

A'-dependencies in French

A study in L1 acquisition

Anamaria Bențea* and Stephanie Durrleman**

*University of Geneva, **CNRS, Lyon

French has several optional strategies for the formation of *wh*-interrogatives, whereas relative clauses (RCs) do not display this optionality. In a comprehension study with French-speaking children aged 5 to 8, we show that two factors interact in the processing of object A'-dependencies in child French: (a) the optionality of having the object in an *ex-situ* or *in-situ* position and (b) the featural make-up of the object. This is the first comprehension study that explores the effect of structural complexity (*ex-situ* vs. *in-situ*) coupled with featural specification of *wh*-constituents (*-NP* vs. *+NP*) across different types of A'-dependencies in French (*wh*-questions vs. RCs). As such, our study complements previous production studies on the developmental order of these structures in French children.

1. Introduction

Cross-linguistic research on the acquisition of A'-movement has revealed a similar pattern: both relative clauses (RCs) and *wh*-questions are easier to process when the head of the dependency is the subject rather than the object. Studies of children's comprehension of RCs in experiments have shown that there is a greater computational demand in processing object RCs, which yield low comprehension scores until around the age of 6 (Corrêa 1995; Adani 2011; Friedmann et al. 2009 a.o.). This subject/object asymmetry is present in *which*-questions but less prominent in *who*-questions, which are comprehended well by age 4 (Avrutin 2000; Friedmann et al. 2009).

The general cross-linguistic picture for the acquisition of A'-dependencies shows that different types of A'-movement emerge at different moments. Subject dependencies (given in (1a), (2a), and (3a)) are at ceiling early. In contrast, object-dependencies with a *+NP* lexical restriction (meaning sequences such as '*the/*

which + NP', illustrated in (2b) and (3b)) are delayed with respect to object-dependencies without this +NP, lexical restriction (1b):

- | | | |
|--------|--|---------------|
| (1) a. | Who [___ is pushing the girl]? | A'-mvt: Early |
| b. | Who is [the girl pushing ___]? | A'-mvt: Early |
| (2) a. | Which boy [___ is pushing the girl]? | A'-mvt: Early |
| b. | Which boy is [the girl pushing ___]? | A'-mvt: Late |
| (3) a. | The boy that [___ is pushing the girl]. | A'-mvt: Early |
| b. | The boy that [the girl is pushing ___]. | A'-mvt: Late |

The difficulty children experience with certain types of computation may stem from their relative complexity. Friedmann et al. (2009) have argued that the higher computational cost of structures like those in (2b) and (3b) can be accounted for in terms of intervention effects reminiscent of the locality principle of Relativized Minimality (RM) (Rizzi 1990, 2004). The RM principle states that a syntactic relation cannot hold between two elements X and Y if Z is structurally similar to X and Z intervenes between X and Y, as illustrated in (4):



Assuming that movement is triggered by matching features, it follows that an intervening element bearing the same features as the moved element will give rise to RM effects. This accounts for the impossibility to extract one *wh*-element over another, as exemplified in (5):

- (5) **What did you know where Mary bought <what>¹?*

Friedmann et al. (2009) capitalized on the parallelism between structures like (2b), (3b), and (5), and claimed that the selective difficulties Hebrew-speaking children had with A'-object dependencies could be subsumed by RM. Friedmann et al. show that a stricter version of RM is at play in early grammar systems than in adult systems. This results in a disruption of the chain formed by the A'-moved element with its canonical argument position due to the structural similarity between the moved object (*which/the boy*) and the intervening subject (*the girl*), as shown in (2b) and (3b). The structural similarity is determined by the presence of a [+NP] feature, on both the embedded subject and the head of the object RC. Support for this view also comes from Hebrew-speaking children's performance with free

1. The position indicated in angled brackets represents the argument position where the displaced element *what* was merged in the structure.

object relatives, headed object relatives crossing an impersonal *pro* subject, as well as *who*-object questions. Children had no difficulties comprehending such structures, showing that they could establish the dependency between the A'-moved object and its trace when the moved element and the intervening subject were sufficiently distinct, that is, when either the intervener or the A'-moved object did not carry the feature [+NP].

With this in mind, we have undertaken a study of object chains in French acquisition, by comparing *wh*-questions and RCs. We thus exploited the rather large variation with respect to movement operations that French matrix *wh*-questions allow, contrary to RCs: the *wh*-element can remain in-situ or be fronted to spec-CP with or without the filling of C. This makes French a particularly suitable language for examining the effect of the structural features that may violate RM and modulate comprehension of A'-constructions.

In the studies presented above there is no consideration of examples such as the following, where the +NP element appears in-situ:

- (6) *The girl is pushing which boy?*

Testing such cases can prove crucial in determining the structure assigned to *wh* in-situ in French and the featural properties that trigger intervention effects in children.

Theoretically speaking, since the pioneering work of Huang (1982), the logical form of a movement and of an in-situ question is assumed to be the same, i.e. 'for what x [... x ...]'. As such, *wh* in-situ elements are considered on a par with quantifiers and covert movement is generally admitted for in-situ questions since this movement produces the relevant operator-variable structure. However, works since the late 90's show that there are different types of *wh* in-situ which yield different treatments: covert phrasal movement, no movement, feature movement (see Cheng 2003 for a review). As for French, it has been argued that *wh* in-situ undergoes *wh* feature movement and is therefore sensitive to constraints on movement and chain formation (Mathieu 1999; Cheng and Rooryck 2000; Baunaz 2011; see Shlonsky 2012 for a recent summary).

Here we explore how children process an in-situ structure like (6), and contrast their performance with structures involving A'-movement, in order to determine to what extent +/- movement plays a role, as well as if it interacts with featural specification, i.e. the +/- NP on the *wh* or relativized element. More generally, we seek to understand (i) whether A'-movement is a computationally complex operation regardless of the featural make-up of the chain and (ii) if distinct types of A'-movement (*wh* vs RC) manifest different degrees of complexity. This work is part of a more general study on the acquisition of French investigating the impact of structural and featural complexity across A'-dependencies and age groups.

The paper is divided into three parts. Section 2 briefly describes the syntactic structure of *wh*-questions and RCs in French and gives an overview of previous findings on the acquisition of these specific constructions. Section 3 presents the experimental study and the results obtained. We discuss our findings in Section 4. Section 5 concludes the paper.

2. A'-dependencies in French: From syntax to acquisition

2.1 WH-constructions

French matrix *wh*-questions display several optional strategies: the *wh*-element can remain in-situ (7) or be fronted to spec-CP with or without V-to-C movement, as in (8) and (9). A further option is allowed, namely *wh*-fronting and *est-ce que* (ESK) insertion in C, exemplified in (10) below:

- (7) *Tu as rencontré qui?* (In-situ)
 you have met who
- (8) *Qui tu as rencontré?* (Ex-situ no V-to-C)
 who you have met
- (9) *Qui as-tu rencontré?* (V-to-C + Clitic Inversion)
 who have-you met
- (10) *Qui est-ce que tu as rencontré?* (Ex-situ + ESK)
 who is-it that you have met
 'Who have you met?'

Despite a great amount of individual variation, *wh*-questions are reported to emerge early in French children, around the age of 2;0 (Hulk 1996; Plunkett 1999; Hamann 2006). As for the position of the *wh*-word in these early questions, some children may start by producing *wh*-questions with a *wh* ex-situ, while others produce more *wh* in-situ questions in the early stages of acquisition (Hamann 2006). An elicited production study (Hulk & Zuckermann 2000) showed that children aged 4 to 5 produce a greater number of questions with *wh* ex-situ than with *wh* in-situ and that younger children prefer the *wh* in-situ strategy for forming questions. Production studies have also shown that there is a delayed development of ESK questions and that French children start producing questions with ESK only around the age of 2;8 (Plunkett 1999; Jakubowicz 2005).

The preference found in production for in-situ *wh*-questions, as well as the late emergence of ESK questions and of questions with *wh*-movement and

inversion have been accounted for in terms of the Derivational Complexity Metric² (Jakubowicz 2005, 2011, a.o.). Under this perspective, *wh* in-situ elements are less complex than fronted *wh*-elements, because movement adds complexity to the structure. Children thus start with the least complex option (*wh* in-situ) and gradually move to computationally more complex structures, such as *wh*-fronting (illustrated in (9)), which involve two overt movement operations: both movement of a *wh*-element and of V to C. This analysis also explains the delayed production of ESK questions, which are associated with an increased derivational complexity because they presuppose an extra Merge operation for the appearance of ESK in C.

However, none of the previously mentioned studies have investigated the acquisition of *which*-NP questions.

2.2 Relative clauses

Relativization in French is expressed by the use of complementizers. The form of the complementizer indicates the position inside the RC from which the head noun has moved: if the relativized element is the local subject, the complementizer *qui* is used (11); if the relativized element is the local object, *que* is used (12).

(11) *Le garçon qui pousse la fille*
 the boy that pushes the girl
 'The boy that pushes the girl.'

(12) *Le garçon que la fille pousse*
 the boy that the girl pushes
 'The boy that the girl pushes.'

The acquisition of RCs in French has been mainly studied in production. The mechanisms children use to derive RCs have represented a source of debate in the L1 acquisition literature. Labelle (1990, 1996) argues that, although *wh*-movement appears in early *wh*-questions, this option is not available in RCs, at least until 6 years of age, despite the evidence children get from the input. Labelle (1990, 1996) bases her account on the absence of pied-piping and the abundant use of resumptive pronouns in child RCs, strategies which are ungrammatical in standard French. On the other hand, Guasti & Shlonsky (1995) and Guasti & Cardinaletti (2003) argue that movement is involved in the derivation of RCs in

2. Jakubowicz (2005) defines the Derivational Complexity Metric as follows:

- a. Merging α n times gives rise to a less complex derivation than merging α $(n + 1)$ times.
- b. Internal Merge of α gives rise to a less complex derivation than Internal Merge of $\alpha + \beta$.

early grammars. Therefore, child grammar makes use of a mechanism also present in the adult grammar. To our knowledge, only one unpublished study, Coyer (2009) has investigated French children's comprehension of RCs, suggesting the presence of a subject-object asymmetry in this language as well, while leaving open the question as to how performance for RCs compares with performance for other A'-dependencies such *wh*-questions.

3. An experimental study of A'-dependencies in French

This study tries to bridge the gap in the literature on the acquisition of A'-constructions in French.³ First, we examine the comprehension of both -NP (*who*) and +NP (*which*) questions, in an attempt to show: (i) how children perform with +NP questions with and without movement and (ii) whether these results are comparable to those obtained so far for -NP questions. Second, we address the less studied question of the comprehension of RCs. We thus provide the first comparison across A'-dependencies in French by investigating the comprehension of both *wh*-questions and RCs.

3.1 Predictions

We start from the hypothesis that the existence of competing structural options yields a complexity scale in which two factors are at play: (i) the presence or absence of movement of the A'-object (i.e. +/- movement) and (ii) the presence or absence of intervention effects determined by a similar featural specification on the elements of the A'-chain (i.e. +/- featural intervention). This is schematically represented in Figure 1.

French offers a useful testing ground for this hypothesis since it displays various possibilities for question formation and it allows *wh*-elements to appear either fronted or in-situ. Several predictions follow from the above hypothesis for the acquisition of A'-dependencies in French.

If *structural optionality* affects comprehension, then we expect children to favour the less complex option among the competing structures, that is, perform better with *wh* in-situ [-movement] than with *wh* ex-situ [+movement] questions.

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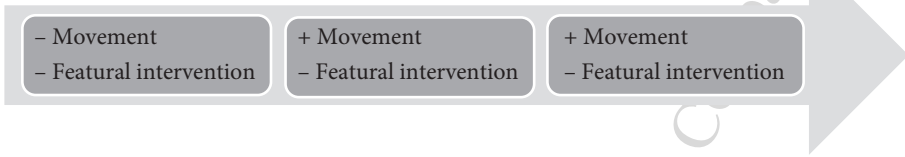


Figure 1. Complexity hierarchy

Moreover, across structures with a similar level of complexity [+movement, +intervention], the constructions that do not display optionality should be less difficult to process. Therefore, children should perform better with [+NP] object RCs (where movement is the only available option) than with [+NP] object questions with *wh*-fronting (for which a less complex in-situ option also exists).

If *featural specification* plays a role in intervention, structures that do not involve movement and structures involving movement but without giving rise to intervention effects should be acquired early. These structures, which we label [+/-movement; -intervention] are *wh* in-situ, [-NP] subject and object questions, [+NP] subject questions and subject RCs. Children should have most difficulty parsing A'-dependencies that involve moving a [+NP] element over the intervening subject which also contains a [+NP] feature. These structures display a [+movement; +intervention] configuration and include [+NP] object ex-situ questions and [+NP] object RCs.

3.2 Participants

We tested 72 French-speaking children whom we divided into 4 age groups, as reported in Table 1. All participants were tested at the École de Crêts de Champel in Geneva.

Table 1. Age information about participants

	5-year-olds (N = 18)	6-year-olds (N = 19)	7-year-olds (N = 18)	9-year-olds (N = 17)
Age range	4;10 – 5;6	5;7 – 6;6	6;7 – 7;7	7;11 – 9;10
Mean age	5;1	6;0	7;1	8;7

3.3 Material

The experiment involved two tasks, each containing 28 items presented in a randomized order. The first task tested the comprehension of *wh*-questions on four conditions exploring the role of (i) the featural make-up of the *wh*-element, (ii) its movement to [Spec,CP], and (iii) the overt filling of C in object questions. 14 questions contained a -NP *wh*-element and 14 questions a +NP *wh*-phrase. Examples are provided in (13) to (16).

- (13) *Qui/Quel garçon arrose l'éléphant?* -NP/+NP Subj (8 items)
'Who/Which boy wets the elephant?'
- (14) *Qui/Quel éléphant le garçon arrose?* -NP/+NP ObjEx-Situ (8 items)
'Who/Which elephant does the boy wet?'
- (15) *Le garçon arrose qui/quel éléphant?* -NP/+NP ObjIn-Situ (8 items)
'The boy wets whom/which elephant?'
- (16) *Qui/Quel éléphant est-ce que le garçon arrose?* -NP/+NP ObjESK (4 items)
'Who/Which elephant ESK the boy wets?'

The second task investigated the comprehension of 14 subject and 14 object restricted RCs, exemplified in (17) and (18) below:

- (17) *Montre-moi le garçon qui arrose l'éléphant.* SubjRC
'Show me the boy that wets the elephant.'
- (18) *Montre-moi l'éléphant que le garçon arrose.* ObjRC
'Show me the elephant that the boy wets.'

3.4 Procedure

Each child was tested individually on a character-selection task preceded by a rich warm-up session aimed at familiarizing children with characters from the tasks and with precision pointing. There was a break in between the two tasks so as to avoid fatigue and to ensure that participants remained attentive throughout. The experimenter presented two pictures simultaneously in which the same characters performed an action with reversed Agent-Patient roles (Figure 2). Before the test sentence, the experimenter provided a lead-in to the child: "Look, there are 2 elephants and 2 boys!" She then prompted the child to point to the correct character as identified by a *wh*-question or a RC: "Which elephant is the boy wetting?"



Figure 2. Example of pictures used in the character-selection task⁴

3.5 Results

The overall results for *wh*-questions (Figure 3) clearly illustrate that children across all age groups have most difficulties parsing [+NP] object questions with a *wh*-element ex-situ. The analysis of variance for *wh*-questions indicates a main effect of structure type (subject, object ex-situ, object in-situ: $F(1,72) = 14.65$, $p < .001$), of *wh*-element type ($F(1,72) = 20.58$, $p < .001$), and an interaction between structure and type of *wh*-element ($F(1,72) = 8.64$, $p < .001$). This is due to the fact that children perform significantly worse with [+NP] object questions with a moved element than with [+NP] subject questions and [-NP] object questions ex-situ. Crucially, all children are at ceiling for *wh* in-situ questions, regardless of the featural specification of the *wh*-element ([-NP] or [+NP]).

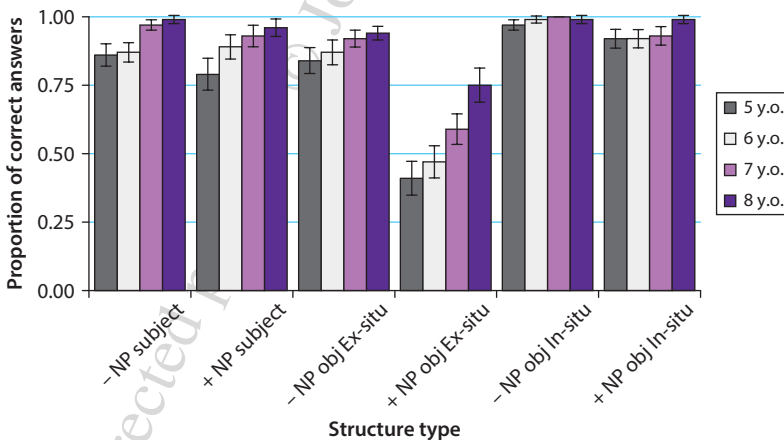


Figure 3. Mean correct answers for *wh*-questions

4. Many thanks to Candice Coyer for contributing the drawings.

The subject/object asymmetry present in [+NP] questions also extends to relative clauses (Figure 4). Children are at ceiling with subject RCs, but their comprehension of object RCs is significantly lower. A repeated measures ANOVA shows a main effect of type of structure ($F(1,72) = 117.56, p < .001$).

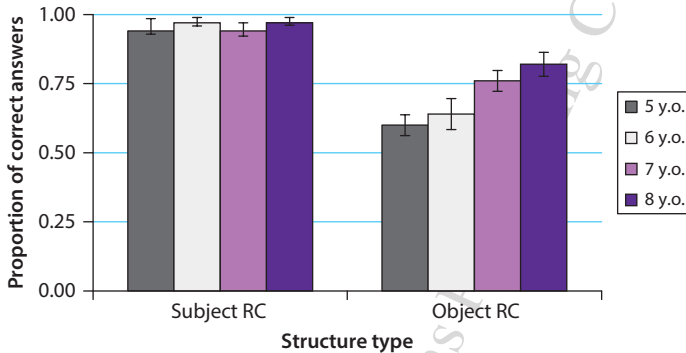


Figure 4. Mean correct answers for RCs

A closer look at A' -dependencies with a moved object (Figure 5) reveals that children give highly accurate responses for [-NP] object questions, which are comprehended better than both object RCs and [+NP] object questions ($F(1,72) = 13.42, p < .001$). Moreover, when comparing children's performance across A' -dependencies containing a fronted +NP object, the results show that children process RCs significantly better than questions ($F(1,72) = 25.01, p = .024$).

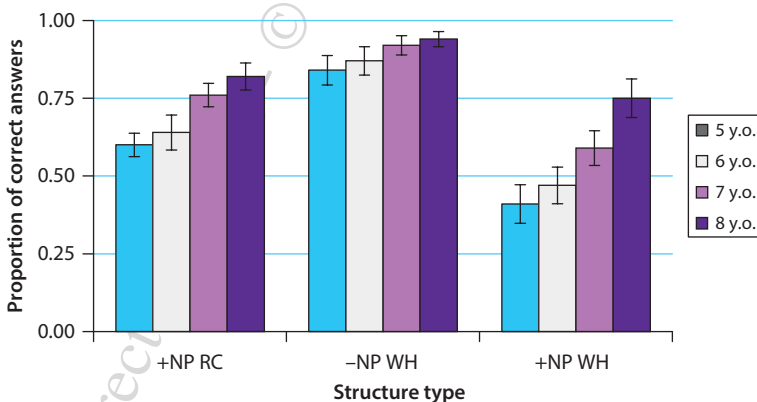


Figure 5. Mean correct answers for ex-situ object A' -dependencies

The [-NP]/[+NP] asymmetry is still present in questions with ESK ($F(1,72) = 99.05$, $p < .001$), but the insertion of *ESK* appears to improve comprehension of ex-situ object questions for both [-NP] and [+NP] questions (Figure 6). Although this is not a statistically relevant difference ($F(1,72) = 13.30$, $p = .07$), there is a clear tendency to higher accuracy in the presence of this question marker amongst the younger age groups.

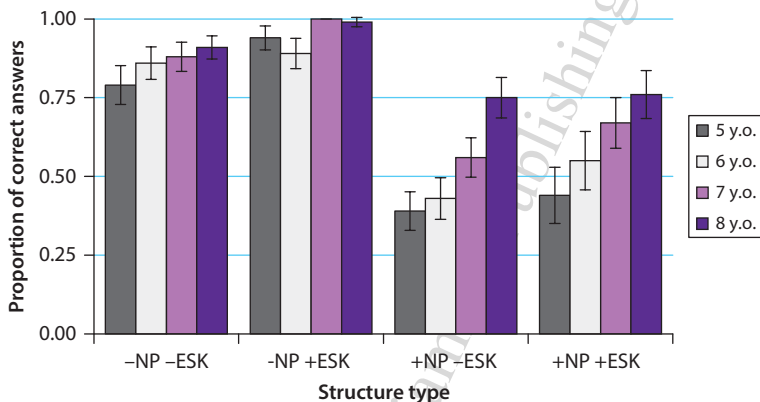


Figure 6. Mean correct answers for object ESK questions

A correlation with age was found across all age groups for comprehension of [+NP] object questions ($r = .439$, $p < .001$) and object RCs ($r = .402$, $p < .001$). No age effect was found for the other type of structures tested.

The results demonstrate that in the early stages of acquisition certain types of object dependencies ([+NP] object RCs and [+NP] object questions) are more difficult to comprehend than subject dependencies. The asymmetry does not hold, however, for [-NP] *wh*-questions, and more importantly, it does not hold for *wh* in-situ questions, irrespective of whether or not the *wh*-element contains a [+NP] feature.

4. Discussion

We began this study by seeking to understand how the interaction between structural complexity and the presence of certain features on the elements involved in an A'-dependency affects French children's comprehension of A'-constructions.

If we consider our results from a cross-linguistic perspective, we see that they confirm differences found for English (Avrutin 2000) and Hebrew (Friedmann

et al. 2009) and other languages, showing that children have overcome the subject/object asymmetry in the case of [-NP] (*who*) questions, but this asymmetry prevails for [+NP] (*which*) questions and [+NP] (*headed*) RCs. The subject/object asymmetry is visible when the head of the chain is an overtly fronted, [+NP] element and is present across all the age groups investigated in the present study. This finding is corroborated by children's comprehension scores with in-situ questions, which were at ceiling for both [-NP] and [+NP] questions.

That children perform better with structures that involve fronting a [-NP] object hints at the fact that movement is not the main source of complexity in comprehension. Rather, it appears that specific types of overt movement are difficult for young children, because their processing requires holding in memory the richer morphosyntactic featural specification on the moved element. This increases the computational cost associated with such structures and yields less accurate results in immature or impaired systems due to their more limited processing abilities (Delage 2008; Delage & Frauenfelder 2012; Garraffa & Grillo 2008).

We propose to account for this difference in processing along the lines of Friedmann et al. (2009): French children experience difficulties with A²-dependencies in which an element bearing a [+NP] feature overtly moves over an intervening subject that also contains a [+NP] feature⁵. These structures have the following simplified featural representation:

- (19) Which elephant does the boy wet <which elephant>? (+NPObjEx-situ)
 [+WH +NP] [+NP] [+WH +NP]
- (20) The elephant that the boy wets <the elephant>. (ObjRC)
 [+R +NP] [+NP] [+R +NP]

The child's system, endowed with weaker processing capacities, struggles with configurations involving a particular featural set-relation postulated by the locality principle of Relativized Minimality. The problematic relation is one of *inclusion*, more specifically when the features on the embedded subject (i.e. [+NP]) are included in the set of features present on the moved *wh*-element and the relative head. Here, the relevant sets of features are [+WH +NP] and [+R +NP], where [+WH] and [+R] are the features attracting the target to the corresponding A²-position. In the early grammar, the subject intervener blocks the establishment of the chain relation between the moved element and its trace, as illustrated in (19)

5. It is worth underlining that the relevant notion which can account for the asymmetry found with certain types of A²-chains appears to be that of syntactic lexical restriction (i.e. the [+NP] feature) rather than that of semantic D(iscourse)-Linking. In the given experimental situation both *who* and *which*-object question are D-linked in the same way, as the discourse context is provided by the pictures.

and (20) above. This is not the case, though, for in-situ *wh*-questions and [-NP] *wh*-questions involving movement. What this shows is that the featural specification of the elements that enter the A'-chain coupled with movement plays a role in French children's comprehension of A'-dependencies: [+/-movement; -intervention] configurations are easier to comprehend than [+movement; +intervention] structures. Our first prediction is thus verified.

Moreover, children perform well with both [-NP] and [+NP] object questions with a *wh*-word in-situ. The presence of a lexical restriction on the in-situ element does not give rise to intervention effects, as compared to [+NP] object questions with an overtly moved element. The fact that [+NP] *wh* in-situ questions do not trigger the same intervention configuration in children as questions with overt movement interestingly bears on the analysis of *wh* in-situ in French. More specifically, our results are more naturally compatible with a *wh* feature movement analysis for French *wh* in-situ questions, while it is less compatible with a covert phrasal movement analysis involving pied-piping of the whole object DP (see Shlonsky 2012). If children derived *wh* in-situ questions through covert movement of the entire *wh*-phrase, under the RM analysis, this would predict the same results for the comprehension of [+NP] *wh* in-situ as for [+NP] object questions with an overtly moved *wh*-word. Our findings show that this is not the case in French. This implies that in a question like (21) below it is only the [+WH] feature on the *wh*-element in-situ that will undergo movement, and not the whole set of features present on the object DP *quel elephant*:

- (21) *Le garçon arrose quel éléphant?*
 [+NP] [+WH +NP]

Since the moved feature is distinct from the featural specification of the subject DP *le garçon*, it follows that such a configuration should not give rise to intervention effects in child grammar. Our results confirm this prediction.

The results also reflect a difference in performance from one type of object A'-dependency to another. Children, especially at a younger age, prefer the less complex option and comprehend *wh* in-situ questions (e.g. *L'éléphant arrose qui/ quel garçon?* 'The elephant wets whom/ which boy?') better than *wh* ex-situ questions (e.g. *Qui/ Quel éléphant est-ce que le garçon arrose ?* 'Who/ Which elephant ESK the boy wets?'). This -/+movement asymmetry is found for both [-NP] and [+NP] object questions, but is more prominent in the latter case due to intervention effects, as we have postulated above. One way of conceptualizing this -/+movement asymmetry is in terms of optionality. From this perspective, processing difficulties increase whenever children have to choose the movement option over the in-situ option when faced with structural optionality. In light of this analysis, a particularly noteworthy finding is that object RCs yielded higher

accuracy than [+NP] object ex-situ questions, although both configurations display a similar complexity level, i.e. +movement/ +intervention. We propose that this can also be explained as an effect of optionality. French children have more difficulties processing [+NP] object questions because they have to choose the movement option over the in-situ option. French RCs do not manifest any optionality as to the movement of the A'-element. While there is a unique structural option available in the grammar for RCs, there exists a simpler way to derive questions, one which circumvents RM effects by avoiding overtly crossing an intervening element. The system appears to cope better with complex structures when presented with a unique option. These findings verify our second prediction, namely that children opt for the less complex option among the competing structures. Moreover, it provides evidence in favour of the idea that there is a complexity scale in the comprehension of A'-dependencies in French, determined by the presence of competing structural options.

A final remark concerns the role of ESK for the comprehension of *wh*-questions. Our results reflect a tendency towards an improved performance in the presence of ESK. Given that there were only 2 items per condition, and that the tendency did not reach statistical significance, there is clearly a need to explore the matter further in future work. However, if this tendency becomes more robust, it suggests that ESK plays a facilitating role in comprehension. This would strike a contrast with reports for production where the insertion of ESK is associated with a more complex level on the Derivational Complexity Metric (Jakubowicz 2005, 2011). Such an asymmetry between comprehension and production would not be new and it has already been highlighted for syntactic research. For example, Gerken et al. (1990) have looked at the processing of function words and shown that children experience difficulties in comprehending sentences which lack function words, despite children omitting these in their productions. We suggest that the improvement in performance with comprehension attested for questions with ESK can also be conceptualized in terms of optionality. Thus, the presence of ESK erases the possibility for the *wh*-element to remain in-situ. If optionality increases processing difficulty, then we can explain why the insertion of ESK, erasing optionality of movement, facilitates processing. Note that, despite the presence of ESK, there is still a significant difference between [-NP] and [+NP] questions showing that the featural make-up of the *wh*-element plays an important role in comprehension.

To summarize, we provided an account for the subject/object asymmetry in the comprehension of RCs and *wh*-questions in French which capitalizes on the interplay between structural optionality and stricter intervention effects in child grammar. Several issues remain, however, open to further investigation: testing the facilitating role of ESK in comprehension, testing other types of RCs such as those with a [+movement; -intervention] configuration (i.e. *free* relatives), as well as testing the effect of optionality cross-linguistically.

5. Conclusions

The present study supports the hypothesis that the subject/object asymmetry found with A'-constructions is modulated by specific features/mechanisms used in the language to express such dependencies. Several comprehension patterns for object A'-dependencies emerge from our study: (a) *wh* in-situ questions are easier to understand than *wh* ex-situ questions regardless of the featural make-up of the *wh*-element; (b) [-NP] ex-situ questions yield better results than [+NP] ex-situ questions, suggesting that the presence of the lexical restriction [+NP] on the moved constituent matters; (c) when comparing [+NP] ex-situ questions to [+NP] RCs, we show that the former are worse for comprehension. In both constructions the moved constituent is lexically restricted, so what distinguishes the two is the optionality of moving the *wh*-element. We demonstrate a complexity scale for comprehension of French questions and RCs in which complexity arises when the elements creating the dependency share a similar featural specification with an intervening element (i.e. the subject of the RC or of the *wh*-question) and in which complexity increases in the presence of syntactic optionality, when a non-movement option is available for a given structure.

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