretation.

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- (50) a. Elles_i ont toutes_i tous_j voulu les_j renier.
b. Elles_i ont voulu toutes_i tous_j les_j renier.

In (50 a), each of the nuns concerned wanted to renounce her vows, whereas in (50 b), all the nuns as a group wanted to renounce them. In other words, (50 a) favours an interpretation in terms of multiple events, whereas (50 b) favours an interpretation in terms of a single event. The justification of such an interpretation of the floating quantifier in the position it occupies at S-Structure can be found in Obenauer (1983:70). Junker (1995) follows the same line of thought. She shows (1995:91) that floating quantifiers induce a sort of quantification on the event, which she defines as ‘the denotation of the constituent to which the quantifier is attached at S-Structure’ (my translation, CD). As we had already seen in section 2.1.1, this implies that the position the floating quantifier occupies in the syntax (and, hence, its scope) determines its interpretation at the conceptual level, as illustrated by (46 a,b) above.

2.5 Summing up

Because they need to be C-commanded by their antecedent in a given domain, floating quantifiers have the status of anaphors. Typically, anaphors are elements that lack independent reference, which matches the description of floating Qs in a satisfactory way. The ambiguity of sentences like (51) corroborates this point:

- (51) Elles_i ont toutes_{i/j} voulu les_j caresser.
they-*F* have all-*F Pl* wanted them-(to) stroke

In (51), either the *toutes* refers to the subject (*elles*), or it refers to the object (*les*). If Qs were referentially independent, the interpretation in this case would not pose a problem, and all native speakers would take this sentence to have a fixed meaning, which they do not. An anaphoric analysis of floating quantifiers is all the more desirable as it accounts for the potential ambiguity that characterises them.

The analysis proposed has been that floating quantifiers are licensed if and only if (i) they appear in the specifier position of either ν P (in the case of SQ) or the VP (in the case of OQ) of the clause containing their coindexed antecedent and (ii) they are C-commanded by their antecedent. I have shown that, contrary to what is often claimed in the literature, there is no special restriction on the antecedent of OQ: it follows naturally from the licensing conditions of (all) floating Qs that a full NP in the object position cannot bind an OQ.

In the next section, the findings about anaphoric floating quantifiers are extended to pronominal and adverbial floating quantifiers, with the relevant modifications predicted by Government and Binding Theory.

3 PRONOMINAL AND ADVERBIAL QUANTIFIERS

This final section is by no means intended as the definite story about all types of quantifiers. The point is only to show that the licensing conditions of the floating of quantifiers proposed in this article can be extended to other types of quantifiers, and that the syntactic position quantifiers occupy in the sentence has bearings on their interpretation.³⁸

3.1 Pronominal floating quantifiers

Pronominal quantifiers *tout*, *rien* ('all, nothing') do not require the presence of an (overt) antecedent. This, coupled with the fact that they can appear on their own in an argument position, suggests that they have an NP status.³⁹ Examples (52) and (53) below show that, in accordance with Principle B of the Binding Theory,⁴⁰ pronominal quantifiers must be free in their Governing Category.

- (52) a. *Je l_i ai tout_i dit.⁴¹
I it-have all-M Sg said
b. J' ai tout dit.
'I've said it all.'
- (53) a. *Il_i est tout_i bien rangé.
it is all-M Sg well ordered
b. Tout est bien rangé.
'Everything is well ordered.'

Only the object pronominal quantifier can float (see example (54)). The floating of a subject pronominal quantifier would cause a violation of the EPP, as shown in (55).

- (54) J'ai tout nettoyé.
'I cleaned everything.'
- (55) *e est tout fini.
is all-M Sg finished

It is interesting to note that the object pronominal quantifier seems to be 'forced' to float: the contrast between (56) and (57) show that the object quantifier has to be made 'heavy' if it is to appear after the non-finite verb.

³⁸ I am not saying here that the syntactic position is sufficient to account for the interpretation of quantifiers, but that it contributes to it. See Junker (1995) for a comprehensive account of the interpretation of *tous*, and *chaun*.

³⁹ Jaeggli (1982) and Sportiche (1988) treat them as Ns.

⁴⁰ Principle B, as (re)defined in Chomsky (1995: 100): "If α is a pronoun, interpret it as disjoint from every c-commanding phrase in D."

Where D is the relevant local domain, i.e. the governing category of α , defined as "the minimal clause containing α and a governor of α ". (Chomsky, 1995: 101)

⁴¹ This sentence is grammatical in Canadian French, providing it is given an adverbial reading, as suggested in section 1.

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- (56) ^{??}J'ai nettoyé tout.
I have cleaned all-*M Sg*
- (57) J'ai nettoyé absolument tout.
'I cleaned absolutely everything.'

3.2 Adverbial floating quantifiers

Adverbial quantifiers (*beaucoup, tellement, peu, trop, assez, pas mal, autant, . . .*)⁴² can have an antecedent, but do not require one:

- (58) a. J'en ai beaucoup mangé.
'I've eaten a lot of it.'
- b. J'ai beaucoup mangé (de biscuits).
'I've eaten a lot (of biscuits).'

Their specificity is that, when floating, they comment on the frequency of the event in question, not on the quantity or the amount of what is talked about (see Obenauer, 1983).

The fact that they can appear alongside with SQ and OQ⁴³ suggests that they occupy a different position. As I argue in De Cat (in press), this position is attached to *V'*, which is a position typically occupied by VP adverbs.

3.3 Properties of the floating quantifiers: a summary

The table below gives a summary of the principal properties of the floating quantifiers in French.

Type of floating quantifier	Examples	Clause-mate antecedent	C-command requirement	Position
anaphor	<i>tou(te)s, chacun(e)</i>	NP / <i>les</i>	yes	[spec, <i>vP</i>]
pronoun	<i>tout, rien, chacun(e)</i>	Ø ⁴⁴	no	[spec, TP]
adverb	<i>beaucoup, tellement, peu, trop, assez, pas mal, autant</i>	(PP / <i>en</i>)	optional	adjoined to <i>V'</i>

⁴² 'Much, so much, little, too much, enough, quite a lot, as much'

⁴³ In the examples below, the adverbial quantifier appears alongside SQ (examples (i), (iii)) and OQ (examples (ii), (iii)). In (i), *beaucoup* cannot be in [spec, *v*] because it is filled by *chacun(e)*. In (ii), *beaucoup* cannot be in [spec, VP] because it is filled by *toutes*. In (iii), the specifier position of both *V_n* and VP are filled by SQ and OQ respectively.

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All these quantifiers can also appear (as determiner quantifiers) in a DP. They then quantify over the (P+) NP, and occupy the D position. But they conserve their own lexical specifications. This implies that the Determiner position can be filled by a wide range of elements (including adverbs), and not just by definite and indefinite articles.

CONCLUSION

We have seen that the position of floating quantifiers in the sentence is determined by what they quantify over at PF. The main focus of attention has been on SQ and OQ, and in particular on *tou(te)s*. Contrary to most treatments of floating quantifiers in the literature, but in accordance with the spirit of these analyses, this paper proposes an entirely unified analysis of SQ and OQ: these elements have been shown to be of the same nature, and to be subject to the same conditions. Both are anaphors, which require to be C-commanded by their coindexed clause-mate antecedent, and both have to be higher than the verb. The canonical position of SQ and OQ is the specifier position of the *v*P, and the specifier position of the VP respectively. As for the quantifier adverbs, they have been shown to be (left) adjoined-to-V', i.e. occupying a typical adverbial slot.

The observation that interpretation of floating quantifiers and adverbs is determined by their sentential position suggests that the notion of scope is crucial to the understanding of these non-essential elements. Further research may reveal that word order in general is driven by the need for some elements to take scope over others, and perhaps shed light on the question of the possible asymmetry between subjects and objects.

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- (i) Elles_i ont chacune_i beaucoup ri.
they-*F* have each-*F* a-lot laughed
- (ii) Je les_i ai toutes_i pas mal malaxées.
I them-have all-*F Pl* not bad kneaded
'I have kneaded all of them quite a lot.'
- (iii) On_i les_j a tous_i chacun_j beaucoup apprécié.
we them-have all-*M Pl* each-*M* a-lot liked
'We all liked each of them all a lot.'

⁴⁴ The fact that pronominal floating Qs cannot be bound by an antecedent in the clause containing them suggests that Principle B of the Binding Theory is at work.

French floating quantifiers

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