- -

Aspects of the acquisition of locality: comprehension and production studies in Italian and French

- -

Martini, Karen

UNIVERSITÉ
DE GENÈVE

FACULTÉ DES LETTRES
Département de linguistique

Aspects of the acquisition of locality

Comprehension and production studies in Italian and French

Thèse de doctorat

Présentée à la Faculté des Lettres de l'Université de Genève pour l'obtention du titre de
Docteur es Lettres, mention Linguistique

par

Karen Martini

2020

JURY DE THÈSE
Prof. Christopher Laenzlinger, président du jury
Prof. Adriana Belletti, directeur
Prof. Ur Shlonsky, co-directeur
Prof. Laurie Tuller, membre du jury
Prof. Naama Friedmann, membre du jury

To my husband Gregory,
and my son Elia

Preface

Part of Chapter 2 and part of Chapter 4 were published in *Generative Grammar in Geneva (GG@G) 2017, 10.* Part of Chapter 3 was published in *Language Acquisition and Development. Proceedings of GALA 2017*, P. Guijarro-Fuentes and C. Suárez-Gómez (Eds). Parts of all the chapters were presented at various language acquisition and syntax conferences from 2016 to 2018. I am truly thankful to the participants at these conferences for their valuable questions and comments on this work.

Acknowledgements

My foremost thanks go to my supervisor and mentor, Adriana Belletti. Adriana is the one who first opened my eyes and heart to research on language and language ability in all its forms, and she still does. Her passion and thinking have impressed me since the first day I met her. She supported me in my scientific and personal journey with her encouragement and understanding, even through its more confused and difficult moments. I am deeply indebted to her. Very special thanks also go to Luigi Rizzi, whose work and knowledge have been an invaluable source of inspiration. I am wholeheartedly grateful I had the chance to work with them for the ERC SynCart project and learn so much from them, including, above all, the beauty of wonder. Thanks to Giuliano Bocci, for always being willing to help, and for being supportive and encouraging from the first day to the last. I thank my PhD colleague, Giuseppe Samo, for the work we did together, for the moments of friendship we shared in this experience, and for constantly filling our office with cheer. I owe to the Syncart project and its members much of the good that is in this dissertation. Grazie!

I want to thank Ur Shlonsky, who agreed to be my co-supervisor, Naama Friedmann and Laurie Tuller, who agreed to be members of the defense committee, and Christopher Laenzlinger, who agreed to be the president of the jury. Thank you so much.

I thank all the members of the Department of Linguistics in the University of Geneva, whom I have missed a lot these last two years far away. I am deeply grateful I had the chance to share a piece of my life with such an extraordinary group. I also thank all the colleagues with whom I shared knowledge and fun at conferences, workshops, and summer and winter schools.

When I decided to begin this journey, my supervisor told me 'You will see, this will be an enriching experience of inestimable value that you will carry with you in the future'. She was right. These five years have been undoubtedly very precious for my personal growth.

Thanks to the flame that brought me to Geneva and all the way to where, and who, I am now.

Thanks to my parents, Fabiola e Gianni, who once again pushed me beyond my doubts to embrace an unexpected amazing opportunity. Thanks to you and to Chiara, who never stopped to encourage me and rejoice with my achievements.

Table of Contents

List of Tables

List of Figures

Chapter 1: Introduction

1.1. SUBJECT-OBJECT RELATIVE ASYMMETRY

Since the seventies, a large body of research has focused on relative clauses (e.g. Brown 1972, Sheldon 1974, Fodor et al. 1974, Hakes et al. 1976, Frauenfelder et al. 1980, Tavakolian 1981, Holmes & O'Regan 1981, Correa 1982, Ford 1983, Bader 1990, King & Just 1991, Kuhn 1993, Schriefers et al. 1995, McKee et al. 1998). In particular, the asymmetry in speakers' performance between subject and object relatives has captured the interest of many linguists and psycholinguists. While subject relative clauses (example 1a) are quite easy to acquire and process, object relative clauses (example 1b) are rather difficult.

(1) a. The girl that hugs the mom.
     b. The mom that the girl hugs.

While typically developing children have already mastered subject relatives by the age of 3 and a half, they experience difficulties in the comprehension and production of object relatives even after the age of 5, a result found across languages (e.g., Ferreiro et al. 1976 on French and Spanish; Tavakolian 1981 and Mc Kee et al. 1998 on English; Friedmann & Novogrodsky 2004 on Hebrew; Belletti & Contemori 2010 and Contemori & Belletti 2014 on Italian).

Healthy adults can successfully compute object relatives, as shown by their excellent performance in off-line comprehension tasks (e.g., Belletti et al. 2012 on Italian). However, in off-line production tasks, they tend to answer the elicitation of object relatives with non-target structures (e.g., Belletti & Contemori 2010 and Belletti & Chesi 2014 on Italian; Guasti & Cardinaletti 2003

on French).[1] Moreover, a number of psycholinguistic studies have shown that adults take more time and make more errors in the processing of object relatives compared to subject relatives (e.g., Hakes et al. 1976, King & Just 1991, Gordon et al. 2001, 2004, and Warren & Gibson 2002, 2005 on English; Frauenfelder et al. 1980 and Holmes & O'Regan 1981 on French; Kuhn 1993 and Schriefers, Friederici & Kuhn 1995 on German).

Individuals suffering from pathologies that affect the linguistic processing show great difficulties in the comprehension and production of object relatives compared to subject relatives. Much evidence comes from aphasia (Caramazza & Zurif 1976, Berndt & Caramazza 1980, Garraffa & Grillo 2008, Grillo 2008) and Specific Language Impairment (Novogrodsky & Friedmann 2006, Friedmann & Novogroodsky 2008, Contemori & Garraffa 2010), but also from developmental dyslexia (Cardinaletti & Volpato 2015, Guasti et al. 2015), hearing impairment (Friedmann et al. 2010, Volpato & Vernice 2014), autism (Durrleman et al. 2016), Alzheimer (Caloi 2013, Molympaki et al. 2013) and Parkinson (Grossman et al. 2000).

Both subject and object restrictive relatives serve the function of restricting the set of referents for the head noun, and they both involve a dependency between the head noun in the left periphery of the clause and the argument position from which it moved. In subject relatives, the subject moves to the left periphery of the clause (subject A'-dependency); see example (2a), illustrating a simplified representation of the movement of the subject (see Rizzi & Shlonsky 2007 on the precise position from which the subject movement takes place). In object relatives, the object moves to the

---

[1] Young children, who do not productively master passive, answer the elicitation of object relatives producing various types of incorrect responses (subject relatives in which the head or the thematic roles are reversed (Ib-c), subject relatives with a different verb (Id), simple sentences (Ie), fragments, etc.; Belletti & Contemori 2010, Contemori & Belletti 2014, Guasti & Cardinaletti 2003, Zukowski 2009, Arnon 2010, Costa et al. 2014). Older children and adults tend to produce correct passive object relatives ((If); Belletti & Contemori 2010, Contemori & Belletti 2014, Belletti & Chiesi 2014, Guasti & Cardinaletti 2003, Delage 2008, Adani et al. 2012, Yatsushiro & Sauerland 2019). We will discuss in detail passive object relatives and the reasons why they seem to be preferred over object relatives in Chapter 4.

I) a. Elicited object relative: The girl that the friend pushes.
   b. Subject relative with head reversal: The friend that pushes the girl.
   c. Subject relative with role reversal: The girl that pushes the friend.
   d. Subject relative with verb change: The girl that falls.
   e. Simple sentence: The friend pushes the girl.
   f. Passive object relative: The girl that is pushed by the friend.

left periphery of the clause (object A'-dependency); see (2b). In examples (2a-b) and throughout, we assume a raising analysis of relative clauses (Vergnaud 1974, Kayne 1994, Bianchi 1999), according to which the relative head raises to the left peripheral position within the CP from its argument position. To simplify the illustration of the derivation, we assume raising of the whole DP. The elements in angle brackets represent the silent copies of the moved elements (in line with Chomsky 1995).

(2) a. The girl [that [<the girl> hugs the mom]]
    b. The mom [that [the girl hugs <the mom>]]

Over decades, numerous different approaches have tried to identify the source of the difficulties that speakers experience with object relatives but not with subject relatives, despite the apparent similarity of the two structures. The next two sections will present the featural Relativized Minimality approach to these difficulties, which will be the theoretical background for the next chapters, and the main ideas of some major alternative approaches.

1.2. THE FEATURAL RELATIVIZED MINIMALITY APPROACH

The difficulties observed across languages and populations in the computation of object relatives have been explained in recent years in terms of intervention locality (Friedmann et al. 2009 and subsequent work). Locality is a cardinal property of the syntax of natural languages. «If natural language syntax is unbounded because of its recursive nature, syntactic rules are typically local, in the sense that, even when the relevant elements affected by a syntactic rule are part of a very large structure, the rule applies only on a very limited portion of it» (Rizzi 2013: 169). Two major types of locality principle seem to constrain syntactic operations: impenetrability locality and intervention locality (Rizzi 2013).[2] According to impenetrability locality, particular syntactic configurations are impervious to rules; these configurations are the so-called "islands" since Ross (1967), namely relative clauses, adverbial clauses, and sentential subjects. As illustrated by (3) from Rizzi (2013), it is not possible to extract an element from a relative clause.

---

[2] See Rizzi (2009) for the possibility of a unified approach to impenetrability and intervention.

(3) * It is John's book that Bill met a woman [who had not read < John's book>]

<p style="text-align: right;">[Rizzi 2013:171]</p>

According to intervention locality, movement and other local syntactic processes fail in the presence of an intervening element. This locality principle is formalized by the theory of featural Relativized Minimality, henceforth fRM (Rizzi 1990, 2004, 2013, Starke 2001). The first formulation of this theory (Relativized Minimality, RM, Rizzi 1990) captured the ill-formedness of sentences like (4).

(4) * How do you wonder who could solve the problem <how>?

RM stated that in a configuration of the type X…Z…Y, a local relation between X and Y cannot hold if Z intervenes between X and Y, and if Z is of the same structural type as X. Taking movement as key case, X is the target of movement (the functional element that attracts Y creating the dependency), Y is the origin and Z is the intervener. Crucially, intervention is defined structurally, through the notion of c-command: Z structurally intervenes between X and Y if X c-commands Z and Z c-commands Y. Being of the same structural type means occupying the same type of position in the structure. The theory distinguishes between head-positions (essentially occupied by single words, for example auxiliaries), argumental-positions (A-positions, typically the subject position), and non-argumental positions (A'-positions, typically the ones in the left periphery of the clause). Heads block the movement of other heads, argumental phrases block the movement of other argumental phrases, and non-agumental phrases block the movement of other non-argumental phrases. Thus, the ill-formedness of (4) is traced back to the presence of the wh-element *who* intervening in the movement of the wh-element *how*.

This first formulation of the theory was revised based on the observation of asymmetries such as (5a)-(5b) (examples from Rizzi 2004, quoting Huang 1982).

(5) a. * How do you wonder who could solve the problem <how>?
     b. ? Which problem do you wonder how to solve <which problem>?

Both *how* in (5a) and *which problem* in (5b) occupy an A'-position and cross an A'-position (*who* in (5a) and *how* in (5b) respectively). Both sentences are thus expected to be ill-formed under Relativized Minimality. In fact, (5b) is (relatively) acceptable. The locality principle was therefore refined as in (6), starting from the intuition that a more richly specified element can be extracted from the domain of a less richly specified element, but not vice versa.

(6) Featural Relativized Minimality (fRM, Starke 2001, Rizzi 2004, 2013, Friedmann et al. 2009): Given a configuration of the type X…Z…Y, a local configuration between X and Y cannot hold if Z structurally intervenes between X and Y, and Z fully matches the specification of X in relevant morphosyntactic features.

While in the first version of the theory intervention was relativized to the position type of the target of movement, in the revised version intervention is relativized to the featural specification of the target of movement. Syntactic positions are specified by sets of morphosyntactic features, providing instructions for syntactic operations such as movement. Movement is triggered by a syntactic position of the type head attracting an element specified by the same set of features. Only features involved in attracting movement are relevant for the calculation of intervention in movement operations (Friedmann et al. 2009, Belletti et al. 2012, Friedmann et al. 2017). The schema in (7) from Friedmann et al. 2009 summarizes the possible relations holding between the featural specification of the target of movement X and the intervener Z. The relations are expressed in set theoretic terms; A, B and C represent features relevant for syntactic movement.

(7)		**X**	**Z**	**Y**	**Adult grammar**
a.	identity:	+A	+A	<+A>	*
b.	inclusion:	+A, +B	+A	<+A, +B>	ok
c.	disjunction:	+A	+B	<+A>	ok

When the specification of the intervener Z is identical to the specification of the target X, it is not possible to establish a local relation between Z and Y, and thus the structure is ruled out by fRM (7a). When the featural specifications of Z and X are disjointed, the principle is satisfied and the

structure is well-formed (7c). The structure is also well-formed when the featural specification of Z is properly included in the feature specification of X (7b).[3]

Coming back to (5) reported below as (8), (8a) is unacceptable under fRM because the wh-element *how* cannot move across the wh-element *who*, which is specified by the same Q feature (the feature responsible for wh-movement in questions) and which structurally intervenes between the target and the origin of movement. In (8b), by contrast, the wh-element *which problem* is specified by both the features Q and NP (NP is the feature expressing the lexical restriction and participating in defining the exact target position of wh-movement; the role of the NP feature in intervention locality will be the focus of Chapter 2), while the structurally intervening wh-element *how* is only specified by Q. Thus, the featural specification of *which problem* includes that of *how* in (8b) and the movement is not blocked.[4]

(8) a. * How$_{+Q}$ do you wonder who$_{+Q}$ could solve the problem <how$_{+Q}$ >?

    b. ? Which problem$_{+Q +N}$ do you wonder how$_{+Q}$ to solve <which problem$_{+Q +N}$ >?

Friedmann et al. (2009) extended the fRM approach to account for the difficulties with comprehension and production of object relatives that have been observed in children with typical development across languages (e.g., Ferreiro et al. 1976 on French and Spanish; Tavakolian 1981 and Mc Kee et al. 1998 on English; Friedmann & Novogrodsky 2004 on Hebrew; Belletti &

---

[3] Another possible relation between the featural specifications of the target and the intervener is inverse inclusion, in which the featural specification of the intervener includes the one of the target, as in (II):

(II) * What$_{+Q}$ do you wonder what student$_{+Q +NP}$ could buy < what$_{+Q}$>?

Villata et al. (2016) showed that adults perceive inverse inclusion as degraded as identity. This is in line with the predictions from fRM. Indeed, what matters for the fRM principle is the featural specification of the target of movement with respect to the intervener. When the target is different from the intervener or it is more richly specified than the intervener, the intervener does not block the local dependency. In contrast, when the featural specification of the target is included in the one of the intervener, as in inverse inclusion (II), the target is not allowed to cross over the intervener by the locality principle.

[4] The comparison between (8a) and (8b) is not perfectly minimal, as *which problem* and *who* are arguments, whereas *how* is an adjunct. A more minimal pair would be (III) and (IV). Villata et al. (2016) showed that adults slightly but systematically prefer (IV) to (III).

(III) * What$_{+Q}$ do you wonder who$_{+Q}$ could buy <what$_{+Q}$ > ?

(IV) ?? What book$_{+Q +NP}$ do you wonder who$_{+Q}$ could buy <what book$_{+Q +NP}$ >?

The authors also showed that (IV) is preferred to (III) irrespectively of D(iscourse)-linking (Pesetsky 1987, Cinque 1990, Rizzi 2001), a factor that has been often assumed to affect the acceptability of weak-island violations. What makes (IV) different from (III) in adults' judgements is thus the presence of the NP feature in (IV) modulating the intervention configuration of identity..

Contemori 2010 and Contemori & Belletti 2014 on Italian). The concept of intervention historically lay at the heart of research on extraction phenomena in formal syntax; after Friedmann et al. (2009), intervention has become central to research on acquisition, and in general to research on the difficulties that speakers experience in the computation of these structures across populations and languages.

According to Friedmann et al. (2009), object relatives are more difficult for children than subject relatives as they involve intervention. As we saw in the previous section, both subject and object relatives have the function of restricting the set of referents for the head noun, and both involve a dependency originated by the movement of an argument from its argumental position to the left periphery of the clause. However, the two structures differ in the position from which the relativized argument moves. In object relatives like (9a), the object, by moving to the relative head position in the left periphery of the clause, crosses over a structurally intervening subject. Observe the featural specifications of both the target of movement and the intervener in (9a). The target, which is specified by the features R and NP (R is the feature responsible for movement to the relative head position), includes the intervener, which is only specified by NP. In subject relatives (9b), contrarily, there is no potential intervener in the movement of the subject to the relative head position in the left periphery of the clause.

(9) a. The mom$_{+R\ +NP}$ that the girl$_{+NP}$ hugs <the mom$_{+R\ +NP}$>

    b. The girl$_{+R\ +NP}$ that <the girl$_{+R\ +NP}$> hugs the mom

The presence of a relation of inclusion between target and intervener makes object relatives like (9a) problematic for the child system. Indeed, children have no difficulty with object relatives like (10), so-called free object relatives (from Friedmann et al. 2009; note that in the original work (10) is in modern Hebrew) involving a disjunction relation between the featural specifications of target and intervener.

(10) Show me who$_{+R}$ the lion$_{+NP}$ is washing <who$_{+Q}$>

Thus, object relatives are not all equally difficult for children. Object relatives are problematic for the child system when they involve an intervention configuration of inclusion between the relativized object and the subject. This result from Friedmann et al. (2009) has been corroborated by a number of studies on the acquisition of relative clauses across languages (e.g. Adani et al. 2010 on Italian; Belletti et al. 2012 and Biran & Ruigendijk 2015 on Hebrew; Contemori & Marinis 2014 on English; Bentea 2017 on French; see Section 1.2.1).

Some difficulty with object relatives containing an intervention configuration of inclusion also emerges in the adult system. Adults perform at ceiling in the off-line comprehension of object relatives like (11) (Belletti et al. 2012), showing that they are totally able to compute inclusion.

(11) Show me the girl$_{+R +NP}$ that the grandma$_{+NP}$ kisses <the girl$_{+R +NP}$ >

However, when we look at online measures, we see that the computation of this type of configuration is still problematic. Adults take more time and make more errors in the on-line processing of object relatives like (12a), compared to object relatives like (12b) and subject relatives (12c) (e.g., Warren & Gibson 2002, 2005, Gordon et al. 2001, 2004)[5].

(12) a. The reporter$_{+R +NP}$ that the senator$_{+NP}$ attacked <the reporter$_{+R +NP}$> disliked the editor
       b. The reporter$_{+R +NP}$ that you attacked <the reporter$_{+R +NP}$> disliked the editor
       c. The reporter$_{+R +NP}$ that <the reporter$_{+R +NP}$> attacked the senator disliked the editor

The schema in (13) from Belletti et al. (2012) summarizes the possible relations holding between the featural specifications of the target X and the intervener Z in the intervention configuration, taking also into account the relation of intersection, and both child and adult grammars.

---

[5] Note that in (12) the feature labels are added to make the interpretation of the data in terms of fRM clearer for the reader, but they do not fit in the spirit of the original work.

(13)		X	Z	Y	Child grammar	Adult grammar
a.	identity:	+A…	+A …	<+A,>	*	*
b.	inclusion:	+A,+B…	+A …	<+A,+B>	*	ok but hard
c.	intersection:	+A, +B ...	+B, +C…	<+A, +B>	ok	ok
d.	disjunction:	+A …	+B …	<+A>	ok	ok

The hypothesis underlying (13) is that the same locality principle is operative in both child and adult systems. Inclusion, tolerated by the adult system, despite being harder to compute than intersection and disjunction, is not tolerated by the child system, which obeys a stricter locality requirement due to its reduced computational resources, compared to the adult system.

Note that while this dissertation focuses on relative clauses, the same analysis explains the difficulties observed in the comprehension and production of certain object questions. Speakers have no difficulties with who and which subject questions like (14a-b) (no intervention in the movement of the subject to the wh-element position in the left periphery of the clause) or with who object questions like (14c) (disjunction relation between the object moving to the left periphery of the clause and the intervening subject). However, they show great difficulties with which object questions like (14d) (relation of inclusion between the moved object and the intervening subject) (e.g., Hickok & Avrutin 1996, Avrutin 2000, Hamann 2005, Jakubowicz & Gutierrez 2007, Friedmann et al. 2009, Salis & Saddy 2011, Sheppard et al. 2015; but see De Vincenzi et al. 1999 and Belletti & Guasti 2015 for Italian, where subject-verb inversion adds an element of complexity). We also refer the reader to Belletti and Manetti (2019) for an analysis, in terms of fRM, of the difficulties that children encounter with another type of object A'-dependency, namely clitic left dislocations of the object like (15) (inclusion relation between the left dislocated object and the intervening subject).

(14) a. Who$_{+Q}$ washes <who$_{+Q}$> the lion?

    b. Which girl$_{+Q +NP}$ hugs <which girl$_{+Q +NP}$> the mom?

    c. Who$_{+Q}$ does the lion$_{+NP}$ wash <who$_{+Q}$>?

    d. Which mom$_{+Q +NP}$ does the girl$_{+NP}$ hug <which mom$_{+Q +NP}$>?

(15) Il gatto$_{+TOP +NP}$ il cane $_{+NP}$ lo lava <il gatto$_{+TOP +NP}$ >.

the cat$_{obj}$ the dog$_{subj}$ him$_{Cl}$ washes <the cat>

'The cat, the dog washes him'

The featural Relativized Minimality theory also distinguishes between criterial inclusion and non-criterial inclusion (Rizzi 2018). In criterial inclusion, the intervener is specified by criterial features (features responsible for triggering movement and expressing interpretative properties at the interfaces with semantics and pragmatics, e.g. Q and R) that are included in the featural specification of the target of movement. In contrast, in non-criterial inclusion, the features specifying the intervener and included in the specification of the target are non-criterial (features which only determine the target position of movement in cooperation with criterial features, e.g. NP). Structures involving non-criterial inclusion, such as object relatives (16), are fully acceptable for adults, even if harder to compute than those involving disjunction or intersection. In contrast, structures involving criterial inclusion, such as extractions from indirect questions (17), are perceived as deviant, although more acceptable than the ones involving identity (18).[6]

(16) This is the book$_{+R +NP}$ that the professor$_{+NP}$ bought < the book$_{+R +NP}$>   [Rizzi 2018:359]

(17) ?? What book$_{+Q +NP}$ do you wonder who$_{+Q}$ could buy < what book$_{+Q +NP}$> ? [Rizzi 2018:348]

(18) * What$_{+Q}$ do you wonder who$_{+Q}$ could buy <what$_{+Q}$>?   [Rizzi 2018:348]

Fig. 1.1 from Rizzi (2018) illustrates this further distinction. The fRM theory thus captures the gradation present in intervention effects. The more the target and the intervener are similar in features relevant for movement (taking also into account the distinction between criterial and non-criterial features), the more the computation of intervention is difficult, down to the worst case of identity, which is unacceptable for both children and adults.

---

[6] The case of criterial inclusion in children remains to be investigated.
Note that the presence of an extraction from an embedded domain in (17), compared to a movement within a same clause in (16), does not seem to be the cause of the asymmetry between the two structures. Indeed, if we add an extraction step to (16) the acceptability of the structure does not change (V) (Rizzi 2018):
(V) This is the book$_{+R +NP}$ that I think that the professor$_{+NP}$ bought < the book$_{+R +NP}$ >
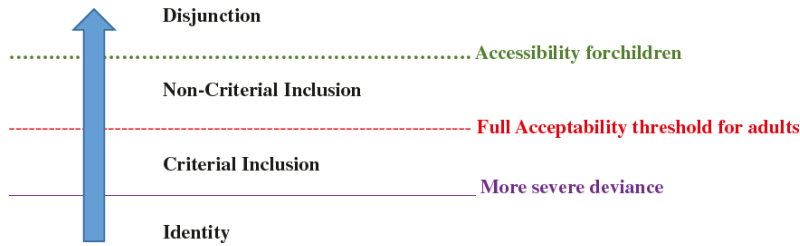
Fig. 1.1. The hierarchy of distinctness between target and intervener, from Rizzi (2018).

The hypothesis that intervention is responsible for the difficulties with certain types of object relatives (and other object A'-dependencies) has been explored not only for the early and adult systems, but also for impaired systems. The first attempt to interpret difficulties with object relatives of individuals affected by language related pathologies in terms of Relativized Minimality is by Grillo (2008), whose work on aphasia partly inspired the analysis of the developmental pattern by Friedmann et al. (2009). A great deal of experimental work along this line of research has followed (e.g., Garraffa & Grillo 2008, Sheppard et al. 2015, Terzi & Nanousi 2018, Martini et al. 2019, on aphasia; Contemori & Garraffa 2010 on SLI; Volpato & Vernice 2014 on hearing impairment; Durrleman et al. 2016 on autism; Caloi 2013 on Alzheimer). The fRM approach thus appears to be promising also for the study of language pathology.

1.2.1 Not every feature matters

According to featural Relativized Minimality, only features involved in triggering movement are relevant for the calculation of intervention in movement operations (Belletti et al. 2012, Friedmann et al. 2017 and references therein). A large number of experimental results has corroborated this hypothesis.

Adani et al. (2010), in an off-line comprehension study, showed that 5- to 9-year-old Italian-speaking children comprehend object relatives like (19c-d), in which the moved lexical object and the intervening lexical subject mismatch in the number feature, significantly better than object relatives like (19a-b), in which the lexical object and the lexical subject match in number.

(19) a. Il leone$_{+R\ +NP\ sing}$ che il gatto$_{+NP\ sing}$ sta toccando è seduto per terra.

     The lion that the cat is touching is sitting

  b. I coccodrilli$_{+R\ +NP\ plur}$ che i cammelli$_{+NP\ plur}$ stanno toccando sono seduti per terra.

     The crocs that the camels are touching are sitting

  c. Il leone$_{+R\ +NP\ sing}$ che i coccodrilli$_{+NP\ plur}$ stanno toccando è seduto per terra.

     The lion that the crocs are touching is sitting

  d. I coccodrilli$_{+R\ +NP\ plur}$ che il leone$_{+NP\ sing}$ sta toccando sono seduti per terra.

     The crocs that the lion is touching are sitting   [Adani et al. 2010: 2156]

The same ameliorating effect of the mismatch in number between the relativized object and the intervening subject is found in English by Contemori and Marinis (2014) in an on-line comprehension study. 6- to 8-year-old English-speaking children perform significantly better in the comprehension of object relatives like (20c-d) (number mismatch) compared to object relatives like (20a-b) (number match).

(20) a. This is the cow$_{+R\ +NP\ sing}$ that the goat$_{+NP\ sing}$ is pushing in the field

  b. These are the cows$_{+R\ +NP\ plur}$ that the goats$_{+NP\ plur}$ are pushing in the field

  c. This is the cow$_{+R\ +NP\ sing}$ that the goats$_{+NP\ plur}$ are pushing in the field

  d. These are the cows$_{+R\ +NP\ plur}$ that the goat$_{+NP\ sing}$ is pushing in the field

                         [Contemori & Marinis 2014: 669]

Similar results come from Bentea (2017) on French. A number mismatch between the two lexical arguments improves the off-line comprehension of object relatives in 6-year-old French-speaking children (that is, (21b) is comprehended better than (21a)), although the same effect is not observed in 5-year-olds.

(21) a. Montre-moi le chat$_{+R\ +NP\ sing}$ que le garçon$_{+NP\ sing}$ lave.

     Show me the cat that the boy is washing

  b. Montre-moi le chat$_{+R\ +NP\ sing}$ que les garçons$_{+NP\ plur}$ lavent.

     Show me the cat that the boys are washing

                             [Bentea 2017: 36]

More recently, Manetti et al. (2016) found that a mismatch in number between moved lexical object and intervening lexical subject has a facilitating effect on the comprehension of clitic left dislocations in 5-year-old Italian speaking children, who comprehend (22b) better than (22a).

(22) a. Il gatto$_{+TOP\ +NP\ sing}$ il cane$_{+NP\ sing}$ lo morde <il gatto$_{+TOP\ +NP\ sing}$>.

The cat$_{obj}$ the dog$_{subj}$ him$_{Cl}$ bites <the cat>

'The cat, the dog bites him' [Manetti et al. 2016: 232]

b. Il gatto$_{+TOP\ +NP\ sing}$ i cani$_{+NP\ plur}$ lo mordono <il gatto$_{+TOP\ +NP\ sing}$>.

The cat$_{obj}$ the dogs$_{subj}$ him$_{Cl}$ bite <the cat>

'The cat, the dogs bite him' [Manetti et al. 2016: 234]

These results on children's performance with object relatives (and other object A'-dependencies, like clitic left dislocations) are predicted by the fRM theory. In Italian, English, and French, the number feature belongs to the set of phi features that are expressed in the finite verbal morphology and that participate in attracting the subject to its target position in the specifier of the inflectional head. Thus, the number feature is a feature relevant for movement in these languages and, as such, relevant to the calculation of intervention under fRM. If the number feature is considered in the calculation of intervention in (19)-(22), as illustrated by the indices in the examples, then an intersection relation is present between object and subject in object relatives with a number mismatch between the two lexical arguments. This relation is easier to compute for children than the inclusion relation present between object and subject in object relatives with a number match between the two lexical arguments (see the schema in (13) in Section 1.2).[7]

Adani et al. (2010) and Belletti et al. (2012) reported that a mismatch in gender between lexical relativized object and intervening subject does not significantly affect the comprehension of object relatives in Italian-speaking children. Adani and colleagues tested 5- to 9-year-olds, while Belletti

---

[7] Some evidence on the effect of number mismatch on the computation of sentences involving intervention also comes from production. See Yatsushiro and Sauerland (2017) on the elicited production of relative clauses in 4- to 8-year-old German-speaking children, and Belletti and Manetti (2019) on the elicited production of clitic left dislocations in 4- to 5-year-old Italian-speaking children (although the presence of a null generic pronominal subject may also play a role in the results from this last study). The presence of the effect of a feature relevant for the grammatical principle of locality in both comprehension and production is expected under fRM, being grammar involved in both modalities (see Chapters 2 and 3).

and colleagues observed 3- to 5-year-olds. Italian-speaking children perform the same with object relatives whether they resemble (23c-d) (gender mismatch) or (23a-b) (gender match).[8]

(23) a. Il gatto$_{+R\ +NP\ masc}$ che il topo$_{+NP\ masc}$ sta lavando è salito sullo sgabello.

The cat$_{MASC}$ that the mouse$_{MASC}$ is washing has climbed

b. La capra$_{+R\ +NP\ fem}$ che la mucca $_{+NP\ fem}$ sta lavando è salita sullo sgabello.

The goat$_{FEM}$ that the cow$_{FEM}$ is washing has climbed

c. Il gatto$_{+R\ +NP\ masc}$ che la capra$_{+NP\ fem}$ sta lavando è salito sullo sgabello.

The cat$_{MASC}$ that the goat$_{FEM}$ is washing has climbed

d. La capra$_{+R\ +NP\ fem}$ che il gatto $_{+NP\ masc}$ sta lavando è salita sullo sgabello.

The goat$_{FEM}$ that the cat$_{MASC}$ is washing has climbed

[Adani et al. 2010: 2156]

The lack of an effect of gender mismatch in Italian also emerges in Manetti et al. (2016)'s study on clitic left dislocations. 5-year-old Italian-speaking children show comparable difficulties in the comprehension of clitic left dislocations with and without gender mismatch between the two lexical arguments, as shown in examples (24b) and (24a) respectively.

(24) a. Il gatto$_{+TOP\ +NP\ masc}$ il cane$_{+NP\ masc}$ lo morde <il gatto$_{+TOP\ +NP\ masc}$>.

The cat$_{obj}$ the dog$_{subj}$ him$_{Cl}$ bites <the cat>

'The cat, the dog bites him'

b. La bambina$_{+TOP\ +NP\ fem}$ il principe$_{+NP\ masc}$ la fotografa <la bambina$_{+TOP\ +NP\ fem}$>.

The girl$_{obj}$ the prince$_{subj}$ her$_{Cl}$ photographs <the cat>

'The girl, the prince photographs her'

[Manetti et al. 2016: 235]

The lack of an effect of mismatch in gender is also observed by Angelopoulos and Terzi (2017) in Greek. 4-year-old Greek-speaking children comprehend object relatives like (25a) (gender match

---

[8] In fact, in both studies, children perform slightly better with object relatives with gender mismatch than with object relatives with gender match. We will come back on this aspect of the results in the Section 1.3.

between lexical object and subject) as poorly as they do those like (25b) (gender mismatch between the two lexical noun phrases)[9]:

(25) a. Edo ine i vasilisa$_{+R +NP fem}$ pu akoluthi i kiria$_{+NP fem}$.
here is the$_{-NOM}$ queen$_{-NOM}$ that follows the$_{-NOM}$ lady$_{-NOM}$
'Here is the queen that the lady follows'

b. Edo ine i jaja$_{+R +NP fem}$ pu fotografizi o gabros$_{+NP masc}$.
here is the$_{-NOM}$ grandma$_{-NOM}$ that photographs the$_{-NOM}$ groom$_{-NOM}$
'Here is the grandmother that the groom photographs'

In contrast, Belletti et al. (2012) showed that in Hebrew a gender mismatch between lexical object and subject helps 3- to 5-year-olds comprehend object relatives. Hebrew-speaking children perform significantly better in the comprehension of object relatives with gender mismatch like in (26b) compared to object relatives with gender match like in (26a).

(26) a. Tare li et ha-yalda$_{+R +NP fem}$ she-ha-isha$_{+NP fem}$ mecayeret.
Show me the girl that the woman draws

b. Tare li et ha-yalda$_{+R +NP fem}$ she-ha-rofe$_{+NP masc}$ mecayer.
Show me the girl that the (male)doctor draws   [Belletti et al. 2012: 7]

Confirming evidence for the effect of gender mismatch in Hebrew comes from Biran and Ruigendijk (2015), who reported that a gender mismatch between moved lexical object and intervening lexical subject improves the comprehension of wh-object questions and object topicalizations in Hebrew-speaking children, who understand (27b) better than (27a), but not in German-speaking children, whose performance with (28b) is as poor as that with (28a). The authors also observed an effect of gender mismatch on repetition in Hebrew but not in German, although the results from production are less clear.

---

[9] Nominal constituents and determiners are Case marked in Greek, but see example (31) in the text for the irrelevance of a Case mismatch for the principle of intervention locality.

(27) a. et eize drakon+Q +NP masc ha-dov+NP masc kosher?

    ACC which dragon the-bear ties?

  b. et eize leican+Q +NP masc ha-malka+NP fem mecalemet?

    ACC which clown the-queen photographs?

(28) a. Welchen Drachen+Q +NP masc fesselt der Bär+NP masc?

    which-ACC dragon ties the-NOM bear?

  b. Welchen Clown+Q +NP masc fotografiert die Königin+NP fem?

    which-ACC clown photographs the-NOM queen?

These apparently mixed results are in line with the predictions made by the featural Relativized Minimality approach. The role of the same feature can indeed be different across languages. The gender feature, for instance, does not belong to the set of phi features attracting movement to the subject position in Italian, Greek, and German, but it does in Hebrew. Thus, this feature is predicted by fRM to not be relevant in the calculation of intervention in Italian, Greek, and German, but to be so in Hebrew. A gender mismatch between the lexical object moving to the left periphery of the clause and the intervening lexical subject does not modulate the inclusion relation present between the two noun phrases in examples (23c-d), (24b), (25b), and (28b), as it is not considered in the calculation of intervention like it is in examples (26b) and (27b).

Thus, only a mis/match in the features relevant for the locality principle – namely, the features relevant for movement in a given language – enters into the calculation of intervention. A mis/match along other dimensions does not affect the computation of a dependency across an intervener. Corroborating evidence comes from Costa et al. (2014)'s study, showing that a mismatch in the grammatical category (DP versus PP) of object and subject has no impact on the comprehension of object relatives in Hebrew (example (29)) or in European Portuguese (example (30)). 5-year-old Hebrew-speaking children and 4- to 5-year-old European Portuguese-speaking children have the same difficulties with PP object relatives like (29a) and (30a) and object relatives like (29b) and (30b).

 (29) a. Tare li et ha-yeled R +NP PP she-ha-kof+NP DP nogea b-o.

    Show me the boy that the monkey lays a hand on him

b. Tar'e li et ha-kof$_{+R\ +NP\ DP}$ she-ha-yeled$_{+NP\ DP}$ melatef.

Show me the-monkey that the boy pets

(30) a. Mostra-me o menino $_{R\ +NP\ PP}$ em que o macaco$_{+NP\ DP}$ toca.

Show me the boy in that the monkey touches

b. Mostra-me o macaco $_{+R\ +NP\ DP}$ que o menino$_{+NP\ DP}$ acaricia

Show me the monkey that the boy pets

[Costa et al. 2014:392]

Similarly, a Case difference between target and intervener does not improve the comprehension of which object questions in Hebrew-speaking children (Friedmann et al. 2017). 3- to 6-year-olds perform with which object questions of the type (31a), containing a case-marked object, as poorly as they do with which object questions of the type (31b), containing a non-case marked object. These results from Friedmann et al. (2017) confirm and clarify previous data from Biran and Ruijendick (2015) on the comprehension and repetition of object questions in German, and from Bentea (2017) on object relatives in Romanian.

(31) a. Et eize pil$_{+Q\ +NP\ acc}$ ha-arie$_{+NP}$ martiv?

ACC which elephant the-lion wets?

b. Eize pil$_{+Q\ +NP}$ ha-arie$_{+NP}$ martiv?

which elephant the lion-wets?

[Friedmann et al. 2017: 3]

The hypothesis put forth by Friedmann et al. (2017: 11) is that only features «active on the probe and attracting movement from there» are relevant to the computation of intervention in movement dependencies. This is the case, for example, with phi features (see Chapter 2, Section 2.2 for the NP feature). Case, in contrast, only participates in movement as a property of the goal, «making the goal active and available to be attracted», and as such is not expected to be relevant in the calculation of intervention in movement operations.

Chapters 2 and 3 of this dissertation will focus on the impact of other two features on the performance of speakers with sentences involving intervention, the lexical restriction feature and the animacy feature.

1.3.   ALTERNATIVES TO FEATURAL RELATIVIZED MINIMALITY

A number of other approaches have tried to address the phenomenon of subject-object relative asymmetry. As presenting all of them here would go beyond the scope of this work, we will just briefly consider the main ideas among fRM's major alternatives.

Much psycholinguistic work on subject-object relative asymmetry analyzes the difficulties speakers experience with object relatives as a parsing problem. Following this type of approach, the presence of a subject which intervenes between the displaced object and its gap, and which is similar to the object, makes the object dependency in object relatives hard to parse (e.g. Gordon et al. 2001, 2004, Lewis et al. 2006, Van Dyke & McElree 2006). Any kind of dis/similarity between the moved element and the intervener is assumed to have an impact on the computation of the dependency, and intervention is defined linearly (Z intervenes between X and Y when X precedes Z and Z precedes Y in the linear order).

The experimental evidence presented in the previous section however clearly points in another direction. We saw that certain dissimilarities do have an effect on the computation of sentences containing a movement dependency across an intervener, whereas other dissimilarities do not. Dissimilarity in the number feature between moved object and intervening subject helps children with the computation of object relatives in Italian, English and French (see Section 1.2.1, surrounding examples (19-22)). In contrast, dissimilarity in the gender feature does not help children with these structures in Italian or Greek (Section 1.2.1, surrounding examples (23-25)). Dissimilarity in grammatical category has no effect on the computation of these structures neither in Hebrew nor in European Portuguese (see Section 1.2.1, surrounding examples (29-30)). Also, dissimilarity in Case has no effect in Hebrew, German, Romanian, or Greek (see Section 1.2.1, surrounding example (31)). We also saw that the same dissimilarity can have different impacts across languages. Dissimilarity in gender has no impact on the computation of sentences involving intervention in Italian, but it does in Hebrew (see Section 1.2.1, surrounding example (26)). More precisely, gender dissimilarity considerably improves the comprehension of object relatives in Hebrew, but only slightly improves it in Italian (Belletti et al. 2012). Moreover, this weak and

marginal effect of gender dissimilarity also shows up in the comprehension of subject relatives in both Hebrew and Italian (Belletti et al. 2012).

These findings are not all captured by similarity-based approaches.[10] Contrary to the predictions made by this type of approaches, only certain mismatches seem to have a significant impact on the computation of movement dependencies across an intervener, and their impact seems to be language specific. Other mismatches instead seem to have a weak, non-structure specific, and non-language specific effect on the computation of complex structures. This is well illustrated by the mismatch in gender, as put forth by Belletti et al. (2012). The mismatch in gender has a selective and significant effect on the computation of object relatives in Hebrew, whereas it only has a non-selective and weak effect on the computation of subject and object relatives in Italian.

An approach based on a formal linguistic theory, sensitive to the properties of grammar and the specific grammatical properties of each language, can capture this kind of effect, which would remain mysterious in a purely similarity-based approach. The grammar-based featural Relativized Minimality approach can explain these results by considering the nature of syntactic movement dependencies and the nature of morphosyntactic features across languages. To recall, structures like object relatives involve the movement of the object from its argument position to the left periphery of the clause across the intervening subject. The features playing a role in movement operations are the same that play a role in the calculation of intervention in movement operations. Only a dissimilarity in these features between the object and the subject is relevant for the computation of the object dependency across the subject. As the nature and status of morphosyntactic features can differ across languages, the relevance of this type of dissimilarity is language specific. A dissimilarity between the two noun phrases along other dimensions may possibly help storage and retrieval from memory of the elements of the sentence, and thus help in processing complex structures like relative clauses. However, the effect of such a dissimilarity is expected to be weak, non-intervention specific, and non-language specific compared to the effect of dissimilarities relevant to the grammatical principle of locality. This is exactly what the data on the gender dissimilarity examples show. Gender dissimilarity considerably affects the

---

[10] In contrast, see Belletti and Rizzi (2013) on the ability of the fRM approach to capture the results on adults' processing of object relatives and object clefts from the psycholinguist work by Gordon et al. (2001, 2004) and Warren, Gibson (2002, 2005).

comprehension of object relatives in Hebrew, where the gender feature is relevant for movement and thus for intervention; 81% of responses were correct in the OR gender mismatch condition, versus 67% of responses in the OR gender match condition (Belletti et al. 2012:8). However, it only slightly improves performance with object relatives in Italian, where gender is not relevant for movement and intervention; in that language, 57% of responses were correct in the OR gender mismatch condition, versus 52% of responses in the OR gender match condition (Belletti et al. 2012:14). Also, gender dissimilarity mildly improves performance with subject relatives, where no intervention is present, in both Italian and Hebrew; in Hebrew, 89% of responses were correct in the SR gender mismatch condition, versus 85% of responses in the SR gender match condition (Belletti et al. 2012:8); in Italian, 86% of responses were correct in the SR gender mismatch condition, versus 82% of responses in the SR gender match condition (Belletti et al. 2012:14). Another feature that seems to have a weak non-selective effect on the computation of relative clauses is animacy, which will be the focus of Chapter 3. Another clear example in this respect is Case, as put forth by Friedmann et al. (2017). Following the authors, Case is not a feature relevant for movement in terms of fRM, and as such it is not relevant in the construction of movement dependencies crossing over an intervener (see Section 1.2.1, surrounding example (21)). A dissimilarity in Case between object and subject does not assist children in the comprehension of object relatives and object questions with a preverbal intervening subject, like in (32) and (33); in Romanian, 30% of responses were correct in the OR with overt case marking condition (32a), versus 29% of responses in the OR without overt case marking condition (32b) (Bentea 2017); in Hebrew, 73% of responses were correct in the object question with overt case marking condition (33a), versus 74% of responses in the object question without overt case marking condition (Friedmann et al. 2017).

(32) a. Arată-mi elefantul$_{+R\ +NP\ acc}$ pe care crocodilul$_{+NP}$ îl stropeşte

     show-me elephant.the ACC which crocodile.the him splashes

   'Show me the elephant that the crocodile splashes'

  b. Arată-mi elefantul$_{+R\ +NP}$ care crocodilul$_{+NP}$ îl stropeşte

     show-me elephant.the which crocodile.the him splashes

   'Show me the elephant that the crocodile splashes'   [Bentea 2017: 74]

(33) a. Et eize pil$_{+Q\ +NP\ acc}$ ha-arie$_{+NP}$ martiv?

ACC which elephant the-lion wets?

b. Eize pil ha-arie martiv?

which elephant the-lion wets? [Friedmann et al. 2017: 3]

Nevertheless, children show sensitivity to the presence of overt case marking. When it comes to comprehension of sentences with an ambiguous thematic structure, as in sentences involving an object A'-dependency and a post-verbal subject like (34a) and (35), children show use of the overt object case marker as a cue for identifying the object (and thus the thematic roles) in the sentence. They indeed perform above chance with this type of sentences, showing that they do not interpret them like SVO sentences (which would lead to below chance performance); in German, 51% of responses were correct in an object question condition where the first noun phrase was unambiguously object marked (34a), versus 43% of responses in an object question condition where such marking was ambiguous (34b) (Biran & Ruijendick 2015); in Hebrew, 60.6 % of responses were correct in the object topicalization with overt case marking condition (35) in children with hearing impairment, as were 53.9% of responses in adolescents with syntactic Specific Language Impairment (Friedmann et al. 2017); in Hebrew, the same type of result is also observed in people with aphasia (Friedmann et al. 2017).

(34) a. Welchen Drachen$_{+Q\ +NP\ acc}$ fesselt der Bär$_{+NP}$?

which-ACC/MASC dragon ties the-NOM/MASC bear?

b. Welchen Clown$_{+Q\ +NP}$ fotografiert die Königin$_{+NP}$?

which-ACC/MASC clown photographs the-NOM/FEM queen?

[Biran & Ruijendick 2015: 223]

(35) Et ha pil$_{+Top\ +NP\ acc}$ ha-ze martiv ha-arie$_{+NP}$

ACC the-elephant the-this wets the-lion

'This elephant, the lion wets. [Friedmann et al. 2017: 6]

However, children still have difficulties in reaching a good level of performance in the computation of these structures, compared to their very good performance with structures involving subject A'-dependencies; in German, 80%-85% of responses correct in the which subject question condition

(Biran & Ruijendick 2015). As pointed out by the authors, the presence of an overt object marker helps children identify the object and thus the subject in the sentence, but not in successfully computing a whole structure containing an object chain across an intervener. Thus, in contrast with the predictions from cue-based type of approaches (e.g., Bates & MacWhinney 1989), not every cue for thematic role assignment helps in the computation of a sentence. Overt case marking may be a cue useful for the identification of thematic roles, but not for the computation of movement dependencies across an intervener, as predicted by fRM.[11]

Similarity-based and cue-based approaches on one hand, and the grammar-based featural Relativized Minimality approach on the other, crucially differ in another way as well: how they define intervention. The former define intervention linearly; Z intervenes between X and Y when X precedes Z and Z precedes Y in the linear order. The latter defines intervention structurally, reflecting the fact that the grammar of natural languages pays more attention to hierarchical properties than to linear ones; Z structurally intervenes between X and Y if X c-commands Z and Z c-commands Y.[12] Contrary to the other approaches, featural Relativized Minimality captures the type of asymmetry (36a)-(36b) described in Rizzi (2018). Indeed, although both sentences involve

---

[11] As observed by Luigi Rizzi and Adriana Belletti (personal communication), the results from Guasti et al. (2008, 2012) would seem to be interesting in this respect. The two studies tested the comprehension of ORs with a preverbal subject and ORs with a post-verbal subject in Greek-speaking children. The data showed that children perform better in the comprehension of ORs with a post-verbal subject and a mismatch in case than they do in the comprehension of ORs with a post-verbal subject and a mismatch in number. The data also showed that children perform better on ORs with a preverbal subject and a mismatch in number than they do on ORs with a preverbal subject and a match in number. Moreover, they perform on ORs with a preverbal subject and a mismatch in case as they do on ORs with a preverbal subject and a match in case. These data seem to suggest that while case dissimilarity helps children with object relatives with a post-verbal subject, as a cue for the assignment of thematic roles in sentences with an ambiguous thematic structure, it does not help with object relatives with a preverbal subject, where thematic structure is already disambiguated by word order (as hypothesized by Friedmann et al. 2017). In contrast, number dissimilarity does the opposite. Number mismatch seems relevant in the comprehension of object relatives with a preverbal subject, where it modulates intervention, but not in the comprehension of object relatives with a post-verbal subject, where it only indirectly disambiguates thematic structure via number agreement on the verb. The effect of features relevant to the locality principle, and the effect of dissimilarities/cues irrelevant to the principle, would thus be entirely different and distinguishable, as assumed by fRM.

[12] The hierarchical relation of c-command can be defined as follows: A c-commands B when B is contained in the sister node of A:

(VI)

A

...B...
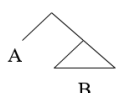
linear intervention of the wh-element *who* in the chain of the wh-element *when*, (36a) is unacceptable whereas (36b) is totally fine. Linear intervention therefore cannot be the crucial factor here. Hierarchical intervention seems to distinguish these sentences. In (36a) the wh-element *who* hierarchically intervenes in the movement of the wh-element *when*, and as both are specified by the Q feature (identity relation), the structure is ruled out by the fRM locality principle. In (36b), by contrast, *who* is embedded in the DP phrase *the uncertainty about who won* and as such does not hierarchically intervene in the movement of *when*. It thus does not qualify as an intervener in the construction of the wh-chain, and the structure is totally well formed according to fRM.[13]

(36) a. *When [does Bill wonder [who [left <when>]]]]?
       b. When [did [the uncertainty [about [who won]]] dissolve <when>]?   [Rizzi 2018: 342]

The grammatical basis of the difficulties with certain object relatives and other object A'-dependencies across languages and populations is also supported by the fact that these difficulties emerge in both comprehension and production. Typically developing children, healthy adults, and individuals affected by language related pathologies struggle with the computation of these structures in both modalities (for some results on production see Guasti & Cardinaletti 2003, Zukowski 2009, Friedmann et al. 2009, Belletti & Contemori 2010, and Belletti & Chesi 2014 on healthy children and adults; Friedmann et al. 2015 and Martini et al. 2019 on pathologies). This finding makes it implausible that such a difficulty arises just from a parsing problem. In contrast, a grammatical approach like fRM predicts this type of result, considering the grammatical principles at play in both language comprehension and production. The emergence of speakers' difficulties with certain object relatives, and of the effect of features relevant to intervention

---

[13] The work by Franck et al. (2006) and Franck et al. (2007) on subject-verb agreement in production also shows that hierarchically intervention is much more relevant than linear intervention in natural languages. Hierarchical intervention is seen in (VIIa), where the object clitic *les* hierarchically intervenes between the subject and the verb. Linear intervention is seen in (VIIb), where the PP *des élèves* only linearly intervenes between the subject and the verb. Hierarchical intervention has a much stronger effect on the elicited production of agreement, resulting in more agreement errors (where the verb erroneously agrees with the object clitic rather than with the subject), than does linear intervention.

(VII) a. Le professeur les lit
            The professor them reads
            'The professor reads them'
       b. Le professeur des élèves lit
            The professor of the students reads   [Franck et al. 2006: 190]

locality, in both production and comprehension, is the focus of the experimental work presented in Chapters 2 and 3.

The featural Relativized Minimality approach, based on grammar and a precise formal theory, therefore appears better able to capture the nature of the subject-object relative asymmetry phenomenon and provide more detailed and valuable predictions, compared to other approaches.[14]

1.4.   GOALS AND OUTLINE OF THE DISSERTATION

This dissertation seeks to contribute to the study of intervention locality, by focusing on the intervention effects that make certain structures particularly challenging to compute for children, and for speakers in general. We empirically explore child comprehension and production of sentences containing A'-dependencies, focusing on sentences in which such dependencies cross over an intervening element. We analyse comprehension and production of subject relatives, which involve no intervener in the subject A'-dependency, and of object relatives, which involve an intervener in the object A'-dependency when the subject is preverbal. In order to shed light on what makes some of these structures particularly difficult to compute, and what helps in their computation, we examine the nature of the arguments involved in these dependencies. In a cross-

---

[14] Other analyses have tried to explain subject-object relative asymmetry. Presenting them here would be beyond the scope and objectives of this work. For instance, it has also been hypothesized that object relatives are hard to compute for speakers because they involve a longer distance dependency between the relativized element and its gap (VIIIa), compared to subject relatives (VIIIb).
(VIII) a. The cat that the dog bites <the cat>

     ↑_____|

   b. The cat that <the cat> bites the dog

     ↑_____|

However, this analysis is unable to capture the fact that, although all object relatives involve the same long-distance dependency, not all object relatives are difficult to compute (as we saw in Section 1.2). Moreover, as pointed out by Belletti (seminar class), the distance between the moved element and its argumental position is not so different in subject and object relatives; see (33) on Italian, based on Rizzi and Shlonsky (2007) on subject extraction. Mere distance cannot thus be the source of the difficulties observed with certain types of object relatives.
 (IX) a. OR: The cat that the dog bites [$_{vP}$ <the dog> [$_{VP}$ <V> <the cat>]]

      ↑_____|

   b. SR: The cat that bites the dog [$_{vP}$ <the cat> [$_{VP}$ <V> <the dog>]]

     ↑_____|

linguistic perspective, we explore children's performance with relative clauses in two languages, Italian and French.

Chapters 2 and 3 aim to contribute to understanding what constitutes an intervener in movement dependencies in these languages. Chapter 2 is concerned with the impact that the presence of two lexical elements in an intervention configuration has on sentence computation. By looking at relative clauses, the studies presented in Chapter 2 compare children's performance with subject relatives (no intervention) containing a lexical subject and object, object relatives containing a lexical object and non-intervening post-verbal subject, object relatives with a lexical object and intervening preverbal subject, and object relatives with a lexical object and a non-lexical pronominal intervening preverbal subject. In order to investigate whether the presence of a mismatch in the new information feature between two lexical elements in an intervention configuration helps sentence computation, the studies also compare object relatives containing a given information lexical object and preverbal subject with object relatives containing a given information lexical object and a new information lexical preverbal subject. We observe child and adult elicited production of these structures in Italian and French, and child comprehension in French. This work follows the hypothesis that lexical restriction plays a role in movement, and thus in the computation of intervention in movement dependencies, and intends to deepen previous evidence for such a role. We provide a grammatical explanation of children's selective difficulties with sentences involving an intervention configuration of inclusion between two lexical elements, in terms of the featural Relativized Minimality principle.

Previous studies reported that a dissimilarity in animacy between subject and object facilitates the computation of object relatives with intervention. The purpose of Chapter 3 is to investigate the nature of such facilitating effect. The experimental work presented in Chapter 3 is a systematic analysis of the effect of animacy dissimilarity between subject and object on child computation of relative clauses in two languages, Italian and French. In analysing the impact of animacy on children's performance with relative clauses, we ask the following questions. Does the presence of an animacy mismatch between subject and object selectively assist in the computation of sentences with intervention? Does animacy mismatch between subject and object assist in sentence computation, compared to animacy match, regardless of the particular animacy configuration of the two arguments? Does animacy mismatch help both comprehension and production of sentences with intervention? The answers to these questions could serve to

31

distinguish a mismatch effect related to a grammatical concept of intervention, from other types of effect, such as a dissimilarity type of effect facilitating sentence computation in general. In the languages observed, animacy seems to have the same formal status with respect to movement, thus its grammatical role in the computation of a movement dependency across an intervener should be the same. The studies presented in Chapter 3 therefore investigate elicited production of subject and object relatives with match or mismatch in animacy in both Italian and French, and comprehension and repetition of the same structures in French. This investigation joins in the cross-linguistic study of the elements at play in intervention configurations inter- and intra-languages.

Chapter 4 discusses a type of sentence, passive object relatives, that both Italian and French speakers use as alternatives to object relatives with intervention in elicited production tasks. The chapter reviews previous work on the reasons for this preference for passive object relatives over active object relatives with intervention in languages like Italian and French. Then it looks at the type of passives used in passive object relatives in these languages, with a special focus on causative passive in acquisition and acquisition of short and long passives. The results presented in this chapter particularly contribute to the study of the acquisition of these structures in French, on which very few data are available.

Chapter 5 summarizes the main findings and conclusions of this work, and the questions left open for future research.

Chapter 2: The lexical restriction feature

2.1. INTRODUCTION

In Chapter 1 we saw how the featural Relativized Minimality approach explains the difficulties speakers experience with certain object relatives (1). These structures involve the computation of an intervention configuration of inclusion between the moved object and the intervening subject, a computation particularly challenging for children, impaired speakers, and even, although slightly, for adults.

(1)   **The girl**$_{+R\ +NP}$ that **the friend**$_{+NP}$ hugs <the girl>.

As illustrated in (1), intervention is calculated in terms of sets of morphosyntactic features specifying target and intervener. Only the features relevant for movement are assumed to factor in the computation of movement dependencies across an intervener (see Section 1.2, Ch. 1). This chapter will focus on the lexical restriction feature, the so-called NP feature expressing the presence of a lexical restriction on the element it specifies. We saw that the presence of a lexical restriction on a moved wh-element affects the extractability of wh-elements from indirect questions (2) (Section 1.2, Ch. 1, surrounding example (5) from Rizzi 2004, reported here as (2)). The sentence in (2b), where the lexically restricted wh-element *which problem* crosses over the bare wh-element *how*, is relatively more acceptable to adults than (2a), where the bare wh-element *how* crosses over the bare wh-element *who*.[1]

---

[1] See Pesetsky (1987) for the hypothesis that the interpretative property of Discourse-linking, associated to the lexical wh-elements, is the factor affecting the acceptability of extractions from weak-islands, and Rizzi (2001) for a detailed investigation of this hypothesis. See also Rizzi (2013) for a clear interpretation of this type of asymmetry in terms of lexical restriction feature, and Villata, Rizzi & Franck (2016)'s work, on adults' acceptability judgments in French, showing that extraction of lexically restricted wh-elements from weak-islands is systematically preferred to the extraction of bare wh-elements, irrespectively of D-linking.

(2)   a. * **How**$_{+Q}$ do you wonder **who**$_{+Q}$ could solve the problem <how>?

        b. ? **Which problem**$_{+Q\ +NP}$ do you wonder **how**$_{+Q}$ to solve <which problem>?

We also saw that the presence of a lexical restriction on both moved object and intervening subject affects the performance of children in the comprehension of object relatives (Section 1.2, Ch. 1, surrounding examples (9-10) from Friedmann et al. 2009, reported here as (3-4)). Object relatives with both head and intervening subject lexically restricted (4) are significantly harder to comprehend for Hebrew-speaking children aged 3 to 4, compared to free object relatives with a lexically restricted intervening subject (3).

(3)   Tare li et **mi**$_{+R}$ **she-ha-yeled**$_{+NP}$ menadned.   (79% correct responses)

        Show to-me$_{ACC}$ who that-the-boy wets

        'Show me the one that the boy is wetting.'

(4)   Tare li et **ha-pil**$_{+R\ +NP}$ **she-ha-arie**$_{+NP}$ martiv.   (55% correct responses)

        Show to-me$_{ACC}$ the-elephant that-the-lion wets

        'Show me the elephant that the lion is wetting.'

In the following section, we will review the evidence supporting the hypothesis that lexical restriction is relevant for movement operations. We will then review a series of experimental results showing that two lexical noun phrases in an intervention configuration affect speakers' performance in sentence computation. Section 2.4 will present the experimental work we run in order to further explore the effect of this feature on the computation of sentences with intervention. We investigated production and comprehension of relative clauses in typically developing children aged 3 to 9, in Italian and French. Using the possibilities offered by the grammar of these two languages, we explored the effect of the featural specification of the subject (lexically restricted *versus* null/overt pronominal, lexically restricted and new information *versus* lexically restricted and given information) and the effect of the position of the subject (preverbal/post-verbal) in object relatives with a lexical and given information head, with the systematic goal of assessing whether the presence of the lexical restriction feature on two elements in an intervention configuration of inclusion is indeed the source of the selective difficulties children show with certain object relatives.

2.2. THE NP FEATURE AS AN ATTRACTOR OF MOVEMENT

As discussed in the previous sections, under fRM, it is assumed that only features that participate in attracting syntactic movement are relevant to the computation of intervention in movement operations. Rizzi (2018) reviews a body of evidence showing that the lexical restriction feature indeed plays a role in attracting syntactic movement, more specifically wh-movement. In what follows we will briefly report some of this evidence.

In some north eastern Italian dialects, e.g. Bellunese, lexically restricted wh-elements (5) occupy a higher position in the left periphery of the clause than do non-lexically restricted wh-elements (6).

(5)   Con che tosat à-tu parlà?

With which boy$_{+Q\,+NP}$ did you speak

(6)   Avé-o parlà de chi?

Have you spoken of whom$_{+Q}$ [Munaro 1999: 14, 44]

According to Munaro (1999)'s analysis, in both (5) and (6) the wh-element moves to the left periphery of the clause, triggering subject-verb inversion in compliance with the Wh-criterion.[2] However, lexically restricted wh-elements move to a higher position than non-lexically restricted ones. As a consequence, after remnant movement of the Tense Phrase to the specifier of an intermediate position between Q NP and Q, non-lexically restricted wh-elements appear at the end of the sentence, whereas lexically restricted wh-elements appear at the beginning of the sentence.

In standard Italian, non-lexically restricted wh-elements (7) require subject-verb inversion, whereas lexically restricted wh-elements do not necessarily (8).

(7)   * Dove Gianni ha messo le chiavi?

Where Gianni put the keys

---

[2]According to the Wh-criterion, the verb in T moves to the Q head in the left periphery of the clause in order to check the Q feature with the wh-element in SpecQ, via the Spec-Head configuration (see Rizzi 1996 for more details).

(8)   In che cassetto Gianni ha messo le chiavi?

        In which drawer Gianni put the keys   [Rizzi 2018: 350]

According to Rizzi (2018) (see also Rizzi 1996, 1997), non-lexically restricted wh-elements occupy a position SpecQ in the left periphery of the clause which necessitates the movement of T to Q so as to check the Q feature in the Spec-Head configuration, in compliance with the Wh-criterion (see Footnote 2). In contrast, lexically restricted wh-elements occupy a position in the left periphery of the clause high enough to benefit from the interpretable interrogative feature in Int; they thus do not require inversion, as Italian *perché* 'why' in (9) (Rizzi 2001 on the nature of Int). This is illustrated in the hierarchy of the positions in (10), in which Q N is higher than Q.

(9)   Perché Gianni ha messo le chiavi nel cassetto?

        Why Gianni put the keys in the drawer   [Rizzi 2018: 351]

(10)   … +Q+N … Perché Int … +Q … [TP …]   [Rizzi 2018: 351]

In Bavarian, phrasal wh-elements and why can occur with a post-wh *dass* (11a-b), whereas bare wh-elements cannot (11c-d).

(11)   I mecht wissen…

        I want to know…

   a.   … [was fiar a Hosn] dass a se kafft hod

        [what for trousers] that he himself bought has

   b.   … warum dass a se s'Lebn gnumma hod

        why that he committed suicide

   c.   … ?? wen dass a troffa hod

        ?? whom that he met has

   d.   … ?* wos dass a gmacht hod

        ?* what that he done has   [Rizzi 2018: 352, quoting Bayer & Brandner 2007]

In standard Italian exclamatives, a lexical exclamative element can co-occur with *che*, whereas a non-lexical exclamative element cannot ((12) versus (13)).

(12)   Che presidente (che) hanno eletto! E' incredibile!

        What a president (that) they elected! It's incredible!

(13)   Chi (*che) hanno eletto! E' incredibile!

        Who (*that) they elected! It's incredible!   [Rizzi 2018: 352 quoting Botteri 2018]

This type of pattern is immediately explained if, in these languages, *that* is assumed to fill a position intermediate between the lexically restricted wh- and exclamative elements, and those that are not lexically restricted. In other variates (e.g. various Germanic and Romance dialects), *that* follows all types of wh-element, showing that it fills a lower position.

That lexically restricted wh-elements occupy a position distinct and higher than non-lexically restricted elements is also shown by the order of the wh-elements in multiple wh-questions in languages like Romanian. In multiple questions, the order of the wh-elements in the left periphery of the clause reproduces the order of the elements within the TP. However, lexically restricted wh-elements can appear at the beginning of the sentence, regardless of that order (examples 14a-c).

(14)   a. Cine cu cine a votat?

           Who for whom voted?

        b. * Cu cine cine a votat?

           For whom who voted?

         c. Cu care candidat cine a votat?

           For which candidate who voted?   [Rizzi 2018: 354, quoting Soare 2009]

According to Rizzi (2018), the special and high left peripheral position that hosts lexically restricted wh-elements would not obey the mechanism imposing the preservation of TP order in the movement to CP.

What all these data show is that the presence of a lexical restriction affects the target position of wh-movement; lexically restricted wh-elements target a position distinct and higher than non-lexically restricted wh-elements. This indicates that the lexical restriction feature plays a role in

movement to the left periphery of the clause. The relevance of this feature for the computation of intervention in movement chains is therefore expected under the featural approach to Relativized Minimality.

The next section will present the experimental results gathered so far on the impact that the lexical restriction feature has on the computation of structures involving intervention, in particular object relative clauses.

2.3. EXPERIMENTAL EVIDENCE ON THE EFFECT OF NP ON INTERVENTION

A number of experimental studies shows that the presence of a lexical restriction on both the relative head and the intervening subject affects children's comprehension of object relatives.

Friedmann et al. (2009) tested the comprehension, among Hebrew-speaking children aged 3 to 4, of two kinds of object relatives: those in which the subject is lexical and the relative head is not, the so-called free object relatives (15); and those in which the head is lexical and the subject is an impersonal null pronominal subject lacking the NP feature (16).[3] The authors report that children perform significantly better with object relatives like (15) and (16) than with those like (17), in which both relative head and subject are lexically restricted. The percentages in parentheses to the right of the examples correspond to the percentage of correct responses in that condition. The indexes illustrating the featural specifications of subject and object in the examples are to help the reader understand the intervention configuration present between target and intervener in each sentence according to fRM, however they do not belong to the original examples.

(15)   Tare li et mi$_{+R}$ she-ha-yeled$_{+NP}$ menadned.   (79%)

          Show to-me $_{ACC}$ who$_{+R}$ that-the-boy$_{+NP}$ wets

          'Show me the one that the boy is wetting.'   [FBR 2009:11]

(16)   Tare li et ha-sus$_{+R +NP}$ she-mesarkim oto.   (83%)

          Show to-me $_{ACC}$ the-horse$_{+R +NP}$ that-(pro$_{3pp}$)-brush$_{3pp}$ him

          'Show me the horse that someone is brushing.'   [FBR 2009:14]

---

[3] In the structure in (16) in the text, the presence of a number mismatch between subject and object, due to the plural nature of the impersonal null pronominal subject in Hebrew, may constitute a further factor modulating intervention.

(17)   Tare li et ha-pil+R +NP she-ha-arie+NP martiv.   (55%)

         Show to-me ACC the-elephant+R +NP that-the-lion+NP wets

         'Show me the elephant that the lion is wetting.'   [FBR 2009:6]

The presence of a non-lexical head in object relatives with a lexical subject also improves comprehension in 4-year-old European Portuguese-speaking children (Costa et al. 2012):[4]

(18)   Mostra-me quem+R o hipopótamo+NP seca.   (83,5%)

         Show me who+R the hippo+NP dries

         'Show me the one that the hippo is drying.'   [Costa et al. 2012:149]

(19)   Mostra-me o menino+R +NP que o hipopótamo+NP seca.   (76,75%)

         Show-me the child+R +NP that the hippo+NP dries

         'Show me the child that the hippo is drying.'   [Costa et al. 2012:149]

The same result emerges in 5-year-old Greek-speaking children (examples (20) and (21) from Varlokosta et al. 2014)[5], and in French-speaking children aged 5 to 11 (examples (22) and (23) from Bentea 2017).

(20)   δikse mu opjon+R kiniγa o stratiotis+NP.   (88,7%)

         Show me whoever+R (ACC.MASC) chases the soldier+NP (NOM.MASC)

         'Show me whoever the soldier is chasing.'   [Varlokosta et al. 2014:629]

(21)   δikse mu opjon zoγrafo+R +NP kiniγa o stratiotis+NP.   (77,8%)

         Show me whoever painter+R +NP (ACC.MASC) chases the soldier+NP (NOM.MASC)

         'Show me whichever painter the soldier is chasing.'   [Varlokosta et al. 2014:629]

---

[4] Notice that although the performance of the participants in the various experimental conditions may differ across studies, the asymmetry – between object relatives with two lexical arguments and object relatives with a mismatch in the NP feature between the two arguments – remains consistent. The fact that object relatives with two lexical arguments in an intervention configuration lead to worse performance in some studies, compared to others, might be related to independent properties of the observed languages, or the materials and methods used in the different studies. This remains to be explored.

[5] See Section 1.3, Ch. 1 on the irrelevance of Case for the computation of intervention, and Friedmann et al. (2017), Angelopoulus & Terzi (2017), and Bentea (2017) on the absence of any Case effect on the computation of object relatives involving intervention in Hebrew, Greek, and French, respectively.

(22)   Montre-moi ce+R que la fille+NP tape.   (at age 5: 71%; 7: 82%; 9: 91%; 11: 100%)

        Show-me that+R that the girl+NP hits

        'Show me what the girl is hitting.'   [Bentea 2017: 125]

(23)   Montre-moi la balle+R +NP que la fille+NP tape. (at age 5: 38%; 7: 69%; 9: 67%; 11: 91%)

        Show-me the ball+R +NP that the girl+NP hits

        'Show me the ball that the girl is hitting.'   [Bentea 2017:125]

Further evidence for the ameliorating effect of a pronominal subject on the comprehension of object relatives with a lexical head comes from the studies by Brandt et al. (2009) and Arnon (2010). Brandt and colleagues showed that, in both English and German, 3-year-old children comprehend headed object relatives with a 3rd person singular pronominal subject (24, 26) better than they do headed object relatives with a lexical subject (25, 27).

(24)   Can you give me the donkey+R +NP that he just fed?   ($\simeq$ 70%)

                                                                        [Brandt et al. 2009:566]

(25)   Can you give me the monkey+R +NP that the frog+NP combed?   ($\simeq$ 55%)

                                                                        [Brandt et al. 2009:566]

(26)   Gib mir mal den Lo¨wen+R +NP, den er gerade geschubst hat.   ($\simeq$ 60%)

        Give me the(ACC) lion+R +NP who(ACC) he just pushed has

        'Give me the lion that he just pushed.'   [Brandt et al. 2009:565]

(27)   Gib mir mal den Hund+R +NP, den der Lo¨we+NP geschubst hat.   ($\simeq$ 40%)

        Give me the(ACC) dog+R +NP who(ACC) the(NOM) lion+NP pushed has

        'Give me the dog that the lion pushed.'   [Brandt et al. 2009:565]

Arnon (2010) showed that the presence of a 1st person singular pronominal subject improves comprehension of headed object relatives in 4-year-old Hebrew-speaking children; compare (28) to (29).

(28)   Eize ceva ha-naalaim sˇel ha-yalda+R +NP sˇe-ani meayeret?   (84%)

        Which color the-shoes of the-girl+R +NP that I draw?

        'What color are the shoes of the girl that I am drawing?'   [Arnon 2010: 39]

(29)   Eize ceva ha-naalaim sˇel ha-axot+R +NP sˇe-ha-yalda+NP mecayeret?   (69%)

Which color the-shoes of the-nurse+R +NP that the-girl+NP draws?

'What color are the shoes of the nurse that the girl is drawing?'   [Arnon 2010: 39]

Object relatives with a lexical head and subject also appear to be particularly hard for adults. In Gordon et al. (2001), English-speaking adults show higher accuracy in comprehension and shorter reading times with sentences like (30) than with sentences like (31).

(30)   The barber+R +NP that the you admired climbed the mountain.   (96%)

[Gordon et al. 2001: 1414]

(31)   The barber+R +NP that the lawyer+NP admired climbed the mountain.   (80%)

[Gordon et al. 2001: 1414]

In Warren & Gibson (2002), in a questionnaire measuring sentence complexity, adult English speakers rate sentences like (32) and (34) as less complex than they do sentences like (33) and (35).

(32)   The student who the professor+R +NP who I/you collaborated with had advised copied the

article.   [Warren & Gibson 2002: 84]

(33)   The student who the professor+R +NP who the scientist+NP collaborated with had advised

copied the article.   [Warren & Gibson 2002: 84]

(34)   The old lady who the government assistance program+R +NP which I/you praised had saved

did not have enough money to heat her house.   [Warren & Gibson 2002: 88]

(35)   The old lady who the government assistance program+R +NP which the reporter+NP praised

had saved did not have enough money to heat her house.   [Warren & Gibson 2002: 88]

In Warren & Gibson (2005), English speakers are more accurate in comprehension, and they take less time in reading, with cleft sentences like (36) and (37) than with cleft sentences like (38).

(36)   It was the lawyer$_{+R +NP}$ who we avoided at the party.   ($\simeq$ 93%)

<div align="right">[Warren & Gibson 2005: 757]</div>

(37)   It was you$_{+R}$ who the businessman$_{+NP}$ avoided at the party.   ($\simeq$ 93%)

<div align="right">[Warren & Gibson 2005: 757]</div>

(38)   It was the lawyer$_{+R +NP}$ who the businessman$_{+NP}$ avoided at the party.   ($\simeq$ 86%)

<div align="right">[Warren & Gibson 2005: 757]</div>

Finally, notice that the ameliorating effect of the mismatch in the lexical restriction feature between subject and object also emerges in the comprehension of wh-questions; compare (39) to (40) (e.g. Friedmann et al. 2009 on 4-year-old Hebrew-speaking children, Bentea 2017 on 4- and 5-year-old French-speaking children, Avrutin 2000 on 4-year-old English-speaking children; see also De Vincenzi et al. 1999 and Guasti et al. 2012 on Italian, where subject-verb inversion adds an element of complexity).

(39)   Who$_{+R}$ does the dog$_{+NP}$ bite?
(40)   Which cat$_{+R +NP}$ does the dog$_{+NP}$ bite?

Some evidence exists that the presence of the lexical restriction feature on both relative head and intervening subject has an effect on the production of object relatives as well.

When the production of subject and object relatives involving two lexical noun phrases is elicited, as in examples (41) and (42) respectively, children produce the target subject relatives in the majority of the cases, whereas they perform very poorly in the production of the target object relatives (e.g. Guasti & Cardinaletti 2003, Zukowski 2009, Friedmann et al. 2009, Belletti & Contemori 2010, Arnon 2010, Contemori & Belletti 2014, Costa et al. 2014).

(41)   Elicited SR: …the boy$_{+R +NP}$ that is greeting the teacher$_{+NP}$.
(42)   Elicited OR: … the girl$_{+R +NP}$ that the friend$_{+NP}$ is pushing.
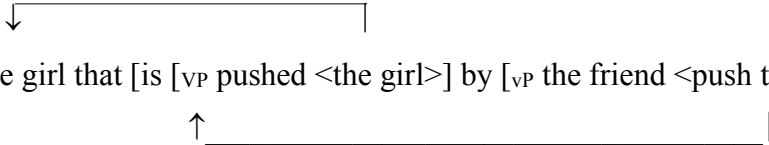
In languages like Italian and French, children from around age 6 tend to produce sentences of the type in (43), the so-called passive object relatives (henceforth, Passive ORs/PORs), instead of the

elicited object relatives (e.g. Belletti & Contemori 2010, Contemori & Belletti 2014, Guasti & Cardinaletti 2003, Delage 2008).

(43)   Passive OR: …the girl that is pushed by the friend.

Following Belletti (2014), children old enough to productively master passive sentences produce this type of construction when an object relative is elicited for two reasons: it represents an appropriate answer to the elicitation question – it conveys the same meaning as the elicited object relative – and is easier to compute than the elicited structure, as it does not involve intervention. As the derivation in (44) illustrates, the internal argument in Passive ORs ('the girl' in (44)) is smuggled over the external argument ('the friend') as part of a chunk of the verb phrase attracted by the passive voice; it then moves from the landing site of the chunk to the relative head position in the left periphery of the clause (Belletti 2014, based on the analysis of passive in terms of smuggling by Collins 2005; see Belletti & Collins 2020 for a detailed discussion of this type of derivation and for other applications of smuggling; see also Bentea 2017 for results on the comprehension of object relatives involving smuggling).

(44)   … the girl that [is [vP pushed <the girl>] by [vP the friend <push the girl>]]

In this derivation, the subject does not represent an intervener in the movement of the chunk of the verb phrase that is triggered by the passive voice, and thus it does not intervene in the object's movement to the left periphery of the clause. The absence of intervention in this type of structure would be why adults also resort to passive object relatives in production tasks eliciting active object relatives (e.g. Belletti & Contemori 2010, Belletti & Chesi 2014; see Chapter 4 for a detailed discussion of Passive ORs).

Younger children, who have not yet mastered passive in a productive way, tend to produce subject relatives when object relatives are elicited. They mainly produce subject relatives in which the relative head is reversed with respect to the target object relative (45), but also produce subject relatives in which the thematic roles are reversed with respect to the target response (46), and, when

possible, subject relatives using a different verb with respect to the target (47) (Guasti & Cardinaletti 2003, Zukowski 2009, Belletti & Contemori 2010, Arnon 2010, Contemori & Belletti 2014, Costa et al. 2014).

(45)   SR with head reversal: …the friend that pushes the girl.

(46)   SR with role reversal: …the girl that pushes the friend.

(47)   SR with verb change: …the girl that falls.

Friedmann et al. (2009) report that, when object relatives with two lexical noun phrases are elicited, 4-year-old Hebrew-speaking children also produce some object relatives in which either the lexical nature of the head or that of the subject is manipulated (48, 49). The production of some object relatives with an impersonal null pronominal subject in 4-year-old Hebrew-speaking children also emerges in Arnon (2010).[6]

(48) Mi_{+R} she-ha-pil$_{+NP}$ maaxil.
         Who$_{+R}$ that-the-elephant$_{+NP}$ feeds
         'Who that the elephant is feeding'   [Friedmann et al. 2009: 23]

(49)   Ha-namer$_{+R +NP}$ she-maaxilim oto.
         The-tiger$_{+NP}$ that-(pro$_{3pp}$)-feed$_{3pp}$ him
          'The tiger that someone is feeding him'   [Friedmann et al. 2009: 23]

---

[6] This use of a pronominal subject, instead of a lexical subject, in intervention configurations where the target is lexical also emerges in Belletti & Manetti (2019)'s study on the elicited production of clitic left dislocations in Italian; compare (I) to (II).

(I) Il coniglio$_{+TOP +NP}$ l'accarezzano.
     The rabbit$_{+TOP +NP}$ (pro$_{3pp}$) him$_{Cl.3ps}$ caress$_{3pp}$
     'The rabbit, they are caressing him.'

(II) Il coniglio$_{+TOP +NP}$ il gatto$_{+NP}$ l'accarezza.
     The rabbit$_{+TOP +NP}$ the cat$_{+NP}$ him$_{Cl.3ps}$ caresses
     The rabbit, the cat is caressing him.'

Note that here, as in the case of the Hebrew impersonal null pronominal subject (Footnote 3), the presence of a number mismatch between the plural null pronominal subject and the singular object may represent a further element modulating intervention.

We refer the reader to Friedmann et al. (2015) for similar results on the elicited production of object relatives with two lexical noun phrases in Hebrew-speaking children affected by syntactic Specific Language Impairment.

Finally, in Italian, when object relatives with a lexical head and preverbal subject are elicited, children sometimes produce object relatives with a post-verbal lexical subject (50) (e.g. Belletti & Contemori 2010, Contemori & Belletti 2014).

(50) La bambina che spinge l'amica.

      The girl that *pro₃ₚₛ* pushes the friend

      'The girl that the friend pushes'

Following Belletti and Contemori (2010) and Belletti and Chesi (2014), object relatives with a post-verbal subject can be derived through smuggling, along the lines illustrated in (51). In such a derivation, no intervention is involved as the internal argument moves from its original position as part of a chunk of the verb phrase, much like in passive object relatives (see example (44) above in this section).

(51) La bambina che [$_{TP}$ *pro₃ₚₛ* spinge [$_{VP}$ <V> <la bambina>] ... [$_{vP}$ l'amica <VP>]]

These types of non-target response in the elicited production of object relatives with a lexical head and a lexical preverbal subject clearly suggest that the difficulties in producing the target structures stem from the presence of two lexical noun phrases in an intervention configuration of inclusion. Instead of the elicited object relatives, the participants produce structures that involve no intervention at all (e.g. passive object relatives, subject relatives, and object relatives with a post-verbal subject) and structures in which the inclusion relation between relative head and subject is modulated by a mismatch in the lexical restriction feature (e.g. free object relatives with a lexical subject and headed object relatives with a pronominal subject). Moreover, object relatives in which relative head and intervening subject mismatch in the lexical restriction feature also seem to be preferred in spontaneous production. Corpus studies have shown

that object relatives with a pronominal subject are preferred over those with a lexical subject in spontaneous production, both in child and adult speech (Arnon 2010 on child and child-directed speech in Hebrew; Kidd et al. 2007 on child speech in English and German; Roland et al. 2007 on spoken English corpora; Hamann & Tuller 2015 on child and adolescent speech in typical development and SLI in French).

However, although these data seem to strongly suggest that the presence of two lexical noun phrases in such an intervention configuration affects production as it does affect comprehension, we lack a systematic investigation of the effect of lexical restriction on intervention in production.

Kidd et al. (2007) provide us with some results from repetition. They tested the repetition of subject and object relatives in English- and German-speaking children aged 3 and 4, and they found better performance in the repetition of headed object relatives with a 2nd person singular pronominal subject; compare (53, 55, 57, and 59) to headed object relatives with a lexical subject, as in (52, 54, 56, and 58), in both English and German (irrespective of the in/animate nature of the head; see Section 3.3, Ch. 3 for their results on animacy).

(52)   This is the boy$_{+R\ +NP\ (An)}$ that the girl$_{+NP}$ teased at school yesterday.   (3yo: 32%; 4yo: 48%)
                                                                                                  [Kidd et al. 2007: 869]

(53)   That is the dog$_{+R\ +NP\ (An)}$ that you stroked in the park yesterday.   (3yo: 44%; 4yo: 53%)
                                                                                                  [Kidd et al. 2007: 869]

(54)   Here is the food$_{+R\ +NP\ (In)}$ that the cat$_{+NP}$ ate in the kitchen today.   (3yo: 34%; 4yo: 54%)
                                                                                                  [Kidd et al. 2007: 869]

(55)   There is the book$_{+R\ +NP\ (In)}$ that you read in the front room last night.   (3yo: 59%; 4yo: 62%)
                                                                                                  [Kidd et al. 2007: 869]

(56)   Das ist der Junge$_{+R\ +NP\ (An)}$ den der Mann$_{+NP}$ gestern getroffen hat. (3yo: 0.5%; 4yo: 25%)
       That is the$_{NOM}$ boy$_{+R\ +NP\ (An)}$ who$_{ACC}$ the$_{NOM}$ man$_{+NP}$ yesterday met has
       'That is the boy that the man met yesterday.'   [Kidd et al. 2007: 879]

(57)   Da ist der Mann$_{+R\ +NP\ (An)}$ den du gestern im Laden gesehen hast.   (3yo: 35%; 4yo: 76%)
       There is the$_{NOM}$ man$_{+R\ +NP\ (An)}$ who$_{ACC}$ you$_{NOM}$ yesterday at the shop seen have
       'There is the man that you saw at the shop yesterday.'   [Kidd et al. 2007: 879]

(58) Hier ist der Kuchen$_{+R\ +NP\ (In)}$ den der Mann$_{+NP}$ heute gebacken hat. (3yo: 13%; 4yo: 43%)

Here is the$_{NOM}$ cake$_{+R\ +NP\ (In)}$ that$_{ACC}$ the$_{NOM}$ man$_{+NP}$ today baked has

'Here is the cake that the man baked yesterday.'   [Kidd et al. 2007: 879]

(59) Da ist der Pullover$_{+R\ +NP\ (In)}$ den du heute morgen gekauft hast.   (3yo: 34%; 4yo: 71%)

There is the$_{NOM}$ sweater$_{+R\ +NP\ (In)}$ that$_{ACC}$ you$_{NOM}$ today morning bought have

'There is the sweater that you bought today morning.'   [Kidd et al. 2007: 879]

Belletti and Contemori (2012) explored the elicited production of headed object relatives with a 1st person singular null pronominal subject (60) and headed object relatives with a 3rd person singular null pronominal subject (61) in 3- to 7-year-old Italian-speaking children. They observed that children produce the target object relatives quite often, compared to previous studies eliciting object relatives with a lexical intervening subject.

(60) La palla$_{+R\ +NP}$ che ho comprato/vinto.

The ball$_{+R\ +NP}$ that (pro$_{1ps}$) bought/won

'The ball that I bought/won.'   [Belletti, Contemori 2012: 129]

(61) La canzone$_{+R\ +NP}$ che ha sentito a scuola/alla televisione.

The song$_{+R\ +NP}$ that (pro$_{3ps}$) heard at school/at the television

'The song that she heard at school/at the television.'   [Belletti, Contemori 2012: 130]

This said, the absence of a condition with a lexical subject in the same experiment makes it difficult to draw strong conclusions.[7]

A quite clear result on elicited production comes from Arnon (2010). The study explored the production of headed object relatives with a 1st person singular pronominal subject (62) and with a lexical subject (63) in 4-year-old Hebrew-speaking children; as the author pointed out, some items used in the experiment accidentally involved a mismatch in gender between the two arguments (64, 65).

---

[7] Moreover, the experimental items in Belletti and Contemori (2012) differ from those in previous studies testing object relatives with a lexical subject, as they involve a mismatch in animacy between subject and object. However, mismatch in animacy is not expected to assist in the computation of intervention in Italian. We refer the reader to Chapter 3 for a detailed discussion and experimental results on animacy and intervention.

(62) Ha-axot$_{+R\ +NP\ FEMM}$ sˇe-ani $_{FEMM}$ meayeret.   (70%)

The nurse$_{+R\ +NP\ FEMM}$ that I $_{FEMM}$ draw   (inclusion)

'The nurse that I'm drawing.'

(63) Ha-axot$_{+R\ +NP\ FEMM}$ sˇe-ha-yalda$_{+NP\ FEMM}$ mecayeret.   (72%)

The-nurse$_{+R\ +NP\ FEMM}$ that-the-girl$_{+NP\ FEMM}$ draws   (inclusion)

'The nurse that the girl is drawing.'

(64) Ha-yeled$_{+R\ +NP\ MASCH}$ sˇe-ani $_{FEMM}$ meayeret.   (89%)

The boy$_{+R\ +NP\ MASCH}$ that I $_{FEMM}$ draw   (disjunction)

'The boy that I'm drawing.'

(65) Ha-axot$_{+R\ +NP\ FEMM}$ sˇe-ha-yeled$_{+NP\ MASCH}$ mecayeret.   (73%)

The nurse$_{+R\ +NP\ FEMM}$ that the boy$_{+NP\ MASCH}$ draws   (intersection)

'The nurse that the boy is drawing.'

A significant facilitating effect of the mismatch in the NP feature only showed up in the results from items involving a mismatch in gender. Namely, when a gender mismatch was present (64-65), children produced significantly more target object relatives in the pronominal subject condition than in the lexical subject condition; compare (64) to (65). When the two arguments matched in gender (62-63), no significant effect of mismatch in NP emerged; compare (62) to (63). If the lexical restriction feature is also assumed to be relevant for intervention, then this result could be easily captured under the featural Relativized Minimality approach, given the relevance of the gender feature for the computation of intervention in Hebrew (Belletti et al. 2012, Biran & Ruigendijk 2015; see Section 1.2.1, Ch. 1, surrounding examples (26-28)). According to fRM, when subject and object match in gender, an inclusion relation is instantiated between target and intervener, regardless of the presence or absence of a lexical restriction on the subject (62-63). In contrast, when subject and object mismatch in gender, the presence or absence of a lexical restriction on the subject modulates intervention: a pronominal subject gives rise to a disjunction relation (64), whereas a lexical subject creates an intersection relation (65).

Keeping in mind all these data and the need for more structured results on the impact of the lexical restriction feature in production, we decided to systematically investigate the effect of the nature (lexical *versus* null/overt pronominal) and position (preverbal *versus* post-verbal) of the subject on the elicited production of headed object relatives in both child and adult speakers of two

languages, Italian and French. In order to gather evidence on both modalities, we also investigated the effect of the same variables on the comprehension of headed object relatives in child French.

2.4. THE STUDIES

In order to assess the effect of the lexical restriction feature on the computation of object relatives involving intervention, we ran three experiments. In Experiment 1, we explored the elicited production of subject and object relative clauses in child and adult Italian. In particular, we investigated three types of object relatives: (i) headed object relatives with a lexical intervening subject, namely a lexical preverbal subject; (ii) headed object relatives with a non-lexical intervening subject, namely a null pronominal preverbal subject; and (iii) headed object relatives with a lexical non-intervening subject, namely a lexical new information post-verbal subject. In Experiment 2, we analyzed the elicited production of subject and object relative clauses in child and adult French. Three types of object relative were investigated: (i) headed object relatives with a lexical preverbal subject; (ii) headed object relatives with an overt weak pronominal preverbal subject; and (iii) headed object relatives with a lexical preverbal subject that also expresses new information. In Experiment 3, we explored the comprehension of subject and object relative clauses in child French. In this last experiment, four types of object relative were investigated: (i) headed object relatives with a lexical preverbal subject; (ii) headed object relatives with a referential overt pronominal preverbal subject; (iii) headed object relatives with a generic overt pronominal preverbal subject; and (iv) headed object relatives with a new information lexical preverbal subject. One major contribution of these studies is the investigation of production, in combination with comprehension. As discussed earlier, under a grammatical approach to intervention effects, we indeed expect that the effect of a feature relevant to a grammatical principle of locality appears in both production and comprehension. The number feature, assumed to be relevant for the locality principle, appears to enter into the computation of intervention in both comprehension (Adani et al. 2010, Manetti et al. 2016 on Italian; Contemori & Marinis 2014 on English; Bentea 2017 on French) and production (Yatsushiro & Sauerland 2017 on German). Gender, assumed to be relevant for the principle in Hebrew, appears to modulate intervention in both comprehension and production in such a language (Belletti et al. 2012, Biran & Ruigendijk 2015, on comprehension; Biran & Ruigendijk 2015, Arnon 2010, on production). Case, assumed to be irrelevant for the

principle, shows no impact on intervention in comprehension (Friedmann et al. 2017, Bentea 2017, Biran & Ruigendijk 2015) or production (Biran & Ruigendijk 2015).[8] Although some evidence exists for the impact of lexical restriction on intervention in production, a structured and systematic assessment of its role is needed (see Section 2.3). In particular, in Italian there is only indirect evidence for the effect of lexical restriction on the production of object relatives (from the work by Belletti & Contemori 2012), while in French there is evidence for the effect of this feature from comprehension (Bentea 2017), but not from production. Another major contribution of the present work is the comparative study of these structures, and of the impact of lexical restriction on their computation, in two languages, Italian and French. As shown by the experimental conditions listed above, these languages provide very similar, yet different, structures. With the goal to minimally compare the results from these languages, the same experimental methods were used across them.

The next sections will focus on the presentation of Experiments 1, 2 and 3, and on the discussion of their results.

2.4.1. Experiment 1: Manipulating the nature and position of the subject in the elicited production of object relatives in Italian.

Experiment 1 aimed at exploring the effect that the presence of lexical restriction on both relative head and intervening subject has on the production of object relatives in child and adult Italian. It thus tested the elicited production of (i) headed object relatives with a lexical preverbal, and thus intervening, subject, (ii) headed object relatives with a non-lexical preverbal intervening subject, namely a null pronominal subject, (iii) headed object relatives with a lexical post-verbal, thus non-intervening, subject. Based on the featural Relativized Minimality theory, and on evidence showing the role of the lexical restriction feature in attracting syntactic movement, we expected lexical restriction to be relevant to computing intervention in object relatives in production. Thus, we expected object relatives with a lexical head and a lexical intervening subject to be harder to produce, compared to those with a lexical head and a pronominal intervening subject as well as those with a lexical head and a lexical non-intervening subject (see Section 2.4.1.2 below for a detailed presentation of materials and predictions).

---

[8] See Section 1.2.1 in Chapter 1 for more on the nature and the effect of these features.

2.4.1.1. *Participants*

91 typically developing Italian-speaking children aged 3;5-10;1 took part in this experiment. 3 out of the 91 were then excluded from the study as unable to perform the task. The participants were randomly selected from public kindergartens and primary schools in Rimini, Italy. 71 children were monolingual native speakers of Italian, 6 were bilingual native speakers, and 11 were early L2 learners.[9] We considered to be early L2 learners those children, exposed to Italian from birth, whose parents are not native Italian speakers. All parents in this study have lived in Italy for decades and speak Italian proficiently. We will see that this had no effect on the results.

The children were divided into five age groups (the 3-year-old group, the 5-year-old group, the 7-year-old group, the 8-year-old group, and the 9-year-old group; see Table 2.1). 85 out of these 88 children also took part in Experiment 4, presented in Chapter 3.

Table 2.1. Participants in Experiment 1.

Age Group	No. of Participants	Age Range	Mean Age
3 y.o.	14	3;5 - 4;2	3;8
5 y.o.	17	4;10 - 6;1	5;6
7 y.o.	18	7;3 - 8;1	7;7
8 y.o.	18	8;4 - 9;1	8;7
9 y.o.	21	9;2 – 10;1	9;7
Adults	22	23 - 58	36

22 adult native speakers of Italian, from various regions of Italy and from diverse educational backgrounds, participated in the experiment as a control group.

Only children whose parents gave informed written consent participated in the experiments presented in these chapters. The consent form always included a short presentation of the

---

[9] In the 3-year-old group, 1 child was bilingual. In the 5-year-old group, 2 children were bilingual and 2 children were early L2 learners of Italian. In the 7-year-old group 1 child was bilingual. In the 8-year-old group, 5 participants were early L2 learners of Italian. Finally, in the 9-year-old group, 2 participants were bilingual and 4 were Italian early L2 learners.

experiment and a survey concerning the language history of the child.[10] Adult participants were also asked to give informed written consent in order to be included in the studies.

2.4.1.2. *Method and predictions*

In order to test the impact of a lexical intervening subject on the production of object relatives with a lexical head, we tested the elicited production of the structures in Table 2.2.

Table 2.2. Structures tested in Experiment 1.

SUBJECT RELATIVES	
	La bambina che fotografa la ballerina. 'The girl that is photographing the dancer.'
OBJECT RELATIVES	
(i) preverbal lexical subject	La bambina che la signora applaude. 'The girl that the lady is applauding.'
(ii) null pronominal subject	La bambina che corregge. The girl that (pro$_{3ps}$) corrects 'The girl that she is correcting.'
(iii) post-verbal subject	La bambina che sgrida la bidella. The girl that the is scolding the janitor 'The girl that the janitor is scolding.'

---

[10] The written consent form that parents had to fill out and sign in Experiment 1 included the following questions :
- Which languages does the child hear at home? ………………..
  - In which languages does his/her mother talk to him/her? ………………..
  - In which languages does his/her father talk to him/her? ………………..
  - In which languages do his/her brothers/sisters talk to him/her? ………………..
  - Which languages does the child hear on the TV? ………………..
  - Which languages do his/her parents use to talk to each other? ………………..
- Which languages does the child speak at home? ………………..
  - In which languages does he/she talk to his/her mother? ………………..
  - In which languages does he/she talk to his/her father? ………………..
  - In which languages does he/she talk to his/her brothers/sisters? ………………
- Does the child participate in other activities outside of school hours? ……………..
  - If so, in which languages do these activities take place? ………………..
- How many hours a day is the child exposed to Italian? ………………..
- Has the child been exposed to Italian from birth? ………………..
  - If not, since what age has the child been exposed to Italian? ………………..
- Which is the mother tongue of his/her mother? ………………..
- Which is the mother tongue of his/her father? ………………..

Based on the featural Relativized Minimality approach to the difficulties that children experience with certain object relatives, and on the hypothesis that the NP feature enters into the computation of intervention, we expected object relatives (ORs) with a lexical head and lexical preverbal subject (66), to be particularly hard for children to produce. These ORs do involve an intervention configuration of inclusion between the relative head, specified by [+R +NP], and the intervening preverbal subject, specified by [+NP]:

(66) La bambina$_{+R +NP}$ che la signora$_{+NP}$ applaude <la bambina$_{+R +NP}$ >.
      The girl that the lady applauds <the girl>
      'The girl that the lady is applauding.'

ORs with a lexical head and a referential 3rd person singular null pronominal subject (67)[11] involve a disjunction relation between the lexical head, specified by [+R +NP], and the intervening pronominal subject, which lacks the lexical restriction, and thus the NP feature. These ORs were expected to be easier for children to produce, compared to headed ORs with a lexical preverbal subject. Such a result would confirm and clarify previous evidence on the facilitating effect that a pronominal preverbal subject (vs a lexical preverbal subject) has on the comprehension and production of object relatives with a lexical head (see Section 2.3).

(67) La bambina$_{+R +NP}$ che corregge <la bambina$_{+R +NP}$>.
       The girl that (pro$_{3ps}$) corrects <the girl>
      'The girl that she is correcting.'

The null-subject property of Italian allows the subject to occupy a post-verbal position; in such a situation, a phonetically null pronominal element (*pro*) fills the preverbal subject position (Rizzi 1982, Rizzi & Shlonsky 2007). As outlined in Section 2.3, object relatives with a post-verbal subject can be derived through smuggling, as repeated in (68)[12], without intervention arising (see

---

[11] Object relatives like (67), in which the subject is a null pronoun matching the object in number, are ambiguous between a subject relative and object relative reading when uttered out of context.
[12] Object relatives like (68), in which the subject appears in the post-verbal position and matches the object in number, are ambiguous between a subject relative and an object relative reading when taken out of context, just as object relatives like in (67).

Belletti & Contemori 2010, Belletti & Chesi 2014). If the hypothesis of this derivation is on the right track, then all other things being equal, we can expect ORs with a lexical post-verbal subject to create fewer difficulties for children than those with a lexical preverbal subject. Such a result would corroborate evidence from Belletti and Contemori (2010) and Contemori and Belletti (2014) for the resort to ORs with a post-verbal subject when ORs with a lexical head and lexical preverbal subject are elicited (see Section 2.3, surrounding (50)).

(68) La bambina$_{+R +NP}$ che [$_{TP}$ *pro* sgrida [$_{vP}$ \<V\> \<la bambina$_{+R +NP}$\>] ... [$_{vP}$ la bidella \<VP\>]]
$\uparrow$_____|

   The girl that [$_{TP}$ *pro* scolds [$_{vP}$ \<V\> \<the girl\>] ... [$_{vP}$ the janitor \<VP\>]]

   'The girl that the janitor is scolding.'

The participants' performance in the production of these three types of OR was compared to their performance in the production of SRs, structures that involve no intervention (69).

(69) La bambina$_{+R +NP}$ che \<la bambina$_{+R +NP}$\> fotografa la ballerina$_{+NP}$.

   The girl that \<the girl\> photographs the dancer

   'The girl that is photographing the dancer.'

   In order to test the production of these structures, we created a game inspired by Novogrodsky & Friedmann (2006)'s preference task. In our adaptation of the task, the participant plays on a laptop with the well-known cartoon characters Dora the Explorer and her friend Boot (Fig. 2.1). These characters speak to the participant through the pre-recorded voices of two native speakers.[13] Dora and Boot have a mission to complete and they ask the participant for help. They have to find out if children around the world love the same things and, to do so, they need to ask the children some questions about their preferences (70). Dora describes to the participant some situations in which two characters are involved and the participant simply has to say which one he/she would rather be. In order to properly answer Dora's question, the participant is expected to use a relative clause (71). Note that the situations are described without the support of any picture illustrating them.

---

[13] We used the sound editor Audacity to make the voices of the adult speakers similar to child voices.

Fig. 2.1. First screen of the game.

(70)   Dora: « Io e Boot abbiamo una missione da compiere. Dobbiamo scoprire se tutti i bambini del

mondo amano le stesse cose. Ti va di aiutarci? Dovrai solo rispondere alle nostre domande. Ci

aiuterai a compiere la nostra missione e sarà divertente. Ti va allora?»

'Boot and I have a mission to complete. We have to discover if children love the same things.

Would you like to help us? The only thing that you have to do is to answer our questions. You

will help us to accomplish our mission and it will be fun. Is it ok for you?'

Fig. 2.2. Game screen for (70).
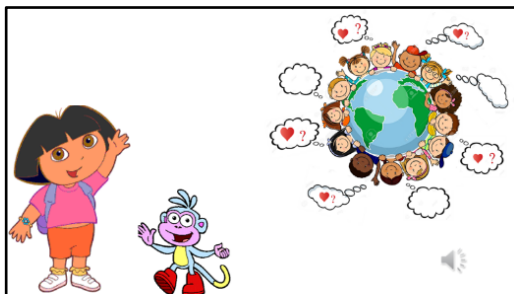
(71)   Dora: « Allora, io ti descrivo delle situazioni. In queste situazioni ci sono due bambine. Tu devi

solo dirmi quale bambina preferiresti essere. Facciamo un esempio. Ci sono due bambine, una

bambina cerca un tesoro, l'altra bambina trova un tesoro. Tu quale bambina preferiresti

essere?»[14]

'I will describe to you some situations. In these situations there are two kids. You only

have to tell me which kid you would rather be. For example. There are two little girls. One little

---

[14] These instructions were used in the female version of the task. In the male version of the task the child had to choose
between two little boys.

girl is searching for a treasure, one little girl is finding a treasure. Which little girl would you rather be?'

Target response: « La bambina che trova/cerca il tesoro. »

'The little girl that is searching/finding the treasure.'

Fig. 2.3. Game screen for (71).
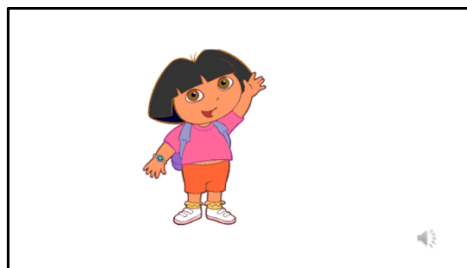
Funny slides with positive feedback were shown after each trial (Fig. 2.4) and at the end of the task the child received a little gift (Fig. 2.5).

Fig. 2.4. Example of screen with positive feedback.

Fig. 2.5. Last screen of the game.

Each participant played the game in the presence of the experimenter, in a separate quiet room in their school or kindergarten. The experimenter did not impose a time limit or give response-

contingent feedback. All responses were tape-recorded, then subsequently transcribed and coded by the experimenter. A preliminary meeting in the classrooms preceded the individual testing sessions, in order to familiarize the children with the cartoon characters and experimenter. The children were generally very happy to participate and engaged in the game.

We manipulated one variable in a 1 x 4 design: (1) STRUCTURE: (i) SR; (ii) OR with a preverbal lexical subject; (iii) OR with a null pronominal subject; (iv) OR with a post-verbal lexical subject. In Table 2.3, we provide an example of elicitation and item for each condition. A full list of the experimental items and elicitations is given in Appendix A.

Table 2.3. Experiment 1: Example of elicitation and item in the eight experimental conditions and filler condition (female version).

SUBJECT RELATIVE CONDITIONS	
(i)	Due bambine sono ad uno spettacolo. Una bambina fotografa una ballerina, l'altra bambina guarda una ballerina. Tu quale bambina preferiresti essere? 'Two girls are at a show. A girl is photographing a dancer, the other girl is looking at a dancer. Which girl would you rather be?' Target response: La bambina che fotografa la ballerina. 'The girl that is photographing the dancer.'
OBJECT RELATIVE CONDITIONS	
(ii) preverbal lexical subject	Due bambine cantano una canzone. Una signora ascolta una bambina, una signora applaude l'altra bambina. Tu quale bambina preferiresti essere? 'Two girls are singing a song. A lady is listening to a girl, a lady is applauding the other girl. Which girl would you rather be?' Target response: La bambina che la signora applaude. 'The girl that the lady is applauding.'
(iii) null pronominal subject	Una maestra rivede i compiti con due bambine. Corregge una bambina, rimprovera l'altra bambina. Tu quale bambina preferiresti essere? A teacher is revising the homework with two girls. (pro$_{3ps}$) corrects a girl, (pro$_{3ps}$) scolds the other girl. Which girl would you rather be? 'A teacher is revising the homework with two girls. She corrects a girl, she scolds the other girl. Which girl would you rather be?' Target response: La bambina che corregge. The girl that (pro$_{3ps}$) corrects 'The girl that she is correcting.'

(iv) post-verbal lexical subject	Due bambine sono a scuola e fanno confusione. Una maestra sgrida una bambina, una bidella sgrida l'altra bambina. Tu quale bambina preferiresti essere?
	
	'Two girls are at school. A teacher is scolding a girl, a janitor is scolding the other girl. Which girl would you rather be?'
	
	Target response: La bambina che sgrida la bidella.
	     The girl that the *pro* is scolding the janitor
	     'The girl that the janitor is scolding.'

FILLER CONDITION	
	Un papà torna a casa dal lavoro e vede che il suo bambino non ha fatto i compiti. Un po' arrabbiato gli chiede perché. Secondo te, che cosa risponde il bambino? 'A dad comes home from work and sees that his son didn't do his homework. A bit upset, he asks him why. In your opinion, what does the child say?' Target response: Il bambino risponde che non ha avuto tempo/erano troppo difficili/… . 'The child says that he didn't have time/the homework were too difficult/…'

In the elicitation of ORs with a preverbal lexical subject, the two situations described to the participant introduced in the context two different actions (to listen/to applaud) and one possible type of agent (a lady); this was a *verb change* condition in Novogrodsky and Friedmann (2006)'s design. The salient information conveyed by the target answer was thus the action. The subject in the target object relative was expected to be lexical, as was lexical in the stimulus, and preverbal, as non-salient information, already given in the context. In Italian, preverbal subjects normally express given information, in contrast to post-verbal subjects that normally express new information (Belletti 2004 and related work).

In the OR with a null pronominal subject condition, the elicitation introduced two different actions (to correct/to scold) and one possible agent (a lady), again a *verb change* condition in Novogrodsky and Friedmann (2006). Differently from the previous condition, a null pronominal subject in the target object relative was expected, as the subject was given and null in the elicitation.

In the elicitation of ORs with a post-verbal lexical subject, the two situations presented to the participant involved one possible action (to scold) and two possible types of agent (a teacher/a janitor); this is known as a *subject change* condition in Novogrodsky and Friedmann (2006). The lexical subject in the target response was thus expected to be focal new information, and as such post-verbal. Italian new information focal subjects indeed typically occupy the post-verbal

position, more specifically, the new information focus position in the low periphery of the clause (Belletti 2004 and related work).

In subject relatives, both subject and object were always lexical. In object relatives, the relative head was always lexical. In all items, subject and object were animate, singular, and in a match condition regarding the gender feature.

The STRUCTURE variable was manipulated between items. A within-participants design was used. There were four items for each experimental condition excepting for the OR post-verbal lexical subject condition, for which there were eight items (as a result of having two conditions put together).[15] In order to introduce some variability into the structures, the task also included 10 fillers eliciting subordinate clauses introduced by *che* ('that') of the type *Il bambino risponde che non ha avuto tempo* ('The child says that he didn't have time') (Table 2.3). Two lists of 30 items were used, and their order was pseudo-randomized so that there were no more than two consecutive items of the same type. Each session started with a warm-up phase, in which the children saw two practice trials aimed at familiarizing them with the task. In order to have perfectly comparable results from children and adults, the control group was tested using the exact same design and items as children. The adult participants were tested by the experiment without the support of the Dora and Boot game.

---

[15] The OR post-verbal lexical subject condition also contained four elicitations of the type in (II), originally included in the experiment to elicit ORs with a post-verbal pronominal subject. The use of a post-verbal pronominal subject referring to the agent 'the mom' in the target response to elicitations like in (II) was felicitous, as a (null) pronoun referring to the agent was already used in the elicitation. However, none of the participants produced a post-verbal pronominal subject in this condition. All the post-verbal subjects produced in correct object relatives were lexical. We thus decided to consider these four elicitations as part of the same condition as elicitations in (iv) in Table 2.3 in the text.

(II) Una mamma vorrebbe vestire due bambine per uno spettacolo. Purtroppo però non ne ha proprio il tempo. Allora lei veste una bambina e qualcun'altro veste l'altra bambina. Tu quale bambina vorresti essere?

'A mom would like to dress two girls for a show. Unfortunately, she doesn't have time. So, she dresses a girl and someone else dresses the other girl. Which girl would you rather be?'

Target response: La bambina che veste lei.

The girl that *pro* dresses she

'The girl that she dresses.'

Note that the children did not produce pronominal subjects in the condition eliciting a post-verbal subject; such a subject is non-intervening under a derivation of object relatives with a post-verbal subject along the lines of Belletti and Contemori (2010) and Belletti and Chesi (2014). This may be of interest, given that they did produce pronominal subjects when a preverbal, and thus intervening, lexical subject was elicited (see Section 2.4.1.4).

2.4.1.3.   Coding

We coded the participant's productions as follows. In the SR condition, we distinguished between correct subject relatives with a lexical object (72a), correct subject relatives with a clitic object (72b) and correct subject relatives with an unexpressed object (72c).

(72) Due bambine sono ad uno spettacolo. Una bambina fotografa una ballerina, l'altra bambina
guarda una ballerina. Tu quale bambina preferiresti essere?
'Two girls are at a show. A girl is photographing a dancer, the other girl is looking at a dancer.
Which girl would you rather be?'

    a.   La bambina che fotografa la ballerina.

        The girl that photographs the dancer

        'The girl that is photographing the dancer.'

    b.   La bambina che la fotografa.

        The girl that OBJ-CL photographs

        'The girl that is photographing her.'

    c.   La bambina che fotografa.

        The girl that photographs

        'The girl that is photographing.'

Although the three types of subject relatives were correct responses to the elicitation, with the goal of a minimal comparison between the production of subject and object relatives with two lexical noun phrases, only subject relatives with a lexical object were coded as target responses (see below for consistent coding criteria for object relatives). Any other type of response was coded as non-correct: for example, subject relatives with a wrong head, subject relatives with wrong theta roles, subject relatives with a wrong verb, active and passive object relatives, simple sentences (la bambina fotografa la ballerina, 'the girl is photographing the dancer'), fragments (fotografa la ballerina, 'photographs the dancer' / fotografa, 'photophraphs' / la bambina, 'the girl'), no responses, non-relevant responses, and ungrammatical responses.

In the OR preverbal lexical subject condition, only correct object relatives with a preverbal lexical subject (73a) were coded as target responses. Correct object relatives with a pronominal subject (73b) were considered correct, but not target. The use of a null pronominal subject, referring to an

agent given in the immediate discourse context, was correct under an interpretation of the elicitation as only involving one agent, namely one lady. Such an interpretation, although possible, was however less expected than the interpretation of the context involving two agents of the same type, namely two ladies (notice the use of indefinite noun phrases in the elicitation, 'A lady…, a lady…').

(73) Due bambine cantano una canzone. Una signora ascolta una bambina, una signora applaude l'altra bambina. Tu quale bambina preferiresti essere?

'Two girls are singing a song. A lady is listening to a girl, a lady is applauding the other girl. Which girl would you rather be?'

   a. La bambina che la signora applaude.

      The girl that the lady applauds

      'The girl that the lady is applauding.'

   b. La bambina che applaude.

      The girl that (pro_{3ps}) applauds

      'The girl that she is applauding.'

In the OR null pronominal subject condition, only correct object relatives with a null pronominal subject (74a) were coded as target, while object relatives with a preverbal lexical subject (74b) were coded as correct but not target. Although a null pronominal subject was indeed expected in the response, as the subject was given and null in the elicitation, the use of a preverbal lexical subject was also correct.

(74) Una maestra rivede i compiti con due bambine. Corregge una bambina, rimprovera l'altra bambina. Tu quale bambina preferiresti essere?

A teacher is revising the homework with two girls. (pro_{3ps}) corrects a girl, (pro_{3ps}) scolds the other girl. Which girl would you rather be?

'A teacher is revising the homework with two girls. She corrects a girl, she scolds the other girl. Which girl would you rather be?'

   a. La bambina che corregge.

      The girl that (pro_{3ps}) corrects

      'The girl that she is correcting.'

b. La bambina che la maestra corregge.

The girl that the teacher corrects

'The girl that the teacher is correcting.'

In the OR post-verbal lexical subject condition, only correct object relatives with a post-verbal lexical subject (75a) were coded as target responses. Correct object relatives with a preverbal lexical subject (75b) were coded as correct but not as target, as they conveyed the agent information required by the elicitation question but not its new information focal nature. In this condition, the use of a pronominal subject was fully inappropriate, given the presence of two equally salient possible referents (a teacher and a janitor) in the discourse context set up by the elicitation.

(75)   Due bambine sono a scuola e fanno confusione. Una maestra sgrida una bambina, una bidella sgrida l'altra bambina. Tu quale bambina preferiresti essere?

'Two girls are at school. A teacher is scolding a girl, a janitor is scolding the other girl. Which girl would you rather be?'

a. La bambina che sgrida la bidella.

The girl that scolds the janitor

'The girl that the janitor is scolding.'

b. La bambina che la bidella sgrida.

The girl that the janitor scolds

'The girl that the janitor is scolding.'

As mentioned in Footnotes 11-12, in Italian, object relatives with a null pronominal subject and object relatives with a post-verbal subject are ambiguous between an object relative and a subject relative reading when subject and object match in number (74a, 75a)[16] (Belletti & Guasti 2015). In

---

[16] The same sentences are clearly unambiguous when subject and object mismatch in number, thanks to the number agreement information present on the verb:

(III) La bambina che sgridano le bidelle.

The girl that scold the janitors

'The girl that the janitors are scolding.'

(IV) La bambina che correggono.

The girl that (pro3pp) correct

'The girl that they are correcting.'

Object relatives with a post-verbal lexical subject are also unambiguous when a resumptive pronoun is present:

order to disambiguate this type of productions, the experimenter asked the participants to paraphrase their response or answer a question about who performed the action. Sometimes the participants did not answer this question, or did not answer it clearly. Only the object relatives that were successfully disambiguated were coded as object relatives, whereas the other sentences were coded as ambiguous.

Correct Passive ORs produced in the various OR conditions were coded as correct responses, but not as target. For the purpose of this chapter, we did not distinguish between the different types of Passive ORs produced by the participants (for more on this, see Section 4.2 in Chapter 4 devoted to Passive ORs). Copular passive object relatives with both *essere* and *venire* auxiliaries (76), causative passive object relatives (77), and reduced passive object relatives (78) were all equally coded as Passive ORs.

(76) La bambina che è/viene filmata (dall'amica).

     The girl that is/comes filmed (by the friend)

     'The girl that is being filmed (by the friend)'

(77) La bambina che si fa filmare (dall'amica).

     The girl that si-cl makes film (by the friend)

     'The girl that gets filmed (by the friend)'

(78) La bambina filmata (dall'amica).

     The girl filmed (by the friend)

     'The girl filmed (by the friend)'

In the OR preverbal lexical subject condition and OR null pronominal subject condition, both Passive ORs with an overt by-phrase and Passive ORs without an overt by-phrase were considered as correct, as the agent was given information that could go unexpressed in the answer to the elicitation. In contrast, in the OR post-verbal subject condition, only Passive ORs with an overt by-

---

(V) La bambina che la sgrida la bidella.

    The girl that (pro3ps) OBJ-CL scolds the janitor

    'The girl that the janitor is scolding her.'

In the word order in (V), the noun phase *la bidella* (*the janitor*) could also be interpreted as a right dislocated object of a subject relative, but in this case the sentence would require a special prosody (characterized by the obligatory presence of an intonational break following the verb), not used by the participants in this experiment.

phrase were coded as correct, as the agent conveyed salient new information and this had to be expressed in the elicited answer.

We coded as incorrect responses the various types of subject relative produced in the elicitation of ORs, examples (79-81).

(79) SR with head reversal: L'amica che filma la bambina.

The friend that pushes the girl

'The friend that is pushing the girl'

(80) SR with role reversal: La bambina che filma l'amica.

The girl that pushes the friend

'The girl that is pushing the friend'

(81) SR with verb change: La bambina che è nel video.

'The girl that is in the video'

We also coded as incorrect the responses with *where* object relatives (82), simple sentences (83), and fragments such as VO sequences, verbs or NPs (84-86), along with any unclassifiable response (no responses, non-relevant responses, ungrammatical responses, etc.).

(82) La bambina dove l'amica filma.

The girl where the friend films

'The girl where the friend is filming.'

(83) L'amica filma la bambina.

The friend films the girl

'The friend is filming the girl'

(84) Filma la bambina.

Films the girl

(85) Filma.

Films

(86) L'amica.

The friend

In the presentation of the results, the percentages of correct responses, which more clearly show the relevant asymmetries between the experimental conditions, will be illustrated in tables. The percentages of target responses will be given in the text.

Notice that, in coding participants' responses, we did not distinguish between relative clauses of the type in (87d), in which the relative head is a lexical definite noun, and relative clauses of the type in (87e), in which the head is a demonstrative pronoun. The type of elicitation we used indeed prompted the production of relative clauses with a demonstrative pronominal head, as the elicited relative clause had to restrict a set of referents that consisted of two characters of the same type (such as the two girls in example (87), one who is photographing the dancer and the one who is looking at the dancer). We verified whether some correlation was present between the nature of the produced relative head (lexical noun/demonstrative pronoun) and the type of relative clause produced (SR/OR, SR with a lexical/pronominal object, OR with a lexical subject/pronominal subject), and we found no correlation. This strongly suggests that the use of a demonstrative pronominal head, as opposed to the use of a lexical nominal head, is an effect of the experimental design, unrelated to intervention locality. This is in line with Bentea (2017), which showed that French-speaking children have the same difficulties with ORs with a lexical nominal head and lexical subject (Montre-moi la dame que la fille embrasse, 'Show me the lady that the girl kisses') and ORs with a demonstrative pronominal head and a lexical subject (Montre-moi celle que la fille embrasse, 'Show me the one that the girl kisses'). According to the author (Bentea 2017, p. 138), the presence of a formal lexical restriction feature is crucial for locality, unlike the presence of a noun from contentive lexicon. Demonstrative pronominal heads are specified by the lexical restriction feature +NP as much as lexical nominal heads, and thus both types of relative clause (87d) and (87e) involve two lexically restricted arguments.

(87) Due bambine sono ad uno spettacolo. Una bambina fotografa una ballerina, l'altra bambina guarda una ballerina. Tu quale bambina preferiresti essere?
'Two girls are at a show. A girl is photographing a dancer, the other girl is looking at a dancer. Which girl would you rather be?'
d. La bambina che fotografa la ballerina.
'The girl that is photographing the dancer.'

e. Quella che fotografa la ballerina.

'The one that is photographing the dancer.'

Additionally, we did not distinguish between ORs with and without a clitic pronoun or DP resuming the head of the relative clause (88-90). The production of relative clauses with resumptive pronouns is attested cross-linguistically in children. In adult Italian, this strategy is associated with a substandard register, whereas in several varieties and dialects of Italian, as well as in other languages, it is productive in adults as well (Guasti & Cardinaletti 2003, Utzeri, 2007, Volpato & Vernice 2014 on Italian; Labelle, 1990, Guasti & Cardinaletti, 2003 on French; McDaniel et al., 1998, Pérez-Leroux 1995 on English; Ferreiro et al., 1976 on Spanish). The production of relative clauses with resumptive DPs is also attested in children and in some adult languages, whereas it is ungrammatical in adult Italian (Contemori & Belletti 2014 on the different status of object relatives with resumptive clitic and object relatives with resumptive DP in Italian; Cinque 2011 and references therein for relative clauses with resumptive DP across languages).

(88) La bambina che la signora applaude.

 The girl that the lady applauds

 'The girl that the lady is applauding.'

(89) La bambina che la signora la applaude.

 The girl that the lady OBJ-CL applauds

 'The girl that the lady is applauding her.'

(90) La bambina che la signora applaude la bambina.

 The girl that the lady applauds the girl

 'The girl that the lady is applauding the girl.'

Finally, in the Filler condition, we coded subordinate clauses introduced by *che* (91a), occurrences of elliptical indirect speech (91b-c), and occurrences of elliptical direct speech (91d-e), as correct responses, felicitous to the elicitation. Fragments and unclassifiable responses were coded as incorrect responses.

(91) Una mamma torna a casa dal lavoro e vede che la bambina non ha fatto merenda. Un po' stupita le chiede perché. Secondo te, che cosa risponde la bambina?

'A mom comes home from work and sees that her daughter didn't have her snack. A bit surprised, she asks her why. In your opinion, what does the girl say?'

a. (La bambina risponde) che non ha trovato niente da mangiare.

   (The girl answers) that she found nothing to eat

b. Perché non ha trovato niente da mangiare.

   Because she found nothing to eat

c. Non ho trovato niente da mangiare.

   She found nothing to eat

d. Perché non ho trovato niente da mangiare.

   Because I found nothing to eat

e. Non ho trovato niente da mangiare.

   I found nothing to eat

2.4.1.4.   Results

This section will present all the results from Experiment 1, which will be discussed in subsequent Section 2.4.1.5.

The effect of the structure. Table 2.4 reports the percentage of correct SRs the children produced in the SR condition and the percentage of correct ORs they produced in the various OR conditions.

Table 2.4. % of correct SRs produced in the SR condition and of correct ORs produced in the OR conditions.
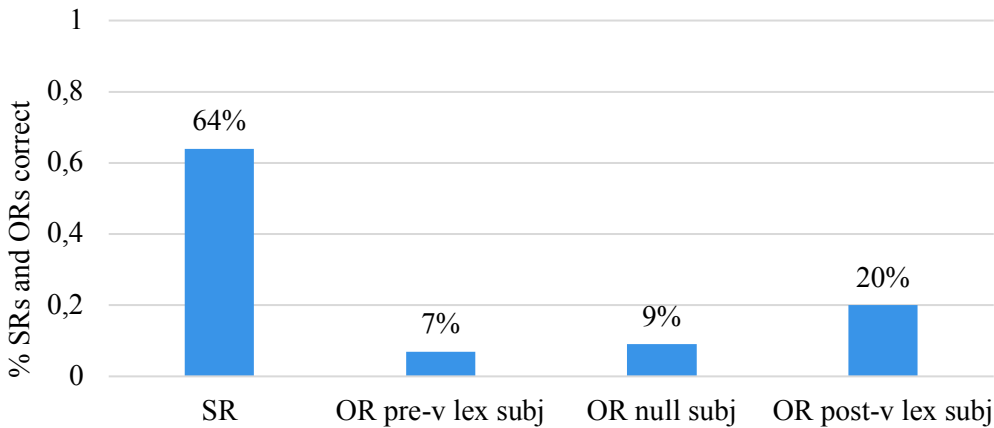
The children's performance was significantly better in the SR condition than in the OR conditions, and significantly better in the OR post-verbal lexical subject condition than in the other OR conditions. No significant difference between the OR preverbal lexical subject condition and the OR null subject condition appeared when we considered the correct SRs and ORs produced in the various elicitations, that is SRs with or without a lexical object in the elicitation of SRs[17], ORs with a preverbal lexical or null subject in the elicitation of ORs with a preverbal subject, ORs with a null or preverbal lexical subject in the elicitation of ORs with a null subject, and ORs with a post-verbal or pre-verbal subject in the elicitation of ORs with a post-verbal subject (see Section 2.4.1.3) There was still no significant difference between the OR preverbal lexical subject condition and the OR null subject condition when we considered only the target structures produced in the various elicitations, that is SRs with a lexical object in the elicitation of SRs, ORs with a preverbal lexical subject in the elicitation of ORs with a preverbal lexical subject, ORs with a null subject in the elicitation of ORs with a null subject, or ORs with a post-verbal lexical subject in the elicitation of ORs with a post-verbal subject (see Section 2.4.1.3). Indeed, in the SR condition, the participants produced 47% (164/352) of correct SRs with a lexical object, 10% (36/352) of correct SRs with a clitic object, and 7% (26/352) of correct SRs with an unexpressed object. In the OR preverbal

---

[17] The production of SRs with an unexpressed object in the elicitation of headed SRs with a lexical object also was a correct response, regardless of the in/transitive nature of the verb in the subject relative. A correct response to the elicitation indeed had to express the participant's preference between two characters performing two different actions on the same object, to this end the expression of the object wasn't necessary. Confirming evidence comes from the results from the adult control group. In the same elicitation, the adults mainly produced SRs with an unexpressed object and some SRs with a lexical object.

lexical subject condition, they produced 5% (18/352) of correct ORs with a preverbal lexical subject, and 2% (8/352) of correct ORs with a null subject (more specifically, 3/8 with a plural null subject with generic interpretation, and 5/8 with referential singular null subject). In the OR null pronominal subject condition, they produced 1% (5/352) of correct ORs with a null subject, and 8% (27/352) of correct ORs with a preverbal lexical subject. In the OR post-verbal lexical subject condition, they produced 14% (98/704) of correct ORs with a post-verbal lexical subject, and 6% (41/704) of correct ORs with a preverbal lexical subject.[18] Table 2.5 reports the percentage of the other responses the children produced across conditions.

Table 2.5. % of other responses produced across conditions.
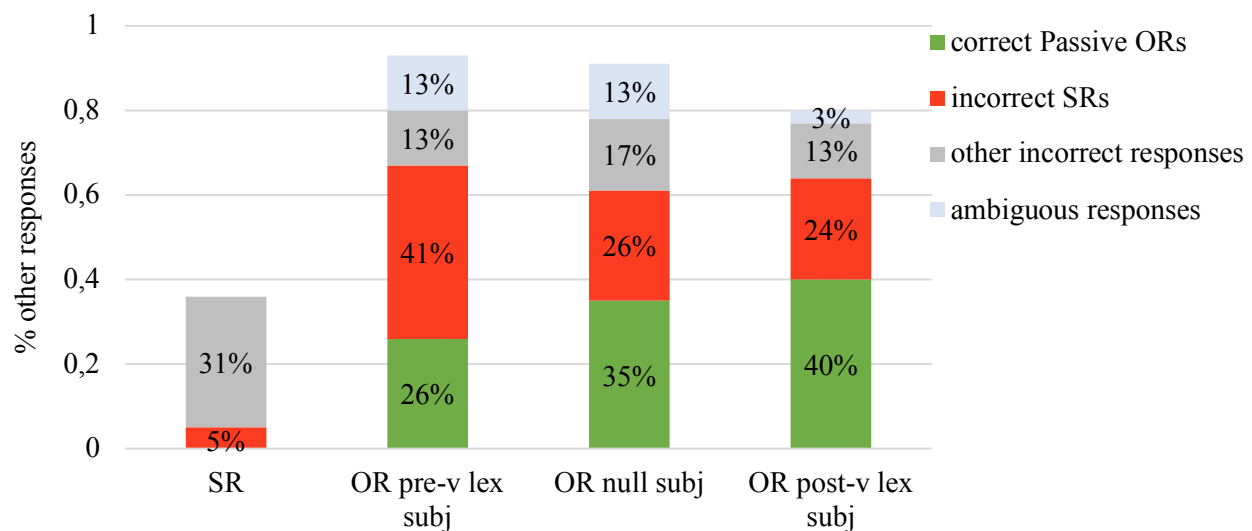
In the SR condition, in addition to correct SRs, the children also produced non-correct responses, namely non-correct SRs (5%), Passive ORs (14%), fragments (11%) and unclassifiable responses (7%). In the OR preverbal lexical subject condition, in addition to correct active ORs, the

---

[18] The low percentage, compared to previous studies, of target responses across conditions in this task, and in the elicited production tasks of Exp. 2, 4, and 5 in this dissertation, can be explained by the fact that in these studies the experimenter gave each participant the task instructions in the two warm-up trials (e.g. *"There are two little girls. One little girl is searching for a treasure, one little girl is finding a treasure. Which little girl would you rather be?' Start with 'I would rather be the little girl…'''*), but did not provide participants with the beginning of the target sentence in the experimental trials (versus e.g. Novogrodsky & Friedmann 2006 and Contemori & Belletti 2014, where the experimenter gives the participant the beginning of the target sentence at each trial). Neither did the experimenter correct participants who started a sentence off-target. Participants were therefore entirely free in their responses to each elicitation.

participants also produced correct Passive ORs in 26% (92/352) of cases, as well as non-correct responses like SRs (41%), *where* ORs (1%), simple sentences (1%), fragments (8%), and unclassifiable responses (3%). Moreover, 13% of productions in this condition were ambiguous between an object relative with null subject reading and a subject relative with head reversal reading. In the OR null pronominal subject condition, they also produced correct Passive ORs in 35% (124/352) of cases, as well as non-correct responses like SRs (26%), *where* ORs (1%), ORs with a post-verbal subject (1%), simple sentences (1%), fragments (11%), and unclassifiable responses (3%). Furthermore, 13% of the sentences they produced were ambiguous between an object relative with null subject reading and a subject relative with head reversal reading. Finally, in the OR post-verbal lexical subject condition, they also produced correct Passive ORs in 40% (280/704) of cases, alongside non-correct responses like SRs (24%), simple sentences (3%), *where* ORs (1%), passive ORs with an unexpressed agent (2%), and fragments (7%). In this condition, 3% of their productions were ambiguous between an object relative with null subject and a subject relative with head reversal reading.

Finally, when we considered all the correct responses the children produced across conditions, namely including correct Passive ORs as correct responses in the various OR conditions (see Section 2.4.1.3), we observed that the OR preverbal lexical subject condition led to significantly more errors than the other conditions. As shown in Table 2.6, performance in the SR and OR post-verbal lexical subject conditions was similar. Performance in the OR null subject condition was worse than in the SR and OR post-verbal subject conditions, but better than in the OR preverbal lexical subject condition.[19]

---

[19] These findings remain true even if some productions coded as ambiguous between an OR and SR reading were indeed correct ORs.

Table 2.6. % of all correct responses (including Passive ORs in OR elicitation) produced across conditions.
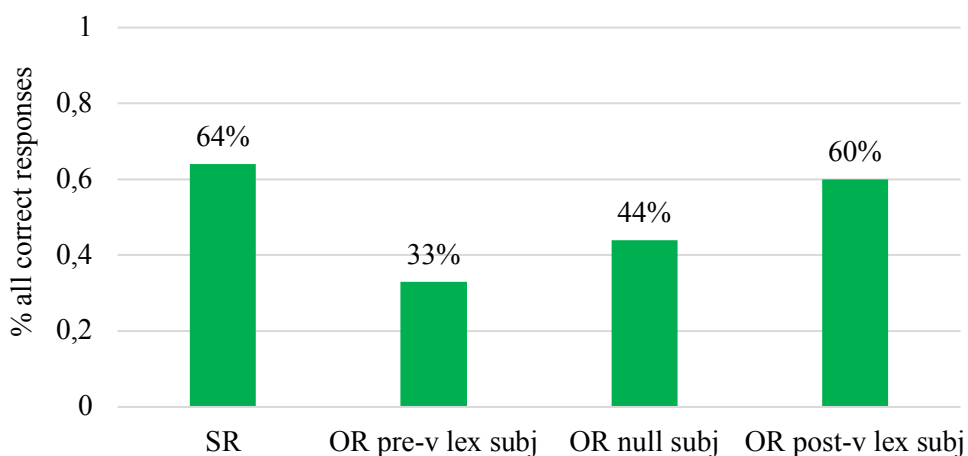
*The effect of age.* No significant effect of age emerged in the children's performance. As Table 2.7 shows, their performance was better in the SR condition than in the OR conditions, and better in the OR post-verbal lexical subject condition than in the other OR conditions, across age groups. However, the production of correct SRs and ORs did not increase with age. In the SR condition, 7-, 8- and 9-year-old children produced fewer correct SRs than did 3- and 5-year-olds. As we will discuss in Section 2.4.1.5, for older children the major production of Passive ORs in the elicitation of ORs led to the erroneous production of Passive ORs in the elicitation of SRs as well (see Table 2.8 below, showing also that the production of other types of incorrect response in this condition decreased with age, as expected). In the OR conditions, the production of correct ORs increased at around age 7 and then decreased again at age 9 (Table 2.7). As Tables 2.9-2.10 show, the production of incorrect responses (mainly incorrect SRs with head/roles reversal, but also simple sentences, fragments, and unclassifiable responses) decreased with age in these conditions, and the production of correct Passive ORs, instead of the elicited ORs, drastically increased at 9.[20] Finally, in the OR post-verbal lexical subject condition, the rate of correct ORs was significantly higher in the 5-year-old group than in the other age groups (Table 2.7).[21]

---

[20] Tables 2.9-2.11 do not report ambiguous responses.
[21] Tables FN1-FN3 below report the percentage of the various correct ORs produced across age groups and conditions.

Table 2.7. % of correct SRs produced in the SR condition and of correct ORs produced in the OR conditions across age groups.
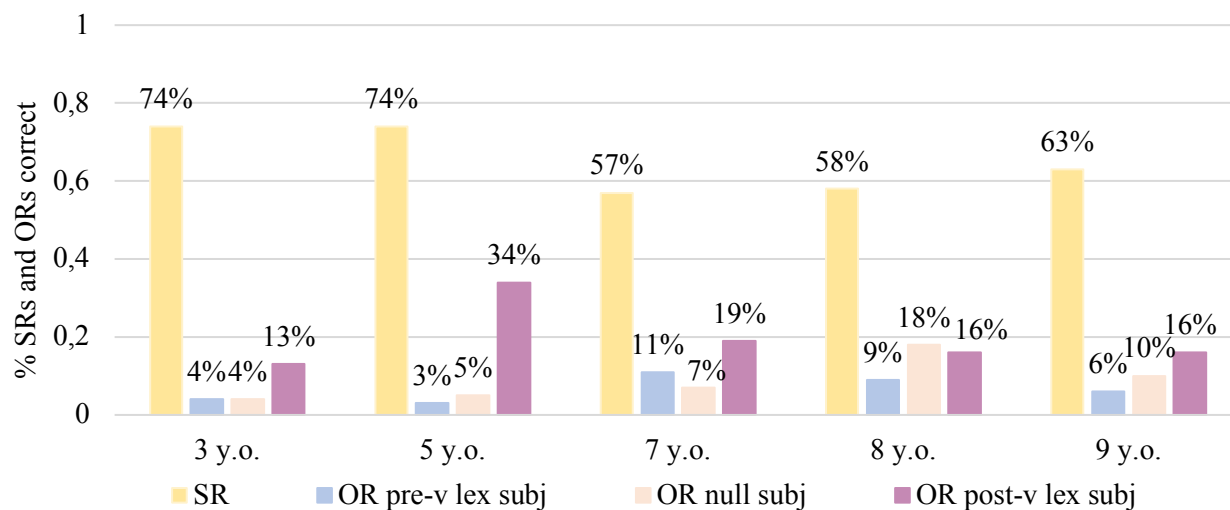
Table FN1. % of the various correct ORs produced in the OR pre-verbal lexical subject condition across age groups.

OR PRE-V LEX SUBJ CONDITION	% ORs with a preverbal lexical subj	% ORs with a null subj
3 y.o.	4%	0%
5 y.o.	3%	0%
7 y.o.	7%	4%
8 y.o.	6%	3%
9 y.o.	6%	0%

Table FN2. % of the various correct ORs produced in the OR null subject condition across age groups.

OR NULL SUBJ CONDITION	% ORs with a preverbal lexical subj	% ORs with a null subj
3 y.o.	4%	0%
5 y.o.	4%	1%
7 y.o.	6%	1%
8 y.o.	14%	4%
9 y.o.	10%	0%

Table FN3. % of the various correct ORs produced in the OR post-verbal lexical subject condition across age groups.

OR POST-V LEX SUBJ CONDITION	% ORs with a preverbal lexical subj	% ORs with post-verbal lexical subj
3 y.o.	1%	12%
5 y.o.	10%	24%
7 y.o.	4%	15%
8 y.o.	8%	8%
9 y.o.	5%	11%

Table 2.8. Responses produced in the SR condition across age groups.
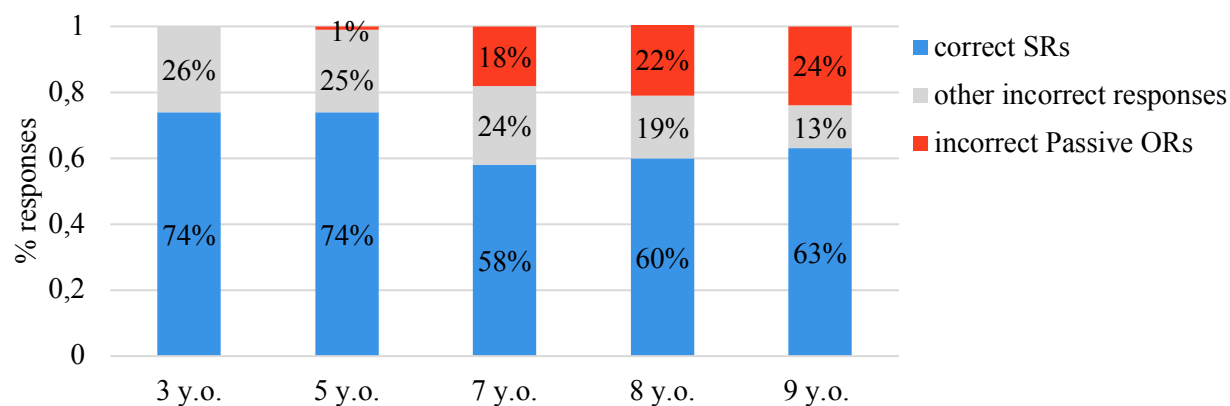
Table 2.9. Responses produced in the OR pre-verbal lexical subject condition across age groups.
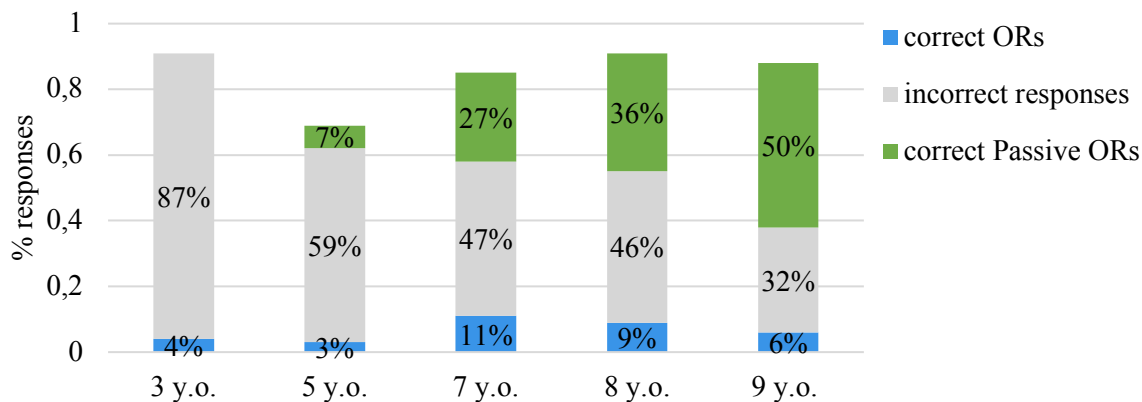
Table 2.10. Responses produced in the OR null subject condition across age groups.
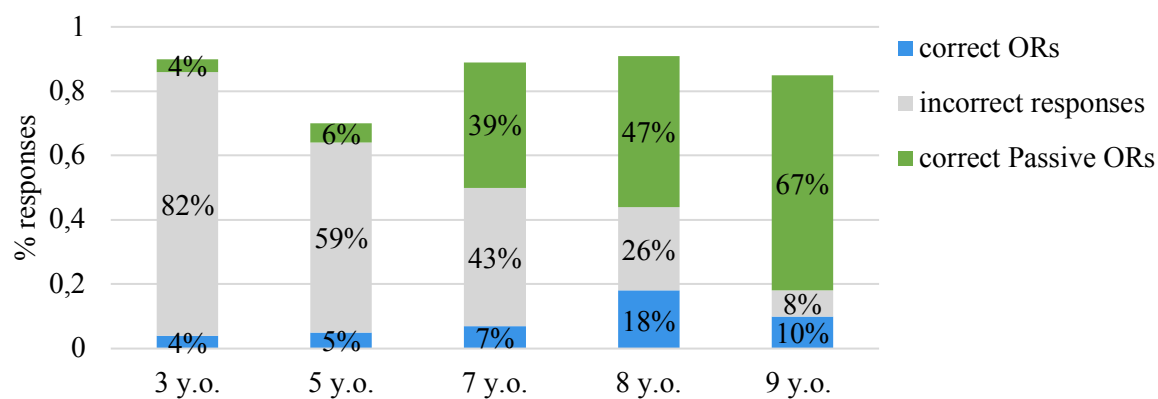
Table 2.11. Responses produced in the OR post-verbal lexical subject condition across age groups.
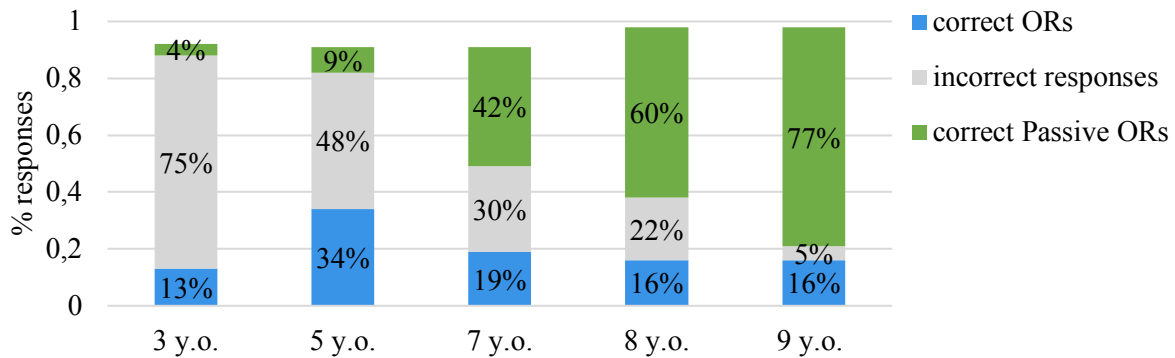
The effect of language exposure. No difference emerged between the performance of monolingual, bilingual, and early L2 participants (see Section 2.4.1.1) in the production of SRs and ORs.

The performance of the control group. Table 2.12 reports results from the adult control group. These participants performed significantly better in the SR condition than in the OR conditions, where they performed equally poorly. In the SR condition, the adults produced correct SRs in 66% (58/88) of cases (in 22% of cases, with a lexical object), as well as incorrect responses in the form of incorrect Passive ORs in 26% and fragments in 9% of cases. In the OR preverbal lexical subject condition, they produced correct ORs in 4% (4/88) of cases (in 2% of cases with a preverbal lexical subject and 2% with a generic null subject), and correct Passive ORs in 62% (55/88) of cases, as well as non-correct responses like SRs with head reversal in 23% and fragments in 4% of cases. 7% of their productions in this condition were ambiguous between an OR with a null subject reading and a SR reading. In the OR null subject condition, they produced ORs with a null subject in 2% (2/88) of cases, and correct Passive ORs in 81% (71/88) of cases, alongside non-correct responses like SRs with head reversal in 6% and fragments in 6% of cases. In this condition, 5% of the adult productions were ambiguous between an OR with null subject reading and a SR reading. In the OR post-verbal lexical subject condition, the adult participants produced ORs with a post-verbal lexical subject in 2% (3/176) of cases and correct Passive ORs in 80% (146/176) of cases, as well as non-correct responses like SRs with head reversal in 4% and fragments in 12% of cases.

Table 2.12. Responses produced by the adult control group across conditions.
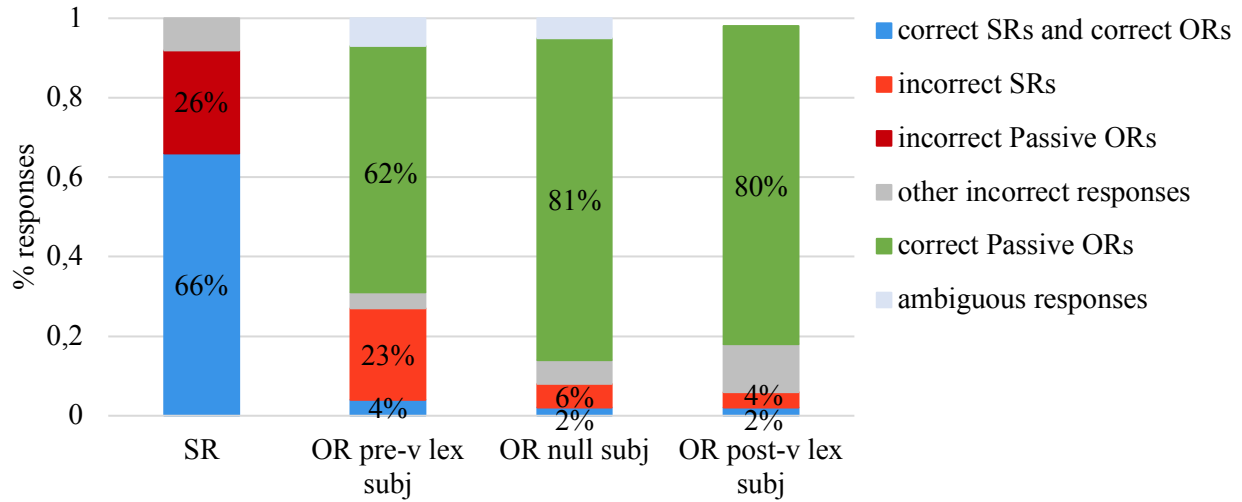
When we considered all correct responses produced in the OR conditions, namely including correct Passive ORs as correct responses (Section 2.4.1.3), we observed that, just like children, the adults made significantly more errors in the OR preverbal lexical subject condition (66% of responses correct) than in the other OR conditions (83% and 82% of responses correct in the OR null subject condition and in the OR post-verbal subject condition, respectively).

The participants' performance in the filler condition. Table 2.13 reports the responses produced by child and adult participants in the Filler condition. The children were performing very well in this condition even by the age of 3 (81% of responses overall correct; Section 2.4.1.3), and almost reached ceiling performance by the age of 5, with 95% of responses overall correct at that age, 98% at the age of 7, and 99% at the ages of 8 and 9. Adult participants produced 98% of overall correct responses in this condition. When we look at the types of correct responses produced across age groups, we observe that 3-year-old children produced subordinate clauses with *che* in 25% of cases, elliptical indirect speech in 42%, and elliptical direct speech in 14%. 5-year-olds produced subordinate clause with *che* in 57% of cases, elliptical indirect speech in 18%, and elliptical direct speech in 20%. 7-year-old children produced subordinate clause with *che* in 57% of cases, elliptical indirect speech in 19%, and elliptical direct speech in 22%. 8-year-olds produced subordinate clause with *che* in 64% of cases, elliptical indirect speech in 19%, and elliptical direct speech in 16%. 9-year-olds produced subordinate clause with *che* in 62% of cases, elliptical indirect speech

in 19%, and elliptical direct speech in 18%. Finally, the adults produced subordinate clause with *che* in 52% of cases, elliptical indirect speech in 11%, and elliptical direct speech in 35%.

Table 2.13. Responses produced by the children and the adult control group in the Filler condition.
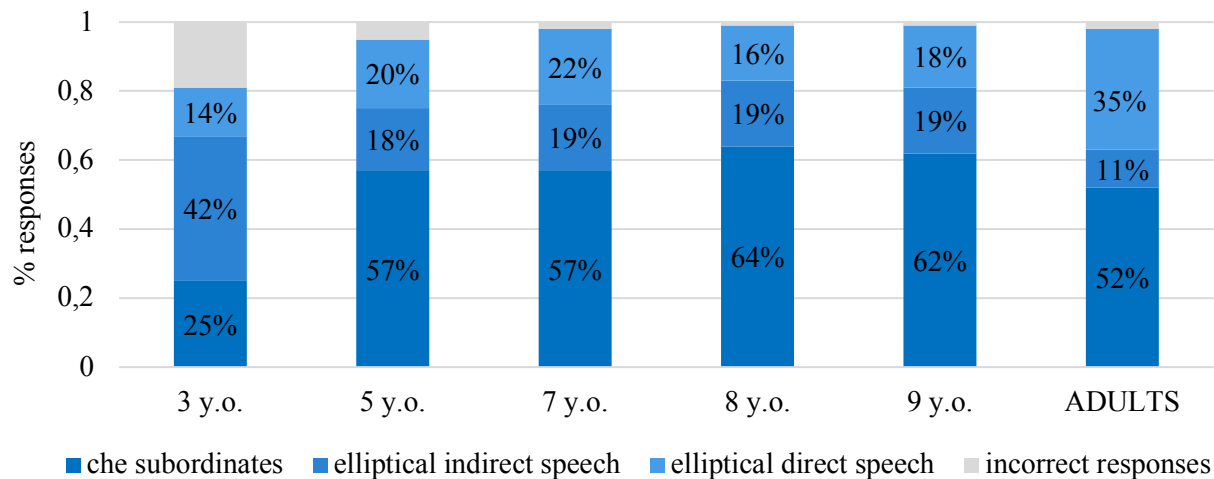
Data Analysis. The data were analysed with generalized mixed-effects models for binomial distribution estimated with the lme4 package in the R software environment. The data set consisted of 1760 data points. No outlier was excluded from the analysis. In order to assess the predictions fRM makes of the effect of the STRUCTURE variable, based on the hypothesis of the relevance of the lexical restriction feature for intervention locality, we ran a number of models with STRUCTURE as fixed factor, *participants* and *items* as random factors, and response accuracy as a categorical dependent variable. In particular, Model 1 (Table Statistical Analysis, henceforth Table SA, 1) explored the effect of STRUCTURE in children considering only the production of target relative clauses as accurate response. Model 2 (Table SA2) explored the effect of the STRUCTURE in children considering the production of correct active relative clauses as accurate response. Model 3 (Table SA3) explored the effect of STRUCTURE in children considering the production of all correct relative clauses as accurate response, that is, including correct Passive ORs in OR elicitation. Moreover, Models 4-6 (Tables SA4-6) explored the effect of AGE in children.[22] Finally, Models 7-9 replicated Models 1-3 for the adult control group (Tables SA7-9). We expected better performance with SRs

---

[22] Note that Model 4b (below), exploring the interaction between STRUCTURE and AGE GROUP, failed to converge.
Model 4b: correct active RC ~ STRUCTURE * AGE GROUP + (1|participant) + (1|item)

than with ORs, and with ORs involving a pronominal subject or a post-verbal lexical subject than with those involving a preverbal lexical subject.

o Model 1: target RC ~ STRUCTURE + (1|participant) + (1|item)
o Model 2: correct active RC ~ STRUCTURE + (1|participant) + (1|item)
o Model 3: all correct RC ~ STRUCTURE + (1|participant) + (1|item)
o Model 4: correct active RC ~ STRUCTURE (ALL CONDITIONS) + AGE GROUP + (1|participant) + (1|item)
o Model 5: correct active RC ~ STRUCTURE (ALL CONDITIONS EXCEPT FOR OR POST-V LEX SUBJ) + AGE GROUP + (1|participant) + (1|item)
o Model 6: correct active RC ~ STRUCTURE (OR PREV LEX SUBJ *vs.* OR POST-V LEX SUBJ) + AGE GROUP + (1|participant) + (1|item)
o Model 7: target RC ~ STRUCTURE + (1|participant) + (1|item)
o Model 8: correct active RC ~ STRUCTURE + (1|participant) + (1|item)
o Model 9: all correct RC ~ STRUCTURE + (1|participant) + (1|item)

Table SA1: Summary of fixed effects for Model 1, Experiment 1.

MODEL 1	Estimate	Std. error	Z value	P value
(Intercept)	-2.16	0.23	-9.17	<0.0001***
Structure: OR prev lex subj	-1.23	0.40	-3.03	0.002**
Structure: OR pron subj	-2.60	0.55	-4.66	<0.0001***
Structure: SR	1.78	0.33	5.29	<0.0001***

Table SA2: Summary of fixed effects for Model 2, Experiment 1.

MODEL 2	Estimate	Std. error	Z value	P value
(Intercept)	-1.83	0.29	-6.21	<0.0001***
Structure: OR prev lex subj	-1.54	0.47	-3.22	0.001**
Structure: OR pron subj	-1.29	0.47	-2.74	0.006**
Structure: SR	2.70	0.44	6.10	<0.0001***

Table SA3: Summary of fixed effects for Model 3, Experiment 1.

MODEL 3	Estimate	Std. error	Z value	P value
(Intercept)	0.54	0.27	1.98	0.0468*
Structure: OR prev lex subj	-1.63	0.38	-4.28	<0.0001***
Structure: OR pron subj	-0.94	0.37	-2.51	0.011*
Structure: SR	0.33	0.38	0.88	0.374

Table SA4: Summary of fixed effects for Model 4, Experiment 1.

MODEL 4	Estimate	Std. error	Z value	P value
(Intercept)	-2.07	0.45	-4.51	<0.0001***
Structure: OR prev lex subj	-1.54	0.47	-3.22	0.001**
Structure: OR pron subj	-1.29	0.47	-2.74	0.006**
Structure: SR	2.70	0.44	6.11	<0.0001***
Age : 5 y.o.	0.85	0.51	1.65	0.097
Age : 7 y.o.	0.17	0.51	0.34	0.72
Age : 8 y.o.	0.10	0.51	0.20	0.83
Age : 9 y.o.	0.02	0.51	0.05	0.95

Table SA5: Summary of fixed effects for Model 5, Experiment 1.

MODEL 5	Estimate	Std. error	Z value	P value
(Intercept)	-2.87	0.39	-7.36	<0.0001***
Structure: OR pron subj	0.24	0.28	0.85	0.393
Structure: SR	3.55	0.26	13.27	<0.0001***
Age : 5 y.o.	0.08	0.44	0.19	0.846
Age : 7 y.o.	-0.14	0.44	-0.33	0.735
Age : 8 y.o.	0.09	0.43	0.23	0.821
Age : 9 y.o.	-0.01	0.43	-0.03	0.970

Table SA6: Summary of fixed effects for Model 6, Experiment 1.

MODEL 6	Estimate	Std. error	Z value	P value
(Intercept)	-3.04	0.68	-4.42	<0.0001***
Structure: OR prev lex subj	-1.67	0.27	-6.09	<0.0001***
Age : 5 y.o.	1.74	0.84	2.05	0.040*
Age : 7 y.o.	1.12	0.84	1.33	0.183
Age : 8 y.o.	0.38	0.87	0.44	0.65
Age : 9 y.o.	0.41	0.86	0.47	0.63

Table SA7: Summary of fixed effects for Model 7, Experiment 1.

MODEL 7	Estimate	Std. error	Z value	P value
(Intercept)	-4.04	0.81	-4.97	<0.0001***
Structure: OR post-v lex subj	-0.29	0.95	-0.30	0.759
Structure: OR prev lex subj	0.004	1.05	0.004	0.996
Structure: SR	2.58	0.82	3.13	0.0017**

Table SA8: Summary of fixed effects for Model 8, Experiment 1.

MODEL 8	Estimate	Std. error	Z value	P value
(Intercept)	-4.48	1.04	-4.30	<0.0001***
Structure: OR post-v lex subj	-0.21	1.20	-0.17	0.858
Structure: OR prev lex subj	0.91	1.24	0.73	0.461
Structure: SR	5.37	1.22	4.37	<0.0001***

Table SA9: Summary of fixed effects for Model 9, Experiment 1.

MODEL 9	Estimate	Std. error	Z value	P value
(Intercept)	1.63	0.30	5.41	<0.0001***
Structure: OR post-v lex subj	-0.08	0.34	-0.23	0.817
Structure: OR prev lex subj	-0.90	0.36	-2.44	0.014*
Structure: SR	-1.00	0.36	-2.74	0.008*

2.4.1.5. *Interim discussion*

With the aim of investigating the effect that the presence of lexical restriction on two elements in an intervention configuration has on sentence production, Experiment 1 explored, in Italian speaking children and adults, the elicited production of headed subject relatives with a lexical object, headed object relatives with a preverbal lexical subject, headed object relatives with a preverbal null pronominal subject, and headed object relatives with a post-verbal lexical subject. Results revealed that, across age groups, children have great difficulties in the production of headed ORs with a lexical preverbal subject compared to the production of headed SRs with a lexical object. These findings are in line with previous work by Guasti and Cardinaletti (2003), Zukowski (2009), Friedmann et al. (2009), Belletti and Contemori (2010), Arnon (2010), Contemori and Belletti (2014), and Costa et al. (2014), and also with the predictions from the featural Relativized Minimality theory. Following this latter, both structures involve two lexically restricted noun phrases, however headed ORs with a preverbal lexical subject involve an intervention configuration of inclusion between moved object and subject (92) that is hard for children to compute, whereas headed SRs with a lexical object do not involve intervention (93).

(92) La bambina$_{+R\ +NP}$ che la signora$_{+NP}$ applaude <la bambina$_{+R\ +NP}$ >.

    The girl that the lady applauds <the girl>

    'The girl that the lady is applauding.'

(93) La bambina$_{+R\ +NP}$ che <la bambina$_{+R\ +NP}$> fotografa la ballerina$_{+NP}$.

    The girl that <the girl> photographs the dancer

    'The girl that is photographing the dancer.'

The manipulation of the lexical nature of the preverbal subject showed no effect in the results. Headed ORs with a preverbal pronominal subject were expected to be easier to compute for children than headed ORs with a lexical preverbal subject (in line with evidence from Friedmann et al. 2009, Arnon 2010, Brandt et al. 2009, and Belletti & Contemori 2012), as they involve a disjunction relation between lexical head and intervening pronominal subject lacking the lexical restriction (94). However, children's performance in the OR with a preverbal null

pronominal subject condition did not differ from their performance in the OR with a preverbal lexical subject condition.

(94) La bambina$_{+R\ +NP}$ che corregge <la bambina$_{+R\ +NP}$>.

The girl that (pro$_{3ps}$) corrects <the girl>

'The girl that she is correcting.'

This might be due to the nature of the elicitation used in this task. In the elicitation a null pronominal subject ('*pro$_{3ps}$* corrects a girl, *pro$_{3ps}$* scolds the other girl' in (95)) was used to refer to the subject in the previous sentence ('a teacher' in (95)). Although the use of a null pronominal subject in the elicited object relative to refer to the subject in the elicitation was grammatical (see Calabrese 1985 on the use of null pronominal subjects in Italian), the use of a lexical subject was probably more natural in this particular situation where the null pronoun would have to refer to an antecedent in a previous sentence belonging to another speech act.[23]

(95) Una maestra rivede i compiti con due bambine. Corregge una bambina, rimprovera l'altra bambina. Tu quale bambina preferiresti essere?

A teacher is revising the homework with two girls. (pro$_{3ps}$) corrects a girl, (pro$_{3ps}$) scolds

the other girl. Which girl would you rather be?

'A teacher is revising the homework with two girls. She corrects a girl, she scolds the other

girl. Which girl would you rather be?'

Target response: La bambina che corregge.

The girl that (pro$_{3ps}$) corrects

'The girl that she is correcting.'

Also, the presence of responses remained ambiguous between a SR and an OR reading, both in the elicitation of OR with a null pronominal subject and OR with a preverbal lexical subject (see Section 2.4.1.3), makes it difficult to precisely investigate the number of object relatives with a null pronominal subject produced by the children in these elicitations. It thus seems hard to draw valuable conclusions from these results on the production of ORs with a pronominal subject.

---

[23] See also Frascarelli (2007) on syntax and discourse requirements of referential null pronominal subjects in Italian.

In contrast, the results clearly showed that manipulation of the position of the lexical subject in headed ORs has an effect. Children experience less difficulties in the elicited production of headed ORs with a post-verbal lexical subject than in the elicited production of those with a lexical preverbal subject, in line with Belletti and Contemori (2010) and Belletti and Chesi (2014) (but see also Bentea 2017 on sentence comprehension in Romanian). Following those authors indeed, object relatives with a post-verbal subject can be derived as illustrated in (96), with the object (*la bambina*, 'the girl') moving past the external argument (*la bidella*, 'the janitor') as part of a chunk of the verb phrase. In such a derivation, headed ORs with a post-verbal lexical subject involve no intervention, and thus are expected to provide children with less of challenge in computation, compared to headed ORs with a lexical preverbal subject.

(96) La bambina$_{+R\,+NP}$ che [$_{TP}$ pro sgrida [$_{vP}$ <V> <la bambina$_{+R\,+NP}$>] … [$_{vP}$ la bidella <VP>]]

The girl that [$_{TP}$ pro scolds [$_{vP}$ <V> <the girl>] … [$_{vP}$ the janitor <VP>]]
'The girl that the janitor is scolding.'

In line with the evidence from Belletti and Contemori (2012), the results also revealed an increase in the production of ORs with a post-verbal subject at the age of 5, the age in which, following the authors, children would start to productively master this smuggling type derivation.

When an OR was elicited, the younger children produced incorrect responses that do not involve intervention, mainly incorrect subject relatives and some simple sentences. The older children produced correct responses containing no intervention, namely passive object relatives. These findings fall in line with previous evidence from child Italian (Belletti & Contemori 2010, Contemori & Belletti 2014, and Guasti & Cardinaletti 2003). The production of Passive ORs drastically increased around the age of 9, and simultaneously the production of correct ORs and incorrect SRs decreased. As outlined in Section 2.3, based on a smuggling derivation of Passive ORs, these structures are a correct answer to the elicitation, easier than ORs to compute, for speakers mastering passive, as they contain no intervention (97) (Belletti 2014, based on Collins 2005).

```
         _____
      ↓                         |
(97)  La bambina che [ᵥₚ è [VP spinta <la bambina>] da [ᵥₚ l'amica <VP>]]
                    ↑_____|
```

The girl that [is [VP pushed <the girl>] by [ᵥₚ the friend <VP>]]

'The girl that is pushed by the friend.
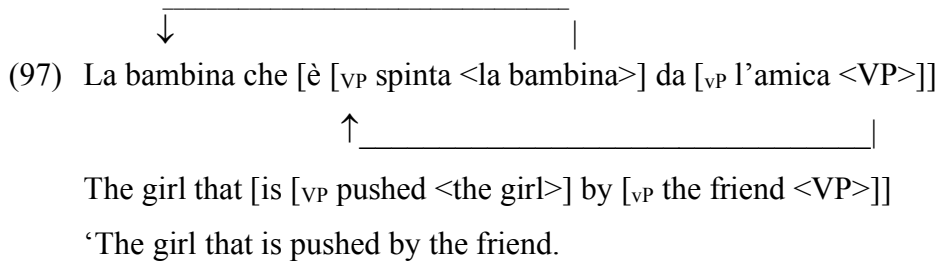
In the OR with a post-verbal lexical subject condition, the older children preferred Passive ORs over active ORs. It is possible to assume that, to some extent, younger children access a smuggling derivation for ORs with a post-verbal subject when looking for a correct response to the elicitation of ORs with a post-verbal subject, whereas older children, who have productively mastered Passive ORs, simply use this last structure to appropriately answer the elicitation, as adults do.

Interestingly, the great amount of Passive ORs produced in the OR conditions also led to the erroneous production by the older children of some Passive ORs in the SR condition. In particular, this was due to the design of the task, which included three conditions eliciting ORs and one condition eliciting SRs. All experimental conditions used the same number of items (4), in order to be perfectly comparable. As a result, there was an asymmetry between the total number of items eliciting ORs (12/16) and the number of items eliciting SRs (4/16). This asymmetry made the older children, who used Passive ORs as response to almost all OR elicitations, produce some Passive ORs in the SR elicitations as a sort of automatism. This explains the decrease in correct SRs produced by 7- and 9-year-old children in the SR condition, compared to 3- and 5-year-olds, and the relatively low total number of SRs in response to the SR elicitation, compared to previous studies. The fact that this result is an effect of the task is confirmed by the presence of the same phenomenon among the adults in this experiment, and by its absence in Experiment 4 (to be discussed in Ch. 3, Section 3.4.1), where the same participants as in Experiment 1 were tested with a different design.

This difficulty involved in the elicitation of headed ORs with a preverbal lexical subject appears clearly when we consider all the correct responses produced across conditions, namely both the active and passive correct ORs produced in the OR conditions. We then observe that the OR preverbal lexical subject condition led to more errors than the OR null pronominal subject and OR post-verbal lexical subject conditions. This type of analysis also sheds light on the results from

the adult control group. The adults performed well in the production of correct SRs in the SR condition and mainly produce Passive ORs instead of the elicited ORs in the OR conditions. Looking at the correct SRs and active ORs produced, we thus observe a clear SR-OR asymmetry but no effect of nature or position of the subject on production of headed ORs in adults. Instead, when we look at all correct responses produced across conditions (correct SRs in the SR condition, correct active and passive ORs in the OR conditions), we observe that the headed ORs with a preverbal lexical subject condition was the hardest one for the adult control group as well, leading to more incorrect responses (incorrect SRs) than the other OR conditions (see Arnon 2010 for a similar analysis).

The results from Experiment 1 show that structures involving two lexical noun phrases in an intervention configuration, that is, headed ORs with a lexical preverbal subject, are harder for children to produce than those involving two lexical noun phrases but no intervention, such as headed SRs, ORs with a post-verbal subject or Passive ORs. We can thus observe the effect that the presence of two lexical noun phrases in an intervention configuration has on production, in line with the predictions from fRM.

2.4.2. Experiment 2: Manipulating the nature of the subject in the elicited production of object relatives in French

Experiment 2 explored the effect that the presence of the lexical restriction feature on two elements in an intervention configuration has on sentence production in child and adult French. This experiment tested the elicited production of headed object relatives with a lexical preverbal subject, as well as of headed object relatives with a non-lexical preverbal subject, namely an overt pronominal subject. Moreover, the experiment tested the elicited production of headed object relatives with a lexical preverbal subject in which lexical head and subject mismatch in the given/new information feature. As in Experiment 1, we expected lexical restriction to affect the production of sentences with intervention. We therefore expected ORs with lexical head and lexical preverbal subject (an intervention configuration of inclusion) to be harder in production than those with lexical head and pronominal preverbal subject (an intervention configuration of disjunction), in line with the findings from Friedmann et al. (2009) and Arnon (2010) on Hebrew and from

Brandt et al. (2009) on English and German comprehension. Additionally, we expected ORs with given information lexical head and given information lexical subject (an intervention configuration of inclusion) to be harder to produce than those with given information lexical head and new information lexical subject (an intervention configuration of intersection). See Section 2.4.2.2 below for a detailed presentation of materials and predictions.

2.4.2.1. *Participants*

81 typically developing French-speaking children, aged 3;3-9;3, took part in this experiment. 6 out of 81 children were excluded from the study as they did not finish the task. 1 further child was excluded because of his difficulties in pronunciation, which made his answers impossible to understand. The participants were randomly selected from kindergartens and primary schools in Geneva, Switzerland. 39 out of 74 were monolingual native speakers, 14 children were bilingual native speakers, and 21 were early L2 learners.[24] We considered as early L2 learners those children who have been exposed to French from birth, but whose parents are not native French speakers.[25] We will see that no effect of this showed up in the results presented later.

The children were divided into four age groups by age: the 3-year-old group, the 5-year-old group, the 7-year-old group, and the 8-year-old group. See Table 2.14 below.

Table 2.14. Participants in Experiment 2.

Age Group	No. of Participants	Age Range	Mean Age
3 y.o.	15	3;3 - 4;4	3;8
5 y.o.	18	4;9 - 5;6	5;1
7 y.o.	25	6;10 - 7;8	7;3
8 y.o.	16	8;4 - 9;3	8;8
Adults	22	19-66	25

---

[24] In the 3-year-old group, 12 children were monolingual native speakers, 1 was a bilingual native speaker, and 2 were early L2 learners. In the 5-year-old group, 9 children were monolingual native speakers, 7 were bilingual native speakers, and 2 were early L2 learners. In the 7-year-old group, 9 participants were monolingual native speakers, 5 were bilingual native speakers, and 11 were early L2 learners. Finally, in the 8-year-old group, 9 participants were monolingual native speakers, 1 was a bilingual native speaker, and 6 were early L2 learners.

[25] Some of the non-native French speaking parents had lived in a French-speaking country for many years, becoming near-native French speakers, whereas others possessed a very poor knowledge of French. Some parents only spoke their L1 at home, while others additionally or mainly spoke French at home.

22 adults participated in the experiment as a control group. They were monolingual native speakers of French from various regions of Switzerland and France, and also from diverse educational backgrounds. Only participants who gave informed written consent participated in the experiment (Section 2.4.1.1).

2.4.2.2. Method and predictions

In order to explore the effect that a lexical subject in an intervention configuration of inclusion with a lexical head has on object relative production, we tested the elicited production of the following structures.

Table 2.15. Structures tested in Experiment 2.

SUBJECT RELATIVES	
	Le garçon qui indique l'homme. 'The boy that is pointing to the man.'
OBJECT RELATIVES	
(i) lexical subject	Le garçon que l'homme applaudit. 'The boy that the man is applauding.'
(ii) pronominal subject	Le garçon qu'il aide. 'The boy that he's helping'
(iii) new info lexical subject	Le garçon que le papa_{new info} conduit. 'The boy that the dad is driving.'

Under fRM and the hypothesis that the NP feature is relevant for intervention effects, we expected headed ORs with a lexical subject, an intervention configuration of inclusion (98), to be more difficult to produce than headed ORs with a 3rd person singular overt pronominal subject, an intervention configuration of disjunction (99).

(98) Le garçon$_{+R\ +NP}$ que l'homme$_{+NP}$ applaudit <le garçon$_{+R\ +NP}$>.

The boy that the man applauds <the boy>

'The boy that the man is applauding.'

(99) Le garçon$_{+R\ +NP}$ qu'il aide <le garçon$_{+R\ +NP}$>.

The boy that he helps <the boy>.

'The boy that he's helping.

Moreover, we expected the production of ORs with given information lexical head and given information lexical subject, intervention configuration of inclusion (98), to be more difficult than that of ORs with given information lexical head and new information lexical subject, intervention configuration of intersection (100). See Table 2.16 and discussion below for the elicitation of these different types of ORs.

(100) Le garçon$_{+R\ +NP\ given}$ que le papa$_{+NP\ new}$ conduit <le garçon$_{+R\ +NP\ given}$>.

The boy that the dad drives <the boy>

'The boy that the dad is driving.'

Whilst in Italian, new information subjects fill the post-verbal low focus position, and thus do not intervene in the object chain in ORs (Section 2.4.1), in French new information subjects can either be clefted or fill the preverbal subject position. In the latter case, following the analysis proposed by Belletti (2005 and related work), focalization occurs via activation of a DP internal new information focus position. French therefore offers the opportunity to test the effect that new information mismatch between a preverbal, thus intervening, lexical subject and a lexical relative head has on the computation of object relatives.

The participants' performance in the production of ORs was compared to their performance in the production of SRs (101), structures that do not involve intervention and are thus expected to be easier to compute, compared to ORs.

(101) Le garçon$_{+R\ +NP}$ qui <le garçon$_{+R\ +NP}$> indique l'homme.

The boy that <the boy> points to the man

'The boy that is pointing to the man.'

As shown by examples (98-101), French object relatives are introduced by the complementizer *que*, whereas French subject relatives are introduced by the complementizer *qui*.[26] Although the alternation in the complementizer form indicates whether the relative head noun is the object or subject of the verb in the relative clause, such an alternation does not assist children in the comprehension of object relatives (see Bentea 2017). This further shows that what counts in the computation of these sentences is the construction of the movement dependency between the moved argument and its original position. Only morphosyntactic features responsible for that movement are relevant in the construction of the dependency, whereas other cues, such as complementizer forms, are not.

We elicited the production of subject and object relatives using the same type of task as in Experiment 1 (see Section 2.4.1.2). As in Experiment 1, we manipulated one variable in a 1 x 4 design: (1) STRUCTURE: (i) SR; (ii) OR with a lexical subject; (iii) OR with a pronominal subject; (iv) OR with a new information lexical subject. In Table 2.16, we provide an example of elicitation and item for each condition. A full list of the materials is given in Appendix B.

Table 2.16. Experiment 2. Example of elicitation and item in the four experimental conditions and filler condition (male version).

SUBJECT RELATIVE CONDITIONS	
(i)	Deux garçons sont au parc. Un garçon regarde un homme, un garçon indique un homme. Quel garçon est-ce que tu préfèrerais être ? 'Two boys are at the park. A boy is looking at a man, a boy is pointing to a man. Which boy would you rather be?' Target response: Le garçon qui indique/regarde l'homme. 'The boy that is pointing to/looking at the man'
OBJECT RELATIVE CONDITIONS	
(ii) lexical subject	Deux garçons chantent une chanson. Un homme écoute un garçon, un homme applaudit un garçon. Quel garçon est-ce que tu préfèrerais être ? 'Two boys are singing a song. A man is listening to a boy, a man is applauding a boy. Which boy would you rather be?' Target response: Le garçon que l'homme applaudit/écoute. 'The boy that the man is applauding/listening'

---

[26] See Rizzi and Shlonsky (2007) for an analysis of the complementizer *qui*.

(iii) pronominal subject	Un maître revoit les devoirs avec deux garçons. Il aide un garçon, il gronde un garçon. Quel garçon est-ce que tu préfèrerais être ? 'A teacher is revising the homework with two boys. He helps a boy, he scolds a boy. Which boy would you rather be?' Target response: Le garçon qu'il aide/gronde. 'The boy that he helps/scolds'
(iv) new info lexical subject	Un papa aimerait conduire ses deux garçons à l'école, mais malheureusement il n'en a pas le temps. Alors il conduit un garçon et quelqu'un d'autre conduit l'autre garçon. Quel garçon tu préfèrerais être ? 'A dad would like to drive his two boys to school but unfortunately he doesn't have much time. So, he drives a boy and someone else drives the other boy. Which boy would you rather be?' Target response: Le garçon que le papa/quelqu'un d'autre conduit. 'The boy that the dad/someone else drives'
	FILLER CONDITION
	Une fille doit colorier un objet pour l'école. À ton avis qu'est-ce qu'elle fait, elle colorie une lampe ou une boîte ? 'A girl has to color an object for school. In your opinion, what does she do, she colors a lamp or a box?' Target response: Elle colorie une boite/une lampe. 'She colors a box/lamp'

As in Experiment 1, in the OR lexical subject condition, the two situations described to the participant introduced two different actions ('to listen/to applaud') and one possible type of agent ('a man') in the context. The salient information conveyed by the target response was the action. The subject in the target object relative was expected to be lexical as in the elicitation, and given information with respect to the discourse context set up by the elicitation, in which only one possible type of agent was introduced. In the OR pronominal subject condition, the two situations introduced two different actions ('to help/to scold') and one possible agent ('a teacher') in the context. The salient information conveyed by the target response was again the action. Differently from the previous condition, the subject in the target object relative, referring to the only agent present, was expected to be pronominal as in the elicitation. In the OR new information lexical subject condition, the two situations presented to the participant involved one possible action ('to drive') and two possible types of agent ('a dad/someone else'). The subject in the elicited object relative was expected to be lexical, as in the elicitation, and new information with respect to the discourse context, in which two possible agents were present. In all OR conditions, the relative head was always lexical. In the SR condition, both subject and object were always lexical. In all

the items, the subject and the object were animate, singular, and in a match condition as for the gender feature. The STRUCTURE variable was manipulated between items. A within-participants design was used. For each experimental condition there were 4 items. The task also included 8 fillers eliciting simple sentences of the type *La bambina colora una scatola* ('*The girl colors a box'*) (see Table 2.16). Two lists of 24 items were used, in which the order of the items was pseudo-randomized so that there were no more than two consecutive items of the same type. Each session started with a warm-up phase in which the participant saw two practice trials. As in Experiment 1, in order to have perfectly comparable results from children and adults, the adult control group was tested by the experimenter using the exact same design and items as children, without the support of the Dora and Boot game.

2.4.2.3.   Coding

The participant's productions were coded using the same criteria as in Experiment 1 (Section 2.4.1.3).

In the SR condition, given the goal of a minimal comparison between the production of subject and object relatives with two lexical noun phrases, only subject relatives with a lexical object were coded as target responses (102a). Correct subject relatives with a clitic object (102b) and correct subject relatives with an unexpressed object (102c) were coded as correct, but not target. All other responses (subject relatives with a wrong head, theta roles or verb; object relatives; simple sentences; fragments; no responses; non-relevant responses; and ungrammatical responses) were coded as non-correct.

(102)   Deux garçons sont au parc. Un garçon regarde un homme, un garçon indique un homme. Quel garçon est-ce que tu préfèrerais être ?
'Two boys are at the park. A boy is looking at a man, a boy is pointing to a man. Which boy would you rather be?'
a.   Le garçon qui regarde l'homme.
The boy that looks at the man
'The boy that is looking at the man.'

b. Le garçon qui le regarde.

The boy that OBJ-CL looks at

'The boy that is looking at him.'

c. Le garçon qui regarde.

The boy that watches

'The boy that is watching.'

In the OR lexical subject condition, only correct object relatives with a lexical subject (103a) were coded as target responses. Correct object relatives with a pronominal subject (103b) were coded as correct, but not target. The use of a pronominal subject to refer to the only agent introduced in the context by the elicitation was indeed also appropriate, although less expected than a lexical subject.

(103) Deux garçons chantent une chanson. Un homme écoute un garçon, un homme applaudit un garçon. Quel garçon est-ce que tu préfèrerais être ?

'Two boys are singing a song. A man is listening to a boy, a man is applauding a boy. Which boy would you rather be?'

a. Le garçon que l'homme applaudit.

The boy that the man applauds

'The boy that the man is applauding'.

b. Le garçon qu'il applaudit.

The boy that he applauds

'The boy that he is applauding'.

In the OR pronominal subject condition, correct object relatives with a pronominal subject (104a) were coded as target. Correct object relatives with a lexical subject (104b) were coded as correct, but not target. A lexical subject referring to the only agent in the discourse was indeed also correct in this condition, although less expected than a pronominal subject.

(104) Un maître revoit les devoirs avec deux garçons. Il aide un garçon, il gronde un garçon. Quel garçon est-ce que tu préférerais être ?

'A teacher is revising the homework with two boys. He's helping a boy, he's scolding a boy. Which boy would you rather be?'

a. Le garçon qu'il aide.

The boy that he helps

'The boy that he's helping.'

b. Le garçon que le maître aide.

The boy that the teacher helps

'The boy that the teacher is helping.'

Finally, in the OR new information lexical subject condition, all correct object relatives with a lexical subject (105a) were coded as correct. There was no information allowing us to discriminate between object relatives with a new information lexical subject and object relatives with a given information lexical subject. Because of the low quality of the recordings of the experimental sessions, we were unable to perform a valuable prosodic analysis of participants' productions. It is plausible that, besides the elicited object relatives with a new information lexical subject, the participants also produced some object relatives with a given information lexical subject. The use of a given information lexical subject was also correct in this condition, even if less felicitous, as both possible agents were introduced in the discourse by the elicitation.

(105) Un papa aimerait conduire ses deux garçons à l'école, mais malheureusement il n'en a pas le temps. Alors il conduit un garçon et quelqu'un d'autre conduit l'autre garçon. Quel garçon tu préférerais être ?

'A dad would like to drive his two boys to school but unfortunately he doesn't have much time. So, he drives a boy and someone else drives the other boy. Which boy would you rather be?'

a. Le garçon que le papa conduit.

The boy that the dad drives

'The boy that the dad is driving.'

In the OR conditions, correct Passive ORs (106) were coded as correct responses but not target, without distinguishing between copular, causative or reduced passive object relatives. Passive ORs both with and without an overt by-phrase were considered correct responses in the OR lexical subject and OR pronominal subject conditions, in which the agent conveyed given information that could be left unexpressed in the answer to the elicitation. In contrast, only correct Passive ORs with an overt by-phrase were considered correct responses in the OR new information subject condition, wherein the agent conveyed salient new information that had to be expressed in the answer.

(106) Elicited OR: Le garçon que l'ami filme.
     The boy that the friend films
     'The boy that the friend is filming.'
   Passive OR: Le garçon qui est filmé (par l'ami).
      The boy that is filmed (by the friend)
     'The boy that is being filmed (by the friend).'

Subject relatives with head reversal (107a), role reversal (107b) or verb change (107c), as well as *where* object relatives (107d), simple sentences (107e), fragments, and non-classifiable responses (no responses, non-relevant responses, and ungrammatical responses) produced in the elicitation of ORs were coded as non-correct responses.

(107) Elicited OR: Le garçon que l'ami filme.
     The boy that the friend films
     'The boy that the friend is filming.'
  a. L'ami qui filme le garçon.
    The friend that films the boy
    'The friend that is filming the boy.'
  b. Le garçon qui filme l'ami.
    The boy that films the friend
    'The boy that is filming the friend.'
  c. Le garçon qui est dans le film.
    'The boy that is in the video.'

    d. Le garçon où l'ami filme.

      The boy where the friend films

      'The boy where the friend is filming.'

    e. L'ami filme le garçon.

      The friend films the boy

      'The friend is filming the boy'

As for the Filler condition, responses like (108a) and (108b) were coded as correct, whereas all other responses (no responses, non-relevant responses, ungrammatical sentences, etc.) were coded as non-correct.

(108) Une fille doit colorier un objet pour l'école. À ton avis qu'est-ce qu'elle fait, elle colorie une lampe ou une boîte ?

'A girl has to color an object for school. In your opinion, what does she do, she colors a lamp or a box?'

    a. Elle colorie une boite/une lampe.

      'She colors a box/a lamp'

    b. Une boite/une lampe.

      A box/a lamp'

As in Experiment 1, the next section will report the percentages of correct responses in tables, and the percentages of target responses in the text.

2.4.2.4. *Results*

This section will present the results from Experiment 2, which will be discussed in Section 2.4.2.5.

The effect of the structure. Table 2.17 shows the percentages of correct SRs produced in the SR condition and of correct ORs produced in the various OR conditions.

Table 2.17. % of correct SRs produced in the SR condition and of correct ORs produced in the various OR conditions.
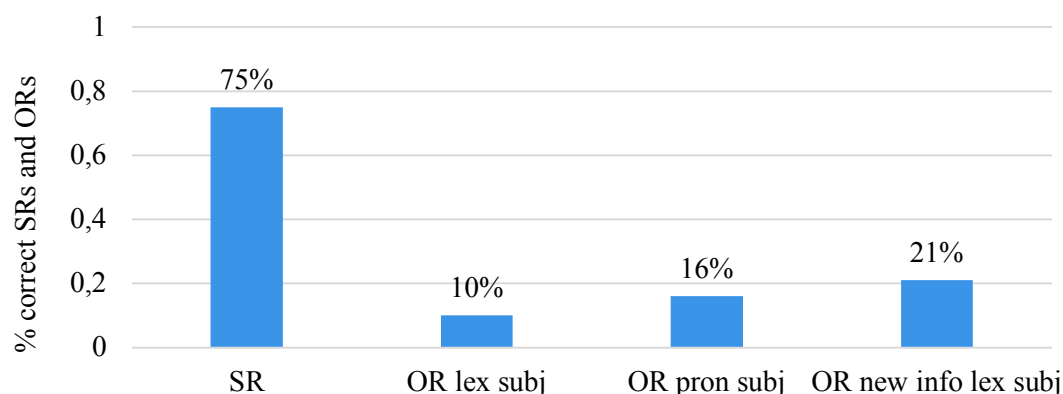
The children performed significantly better in the production of SRs than in the production of ORs. Moreover, they performed significantly better in the production of ORs with a pronominal subject than in that of ORs with a lexical subject, and significantly better in the production of ORs with a new information lexical subject than in that of ORs with a lexical subject and ORs with a pronominal subject. This is true when, as in Table 2.17, we consider the correct SRs and ORs produced in the various elicitations; specifically, including SRs with or without a lexical object in the elicitation of SRs[27], ORs with a lexical or pronominal subject in the elicitation of ORs with a lexical subject, ORs with a pronominal or lexical subject in the elicitation of ORs with a pronominal subject, and ORs with a lexical subject in the elicitation of ORs with a new information lexical subject. The above findings also hold when we consider only the target relative clauses produced in the various elicitations (see Section 2.4.2.3). In the SR condition, the percentage of correct responses was 61% (181/296) for SRs with a lexical object, 1% (3/296) for SRs with a clitic object, and 13% (38/296) for SRs with an unexpressed object. In the OR lexical subject condition, the percentage of correct responses was 7% (23/296) for ORs with a lexical subject and 3% (8/296) for ORs with a pronominal subject. In the OR pronominal subject condition, the percentage of correct responses was 10% (31/296) for ORs with a pronominal subject and 6% (19/296) for ORs

---

[27] The production of SRs with an unexpressed object was also a correct response in this elicitation, regardless of the transitivity of the verb in the subject relative. A correct response to the elicitation had to express the participant's preference between two characters performing two different actions on the same object, and so the expression of the object was unnecessary. Confirming evidence comes from the results of the adult control group, who in the same condition mainly produced a great number of SRs with an unexpressed object, and from the Italian results of Exp.1 (see Footnote 15).

with a lexical subject. In the OR new information subject condition, the percentage of correct responses was 20% (58/296) for ORs with a lexical subject; the children also produced a few cleft ORs (1%, 4/296) and a few ORs with a doubled post-verbal subject (1%, 4/296), as illustrated in examples (109) and (110) respectively.

(109)   L'enfant que c'est le papa qui (le) conduit.
        The boy that it is the dad that (him$_{OBJ-CL}$) drives
        'The boy that the dad drives.'
(110)   L'enfant qu'il (le) conduit le papa.
        The boy that he (him$_{OBJ-CL}$) drives the dad
        'The boy that the dad drives.'

Table 2.18 reports the percentage of the other responses the children produced across conditions.

Table 2.18. % of the other responses produced across conditions.
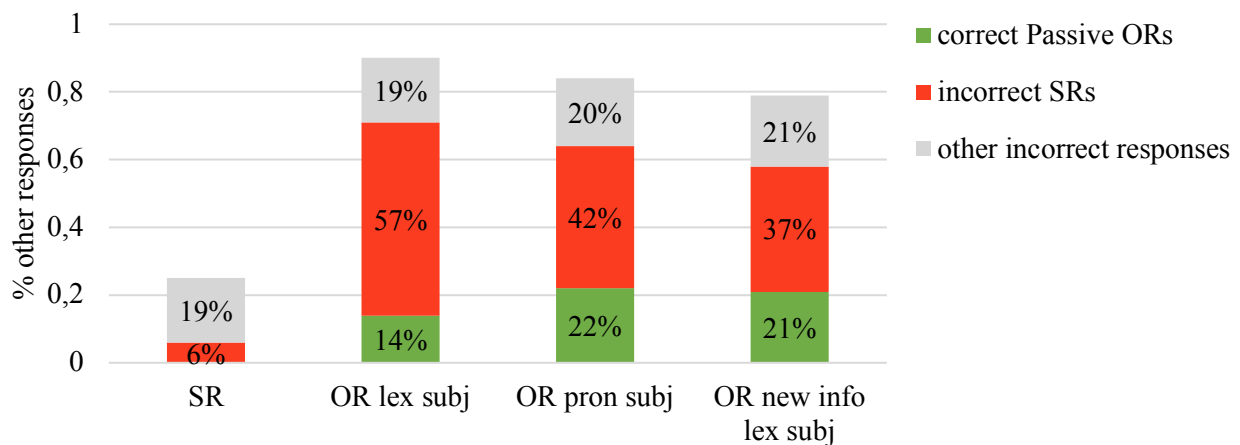
In addition to the correct SRs and ORs, in the SR elicitation the children also produced incorrect subject relatives (6%), simple sentences (4%), fragments (9%) and unclassifiable responses (6%). In the OR lexical subject elicitation, they also produced correct Passive ORs in 14% (42/296) of cases, as well as incorrect responses like subject relatives (57%), simple sentences (4%), fragments (4%), and *where* object relatives (2%). In the OR pronominal subject elicitation, they also produced correct Passive ORs in 22% (64/296) of cases, as well as incorrect responses like subject relatives (42%), simple sentences (7%), fragments (3%), and *where* object relatives (2%). Finally, in the OR

new information lexical subject elicitation, they also produced correct Passive ORs in 21% (62/296) of cases, alongside incorrect responses like subject relatives (37%), simple sentences (2%), fragments (2%), *where* object relatives (4%), and object relatives with a pronominal subject (2%).

Finally, when we considered all correct responses the children produced across conditions, namely also including the correct Passive ORs as correct responses in the OR conditions (see Section 2.4.2.3), we observed that the elicitation of ORs with a lexical subject led to significantly more errors than the elicitation of the other relative clauses. This is shown in Table 2.19.

Table 2.19. % of all correct responses (including Passive ORs in OR elicitation) produced across conditions.
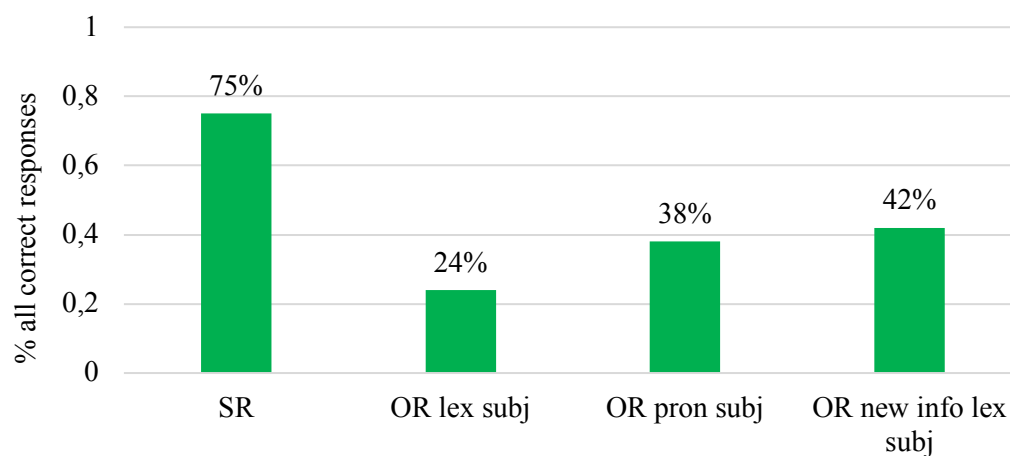
The effect of age. As Table 2.20 shows, the children's performance across conditions improved with age (except for the performance of the 5-year-olds in the SR condition, where they produced more simple sentences and fragments than the 3-year-olds). In particular, the 8-year-olds performed significantly better than 7-year-olds and younger children. In all age groups, the children performed better in the SR condition than in the OR conditions, and better in the OR pronominal subject and OR new information lexical subject conditions than in the OR lexical subject condition. 8-year-olds performed better in the OR new information lexical subject condition than in the OR pronominal subject condition.[28]

---

[28] Tables FN4-FN6 below report the percentages of the various types of correct ORs produced across age groups in the OR conditions.

Table 2.20. % of correct SRs in the SR condition and of correct ORs in the various OR conditions across age groups.
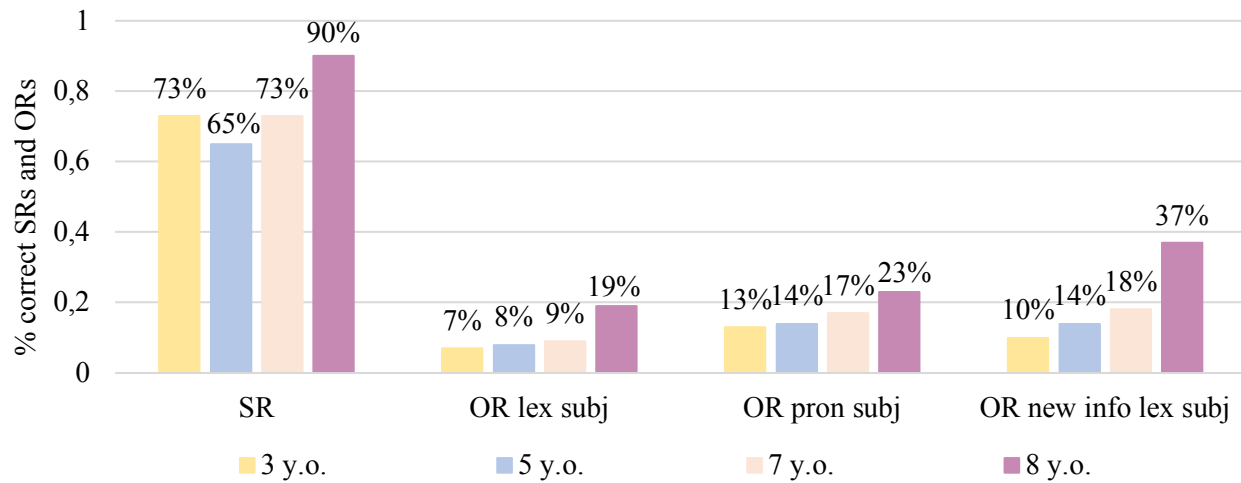
Table FN4. % of the various correct ORs produced in the OR lexical subject condition across age groups.

OR LEX SUBJ CONDITION	% ORs with a lexical subj	% ORs with a pronominal subj
3 y.o.	7%	0%
5 y.o.	6%	2%
7 y.o.	8%	1%
8 y.o.	11%	8%

Table FN5. % of the various correct ORs produced in the OR pronominal subject condition across age groups.

OR PRON SUBJ CONDITION	% ORs with a pronominal subj	% ORs with lexical subj
3 y.o.	8%	5%
5 y.o.	8%	6%
7 y.o.	12%	5%
8 y.o.	13%	10%

Table FN6. % of the various correct ORs produced in the OR new information lexical subject condition across age groups.

OR NEW INFO LEX SUBJ CONDITION	% ORs with a lexical subj
3 y.o.	10%
5 y.o.	14%
7 y.o.	18%
8 y.o.	37%

Tables 2.21-2.23 show that, with age, the production of incorrect responses to the elicitation of ORs decreases as the production of correct Passive ORs increases.

Table 2.21. Responses produced in the OR lexical subject condition across age groups.
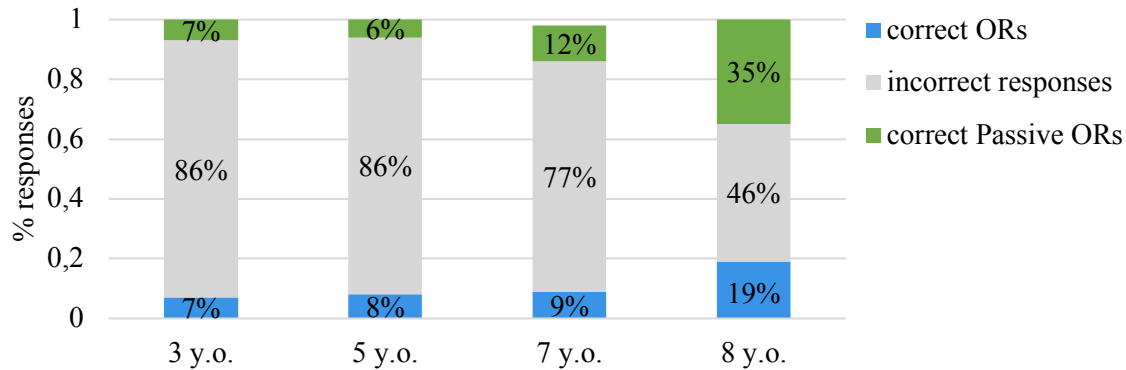
Table 2.22. Responses produced in the OR pronominal subject condition across age groups.
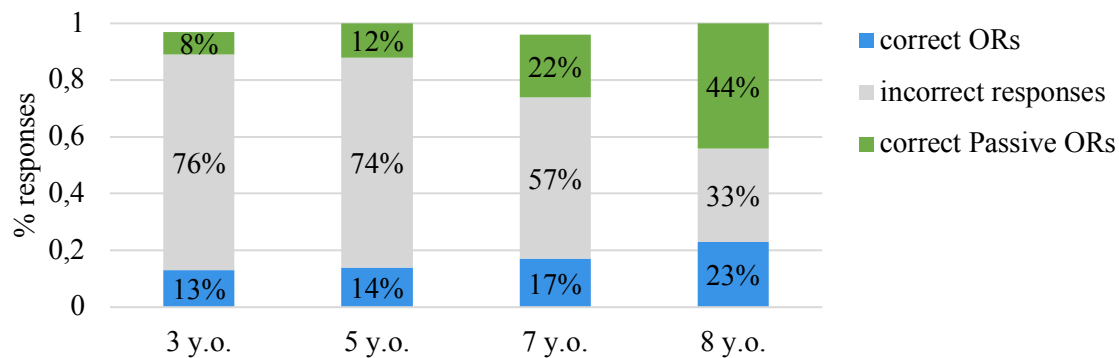
Table 2.23. Responses produced in the OR new information lexical subject condition across age groups.
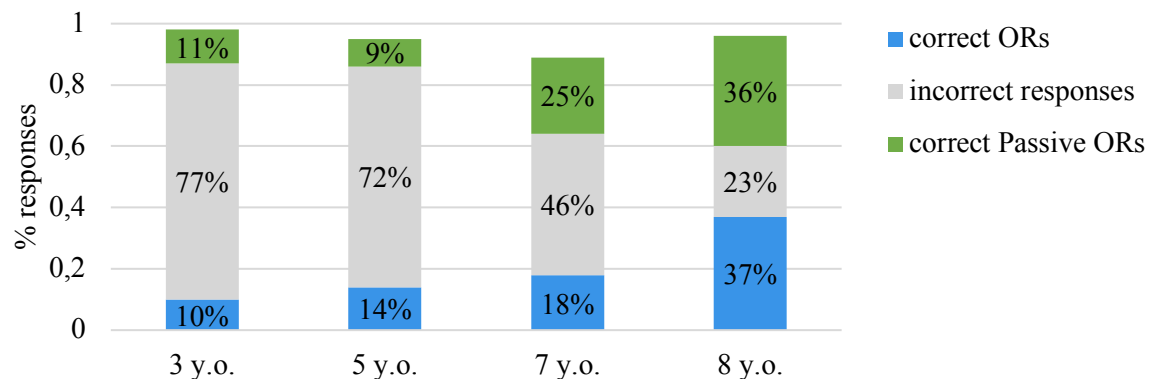
The effect of language exposure. No difference emerged between the performance of monolingual, bilingual, and early L2 learner participants (see Section 2.4.2.1) in the production of SRs and ORs.

The performance of the control group. Table 2.24 reports the results from the adult control group. The adult participants performed significantly better in the production of SRs than in the production of ORs, and significantly better in the production of ORs with a pronominal subject than in the production of ORs with a lexical subject and with a new information lexical subject.

Table 2.24. Responses produced by the adult control group across conditions.
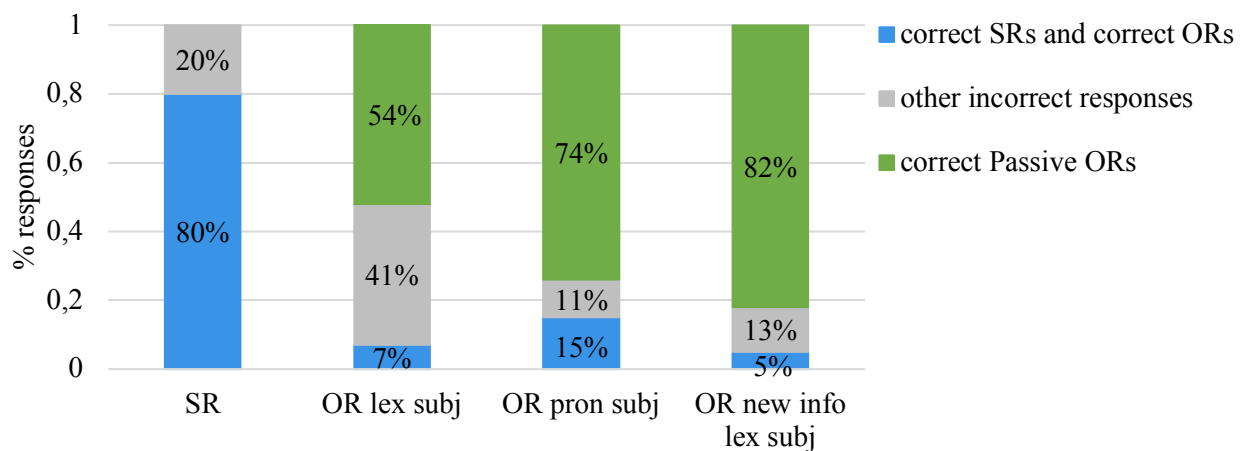
In the SR condition, they produced correct SRs in 80% (70/88) of cases, among which 49% were produced with a lexical object and 34% with an unexpressed object; they also produced non-correct responses like simple sentences and fragments in 12% of cases, and non-correct passive object relatives in 8%. In the OR lexical subject condition, they produced correct ORs with a lexical subject in 5% (4/88) of cases, correct ORs with a pronominal subject in 2% (2/88), correct Passive ORs in 54% (48/88), and non-correct subject relatives in 41%. In the OR pronominal subject condition, their distribution of productions was 14% (12/88) of correct ORs with a pronominal subject, among which 7/12 were made with the generic pronominal subject *'on'*, 1% (1/88) of correct ORs with a lexical subject, 74% (65/88) of correct Passive ORs, 6% of non-correct subject relatives, and 5% of simple sentences or fragments. In the OR new information lexical subject condition, the distribution of productions was 5% (4/88) of correct ORs with a lexical subject, 82% (72/88) of correct Passive ORs, alongside 2% of non-correct object relatives with a pronominal

subject, 6% of non-correct passive object relatives without an overt by-phrase, and 6% of simple sentences or fragments.

When we consider the total of the correct responses produced across conditions (that is, correct SRs in the SR condition, and both correct ORs and correct Passive ORs in the OR conditions), we observe that the elicitation of ORs with a lexical subject led to a greater amount of errors compared to the elicitation of the other structures.

The participants' performance in the filler condition. In the Filler condition, the children of all age groups performed very well (94% correct responses in the 3-year-old group, 95% in the 5-year-old group, 98% in the 7-year-old group, and 99% in the 8-year-old group), and the adults performed at ceiling (100% of correct responses).

Data analysis. As in Experiment 1, we analysed the data using generalized mixed-effects models for binomial distribution, estimated with the lme4 package in the R software environment. The data set consisted of 1184 data points and no outlier was excluded from the analysis. In order to investigate the predictions, based on featural Relativized Minimality, of the effect of the STRUCTURE variable, we used seven models having STRUCTURE as fixed factor, *participants* and *items* as random factors, and response accuracy as a categorical dependent variable. Model 1 (Table SA10) investigated the effect of STRUCTURE in children considering the production of target relative clauses as an accurate response. Model 2 (Table SA11) explored the effect of STRUCTURE in children considering the production of correct active relative clauses as an accurate response.[29] Model 3 (Table SA12) analysed the effect of STRUCTURE in children considering the production of all correct relative clauses as an accurate response, including correct Passive ORs in OR elicitations. Model 4 (Table SA13) explored the effect of AGE[30], whereas Model 5 (Table SA14) explored the effect of LANGUAGE EXPOSURE. Finally, Models 6-8 replicated Models 1-3 for the adult control group (Tables SA15-17). We expected better performance in production of SRs than

---

[29] Notice here that Model 2, exploring the effect of STRUCTURE and considering the production of any correct active RC as an accurate response, is more accurate in this experiment than Model 1, which only considers as accurate the production of target RCs. In the elicitation of ORs with a new information lexical subject we were indeed unable to distinguish target ORs from non-target correct ORs. See Section 2.4.2.3. Similarly, Model 7 is more accurate than Model 6.

[30] Note that Model 4b below failed to converge but showed no interaction between STRUCTURE and AGE GROUP.

o   Model 4b: correct active RC ~ STRUCTURE * AGE GROUP + (1|participant) + (1|item).

of ORs, and in production of ORs with a pronominal or new information lexical subject than of ORs with a given information lexical subject. Also, older children were expected to perform better than younger children.

- o Model 1: target RC ~ STRUCTURE + (1|participant) + (1|item)
- o Model 2: correct active RC ~ STRUCTURE + (1|participant) + (1|item)
- o Model 3: all correct RC ~ STRUCTURE + (1|participant) + (1|item)
- o Model 4: correct active RC ~ STRUCTURE + AGE GROUP + (1|participant) + (1|item)
- o Model 5: correct active RC ~ STRUCTURE + LANGUAGE EXPOSURE + (1|participant) + (1|item)
- o Model 6: target RC ~ STRUCTURE + (1|participant) + (1|item)
- o Model 7: correct active RC ~ STRUCTURE + (1|participant) + (1|item)
- o Model 8: all correct RC ~ STRUCTURE + (1|participant) + (1|item)

Table SA10: Summary of fixed effects for Model 1, Experiment 2.

MODEL 1	Estimate	Std. error	Z value	P value
(Intercept)	-1.79	0.25	-7.09	<0.0001***
Structure: OR lex subj	-1.27	0.33	-3.84	<0.0001***
Structure: OR pron subj	-0.89	0.31	-2.86	0.004**
Structure: SR	2.40	0.28	8.52	<0.0001***

Table SA11: Summary of fixed effects for Model 2, Experiment 2.

MODEL 2	Estimate	Std. error	Z value	P value
(Intercept)	-1.74	0.25	-6.83	<0.0001***
Structure: OR lex subj	-1.12	0.29	-3.77	0.00016***
Structure: OR pron subj	-0.39	0.26	-1.44	0.147
Structure: SR	3.26	0.27	11.75	<0.0001***

Table SA12: Summary of fixed effects for Model 3, Experiment 2.

MODEL 3	Estimate	Std. error	Z value	P value
(Intercept)	-0.85	0.28	-3.02	0.0025**
Structure: OR lex subj	-0.89	0.27	-3.22	0.0012**
Structure: OR pron subj	0.16	0.26	0.63	0.5244
Structure: SR	2.61	0.28	9.11	<0.0001***

Table SA13: Summary of fixed effects for Model 4, Experiment 2.

MODEL 4	Estimate	Std. error	Z value	P value
(Intercept)	-2.09	0.43	-4.80	<0.0001***
Structure: OR lex subj	-1.12	0.29	-3.76	0.00016***
Structure: OR pron subj	-0.38	0.26	-1.44	0.1487
Structure: SR	3.27	0.27	1..72	<0.0001***
Age : 5 y.o.	-0.14	0.54	-0.26	0.7879
Age : 7 y.o.	0.24	0.50	0.47	0.63
Age : 8 y.o.	1.36	0.55	2.48	0.0131

Table SA14: Summary of fixed effects for Model 5, Experiment 2.

MODEL 5	Estimate	Std. error	Z value	P value
(Intercept)	-1.51	0.39	-3.88	0.00010***
Structure: OR lex subj	-1.13	0.29	-3.77	0.00016***
Structure: OR pron subj	-0.38	0.26	-1.44	0.1473
Structure: SR	3.26	0.27	11.74	<0.0001***
Language exposure : L1	-0.31	0.41	-0.75	0.448

Table SA15: Summary of fixed effects for Model 6, Experiment 2.

MODEL 6	Estimate	Std. error	Z value	P value
(Intercept)	-3.21	0.57	-5.58	<0.0001***
Structure: OR lex subj	0.002	0.77	0.004	0.996
Structure: OR pron subj	1.23	0.65	1.86	0.061
Structure : SR	3.16	0.63	4.99	<0.0001***

Table SA16: Summary of fixed effects for Model 7, Experiment 2.

MODEL 7	Estimate	Std. error	Z value	P value
(Intercept)	-3.55	0.64	-5.49	<0.0001***
Structure: OR lex subj	0.47	0.74	0.63	0.527
Structure: OR pron subj	1.44	0.68	2.10	0.035
Structure : SR	5.21	0.75	6.90	<0.0001***

Table SA17: Summary of fixed effects for Model 8, Experiment 2.

MODEL 8	Estimate	Std. error	Z value	P value
(Intercept)	1.83	0.39	4.66	<0.0001***
Structure: OR lex subj	-1.85	0.39	-4.66	<0.0001***
Structure: OR pron subj	-0.56	0.40	-1.40	0.160
Structure : SR	-21.32	724.07	-0.02	0.977

2.4.2.5.   *Interim discussion*

Experiment 2 aimed to investigate the effect that two lexical elements in an intervention configuration have on sentence production in French. It tested, in child and adult French, the elicited production of subject relatives with a lexical head and lexical object, object relatives with a lexical head and lexical subject, object relatives with a lexical head and pronominal subject, and object relatives with a lexical head and lexical new information subject.

The results showed that 3- to 8-year-old French-speaking children encounter great difficulty in the production of ORs with a lexical head and subject, compared to the production of SRs with a lexical head and object. This result is in line with the findings from Experiment 1 on Italian, and with previous experimental work on the topic (Guasti & Cardinaletti 2003, Zukowski 2009, Friedmann et al. 2009, Belletti & Contemori 2010, Arnon 2010, Contemori & Belletti 2014, Costa et al. 2014). As illustrated in the previous sections, based on fRM, both relative clauses contain two lexical noun phrases, but ORs of the type (111) contain an intervention configuration of inclusion between moved object and intervening subject that is hard to compute, while SRs do not involve intervention in the subject chain (112).

(111) Le garçon$_{+R\ +NP}$ que l'homme$_{+NP}$ applaudit <le garçon$_{+R\ +NP}$ >.

The boy that the man applauds <the boy>

'The boy that the man is applauding.'

(112) Le garçon$_{+R\ +NP}$ qui <le garçon$_{+R\ +NP}$> indique l'homme$_{+NP}$.

The boy that <the boy> points to the man

'The boy that is pointing to the man.'

The results also showed that, across age groups, children perform better in the production of ORs with a lexical head and new information subject than in the production of those with a given information lexical head and subject. The effect that a mismatch in the new information feature between lexical head and lexical intervening subject has on the computation of ORs was explored in this experiment for the first time. As seen in Section 2.4.2.2, French new information subjects can either be clefted, as in (113), or fill the preverbal subject position, as in (114). In the latter case, they offer the opportunity to test the effect of such a mismatch on the intervention involved in ORs with a preverbal subject.

(113) A. Qui est parti/a parlé?

     B. C'est Jean (qui est parti/ a parlé)   [Belletti 2009: 1]

(114) A. Qui a parlé?

     B. Jean a parlé   [Belletti 2009: 6]

The presence of this mismatch appears to modulate the intervention effect in ORs like (115) (intersection configuration), making the production of these structures easier for children, compared to the production of ORs like (111) (inclusion configuration). The effect of the new information focus feature on intervention configurations is expected under fRM, as this feature is relevant for movement (see Belletti 2005, 2008, and related work on the new information focus positions across languages).

(115) Le garçon$_{+R +NP \text{ given}}$ que le papa$_{+NP \text{ new}}$ conduit <le garçon$_{+R +NP \text{ given}}$>.

     The boy that the dad drives <the boy>

     'The boy that the dad is driving.'

Note that the children in this experiment produced very few cleft ORs in the elicitation of ORs with a new information subject (116) (see Section 2.4.2.4, surrounding example (109)). There are reasons why such cleft new information subjects would be preferred over preverbal new information subjects in French (see Belletti 2009). However, in this situation, the cleft focalization strategy, while more productive in French, added complexity to an already quite complex structure, such as the OR.

(116) L'enfant que c'est le papa qui (le) conduit.

    The boy that it is the dad that (himOBJ-CL) drives

    'The boy that the dad is driving.'

The results also showed that 3- to 8-year-old children experience less difficulty in the production of ORs with a lexical head and a pronominal subject (117) than in that of ORs with a lexical head and subject (118), in line with previous experimental evidence on comprehension (Friedmann et al. 2009, Arnon 2010, Brandt et al. 2009, Belletti & Contemori 2012). Following fRM, the former involve a configuration of disjunction between the moved lexical object and the intervening subject lacking the lexical restriction, which is easier to compute than the configuration of inclusion involved in the latter.

(117) Le garçon$_{+R\,+NP}$ qu'il aide <le garçon$_{+R\,+NP}$>.

    The boy that he helps <the boy>.

    'The boy that he's helping.

(118) Le garçon$_{+R\,+NP}$ que l'homme$_{+NP}$ applaudit <le garçon$_{+R\,+NP}$>.

    The boy that the man applauds <the boy>

    'The boy that the man is applauding.'

The elicitation of ORs with a pronominal subject (a disjunction configuration) were expected to result in considerably better performance compared to that of ORs with a lexical subject (an inclusion configuration), and that of ORs with a new information lexical subject (an intersection configuration). In fact, the asymmetry between the OR pronominal subject condition and the OR lexical subject condition was less overwhelming than expected, and the children performed the same in the OR pronominal subject and OR new information lexical subject conditions – except for the 8-year-olds, who performed better with ORs with a new information lexical subject than with ORs with a pronominal subject. These results might be due to a not fully adequate elicitation used for ORs with a pronominal subject in this task. In the elicitation for this condition, a pronominal subject (*'il'* in *'Il aide un garçon, il gronde un garçon'*) was used to refer to the subject in the previous sentence (*'un maît*re'), as illustrated in (119). Although use of the same pronominal subject in the elicited OR was appropriate and grammatical, a lexical subject also was an

appropriate, and maybe more natural, way to refer to an antecedent in a previous sentence belonging to another speech act.

(119) Un maître revoit les devoirs avec deux garçons. Il aide un garçon, il gronde un garçon. Quel garçon est-ce que tu préfèrerais être ?

'A teacher is revising the homework with two boys. He helps a boy, he scolds a boy. Which boy would you rather be?'

Target response: Le garçon qu'il aide/gronde.

'The boy that he helps/scolds'

Nonetheless, the results revealed an asymmetry between ORs with a lexical head and a pronominal subject and those with a lexical head and subject in the expected direction, if not an overwhelming one.

Notice that this differs from the results from Experiment 1 on Italian, in which this type of elicitation for ORs with a lexical head and a pronominal subject led to the same poor performance as the elicitation of ORs with a lexical head and subject (see Sections 2.4.1.4, 2.4.1.5). What differed in the OR pronominal subject condition between Experiments 1 and 2 was the nature of the pronominal subject, which was overt weak in the case of French and null in the case of Italian. If the hypothesis that the elicitation of ORs with a pronominal subject did not lead to the expected productions because it was not a felicitous one is on the right track, then the difference between the results from the two languages in this respect would seem to suggest that overt weak pronominal subjects are more appropriate in situations like in (119), compared to null pronominal subjects. We leave the interesting question on the discourse properties of these subjects open for future research.

The children's performance improves with age, and 8-year-olds in particular perform better than 7-year-olds and younger children. In line with previous results on Italian and French (Belletti & Contemori 2010, Contemori & Belletti 2014, and Guasti & Cardinaletti 2003), in the elicitation of ORs, younger children tend to produce incorrect responses not involving intervention, mainly incorrect SRs and simple sentences, whereas older children tend to produce correct responses not involving intervention, namely Passive ORs, like adults do; example (120) repeats the smuggling derivation for Passive ORs (see Section 2.3).

(120) La fille qui [est [$_{vP}$ poussée <la fille>] par [$_{vP}$ l'amie <VP>]]

The girl that [is [$_{vP}$ pushed <the girl>] by [$_{vP}$ the friend <VP>]]

'The girl that is pushed by the friend.
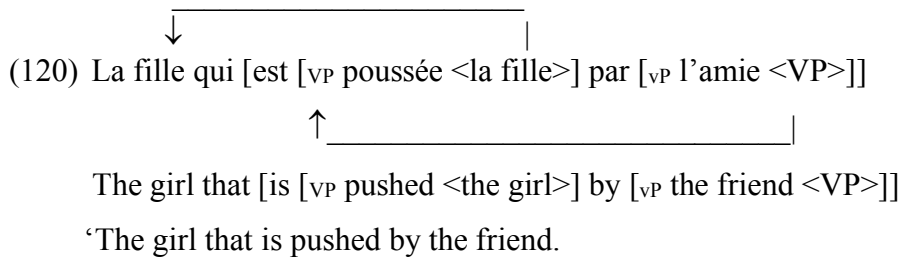
Children's difficulties with ORs involving two lexical noun phrases in an intervention configuration of inclusion also appear when we compare the total number of correct responses produced across the different OR conditions. When we consider both correct Passive ORs and correct active ORs as correct responses in the OR conditions, we clearly observe that ORs with a lexical head and subject lead to more errors than those with a lexical head and a pronominal subject or a new information lexical subject.

The same analysis also sheds light on the results from the adult control group. Adults perform significantly better in the production of SRs than in that of ORs, and significantly better in the production of ORs with a lexical head and a pronominal subject than in that of ORs with a lexical head and subject. No ameliorating effect of mismatch in the new information feature between lexical head and subject emerged in the adults. We suggest that this is due to fact that adults, productively mastering passive, prefer to use a Passive OR with an overt by-phrase to answer the elicitation of an OR with a new information subject, rather than an elicited structure involving a less productive focalization strategy. In the OR pronominal subject condition, adults still show a preference for Passive ORs over active ORs, but they do produce more active ORs than in the OR lexical subject condition. When we consider the total number of correct responses produced across the different OR elicitations, including both correct Passive ORs and active ORs, we see that, in line with the evidence from Experiment 1 on Italian, elicitation of ORs with a lexical subject lead to more errors than does elicitation of the other ORs, in adults just as in children.

The French language results from Experiment 2 thus show that children have particular difficulties with the production of sentences involving two lexical noun phrases in an intervention configuration of inclusion, namely ORs with a lexical head and a lexical intervening subject. Manipulation of the lexical nature of the intervening element, creating a disjunction relation

108

between the two elements in the intervention configuration, such as in ORs with a lexical head and a pronominal intervening subject, helps children to produce the structure. They are also helped to produce the structure by manipulation of the given/new information nature of the intervening element, creating an intersection relation between the two elements in the intervention configuration, as it is in ORs with a given information lexical head and a new information intervening lexical subject. Finally, children have no difficulties in the production of sentences involving two lexical noun phrases that are not in an intervention configuration, namely SRs with a lexical head and a lexical object. These results reveal that lexical restriction plays a role in intervention configurations in production in French, in line with the featural Relativized Minimality theory and the evidence showing the role of lexical restriction in movement operations.

2.4.3. Experiment 3: Manipulating the nature of the subject in the comprehension of object relatives in French

Experiment 3 explored child comprehension of subject and object relatives in French with the aim of determining whether the presence of two lexical noun phrases in an intervention configuration of inclusion affects comprehension as much as it affects production. The results on production from Experiment 2 showed an asymmetry in child and adult French between headed subject relatives with a lexical object and headed object relatives with a lexical subject, conditions reflecting no intervention and an intervention configuration of inclusion respectively, based on fRM. They also showed an asymmetry between headed object relatives with a lexical subject and headed object relatives with a pronominal subject, reflecting an intervention configuration of inclusion and disjunction respectively. Moreover, in child French, an asymmetry appeared between headed object relatives with a given information lexical subject, reflecting an intervention configuration of inclusion, and headed object relatives with a new information lexical subject, reflecting an intervention configuration of intersection. The findings on production from Experiment 1 showed an asymmetry in child and adult Italian between headed subject relatives with a lexical object and headed object relatives with a lexical preverbal subject, reflecting conditions of no intervention and an intervention configuration of inclusion respectively. Those findings also showed an asymmetry in child Italian between headed object relatives with a lexical preverbal subject, reflecting an intervention configuration of inclusion, and headed object relatives with a lexical post-verbal

109

subject, reflecting no intervention under smuggling. If the difficulties speakers experience in the production of structures involving two lexical noun phrases in an intervention configuration of inclusion stem from a grammatical principle of locality, as featural Relativized Minimality proposes, we expect the same pattern of difficulties to show up in comprehension, as both comprehension and production involve grammar. We thus tested French children's comprehension of headed object relatives with a lexical subject, headed object relatives with a pronominal subject (both referential and generic), and headed object relatives with a new information lexical subject.

2.4.3.1.   Participants

Another group of children took part in this experiment. They were 62 French-speaking typically developing children aged 3;0-9;8. They were divided into four age groups: the 3-year-old, 5-year-old, 7-year-old and 9-year-old groups (see Table 2.25).

Table 2.25. Participants in Experiment 3.

Age Group	No. of Participants	Age Range	Mean Age
3 y.o.	13	3;0-4;6	3;6
5 y.o.	17	5;1-6;6	5;8
7 y.o.	17	7;0-8;5	7;8
9 y.o.	15	8;11-9;7	9;3

They were randomly selected from kindergartens and primary schools in Geneva, Switzerland. 31 were monolingual native French speakers, 13 were native bilinguals, and 18 were early L2 learners of French.[31] As in the previous experiments, the term early L2 learners refers to children who have been exposed to French from birth but whose parents are not native French speakers.[32] We will see

---

[31] In the 3-year-old group, 4 children were native monolinguals, 2 were native bilinguals, and 7 were early L2 learners of French. In the 5-year-old group, 9 children were native monolinguals, 6 were native bilinguals, and 2 were early L2 learners. In the 7-year-old group, 7 were native monolinguals, 3 were native bilinguals, and 7 were early L2 learners. Finally, in the 9-year-old group, 8 children were native monolinguals, 3 were native bilinguals, and 4 were early L2 learners.

[32] Some of the non-native French speaking parents had lived in a French-speaking country for many years, becoming near-native French speakers, whereas others had very poor knowledge of French. Some parents only spoke their L1 at home, while others additionally or mainly spoke French at home.

that no effect of this appeared in the results. Only participants who gave informed written consent participated in the experiment, as per Section 2.4.1.1. Note that, except for one child in the 3-year-old group and one child in the 7-year-old group, the same children participated in Experiment 7, presented in Chapter 3, Section 3.4.4.

2.4.3.2. *Method and predictions*

Table 2.26 shows the structures tested in this experiment, which focused on the impact that a lexical subject in an intervention configuration of inclusion with a lexical head has on child comprehension of object relatives.

Table 2.26. Structures tested in Experiment 3.

SUBJECT RELATIVES	
	(Montre-moi) le garçon qui regarde le monsieur. '(Show me) the boy that is looking at the man'
OBJECT RELATIVES	
(i) lexical subject	(Montre-moi) la fille$_{+R +NP}$ que la dame$_{+NP}$ salue. (Show me) the girl that the lady is greeting.'
(ii) new info lexical subject	(Montre-moi) le garçon$_{+R +NP \text{ given}}$ que le monsieur$_{+NP \text{ new}}$ touche. '(Show me) the boy that the man is touching'
(iii) referential pronominal subject	(Montre-moi) la fille$_{+R +NP}$ qu'elle lave. '(Show me) the girl that she is washing'
(iv) generic pronominal subject	(Montre-moi) la chanteuse$_{+R +NP}$ qu'on filme. '(Show me) the singer that someone is filming'

Following featural Relativized Minimality and the hypothesis that lexical restriction is relevant to the computation of intervention configurations, we made the following predictions. Headed ORs with a given information lexical subject involve an intervention configuration in which the featural specifications of subject and object are in an inclusion relation, as repeated in example (i) in Table 2.26; as such, these structures were expected to be hard for children to comprehend. A mismatch between object and subject relevant for intervention was expected to improve their comprehension. Headed ORs with a new information focal lexical subject, such as in example (ii) in Table 2.26, were included in the experiment in order to investigate whether mismatch in the new information

feature between the two lexical noun phrases improves children's performance in comprehension as it does in production (see Section 2.4.2.5). Comprehension of headed ORs with a referential pronominal subject, involving a disjunction relation between pronominal subject, lacking lexical restriction, and lexical object, such as in example (iii) in Table 2.26, was expected to be easier than comprehension of headed ORs with a lexical subject, involving inclusion. Comprehension of headed ORs with a generic pronominal subject, as in example (iv) in Table 2.26, was also tested. Use of this structure emerged in the results from production. In Experiment 2, the adult control group produced some ORs with a generic pronominal subject in response to the elicitation of ORs with a referential pronominal subject (see Section 2.4.2.4). Adults also used this structure in response to the elicitation of ORs with a lexical subject in Experiment 5 (to be discussed in Ch. 3, Section 3.4.2). This condition was thus included in the experiment in order to explore the impact of the presence of a generic pronominal subject on participants' performance. As in Experiments 1 and 2, the performance in the comprehension of ORs was compared to the performance in the comprehension of SRs, structures with no intervention.

We manipulated one variable in a 1 x 5 design: (1) STRUCTURE: (i) SR; (ii) OR with a lexical subject; (iii) OR with a new information lexical subject; (iv) OR with a referential pronominal subject; (v) OR with a generic pronominal subject. As in the previous experiments, in the SRs, both arguments were always lexically restricted; in the ORs, the relative head was always lexically restricted; in all the items, both subject and object were animate, singular, and matching in the gender feature. The STRUCTURE variable was manipulated between items. A within-participants design was used. For each of the five experimental conditions there were four experimental items. A full list of materials is given in Appendix C.

In order to test the comprehension of these structures, we created a game involving the participant in a character selection task. In this game, the participant played on a laptop with Boot, the character from the Dora the Explorer cartoon, who spoke to him/her through the prerecorded voice of a French native speaker as seen in example (121) and Fig. 2.6[33]. Using a relative clause, Boot asked the participant to find a specific character among the ones showed in the pictures (122). In order to correctly answer, the participant had to correctly understand the relative clause.

---

[33] The sound editor Audacity was used to make the voice of the adult speaker sound like a child voice.

(121) Boot : « Tu as envie de faire un jeu avec moi? Je te montrerai des personnages et je te
demanderai d'un trouver un. On essaie?' »
'Would you like to play a game with me ? I will show you some characters and I will
ask you to find one of them. Let's try.'
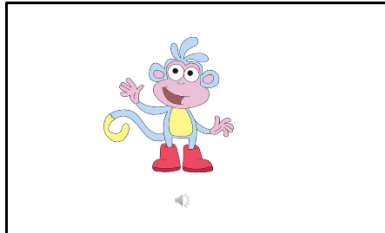
Fig. 2.6. Cartoon character used in Exp. 3

(122) Boot : «Ici il y a un monsieur et deux garçons. Montre-moi le garçon qui regarde le monsieur.»
'Here there are a man and two boys. Show me the boy that is looking at the man.'
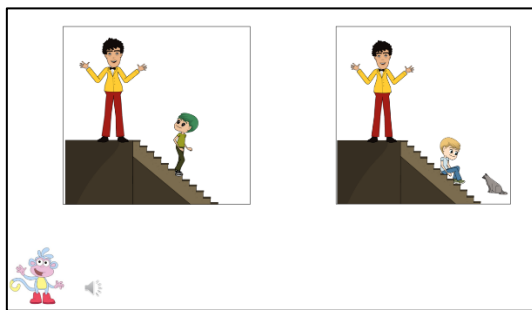
Funny slides with positive feedback were shown after each trial, irrespective of whether the
participant's response was correct or not. The chance of gradually winning two medals and finally
a trophy made the task similar to a tree-level game (Fig. 2.7).

Fig. 2.7. Game screens with rewards.

Each participant played the game in the presence of the experimenter in a separate, quiet room in his or her school or kindergarten. The experimenter did not impose time limits or give response-contingent feedback. All responses were recorded on a response sheet, then transcribed and coded at a later stage.

Items like (123) tested the comprehension of SRs. The two pictures differed in the action the two possible subjects were performing.

(123) SR : «Ici il y a un monsieur et deux garçons. Montre-moi le garçon qui regarde le monsieur.»
       'Here there are a man and two boys. Show me the boy that is looking at the man.'
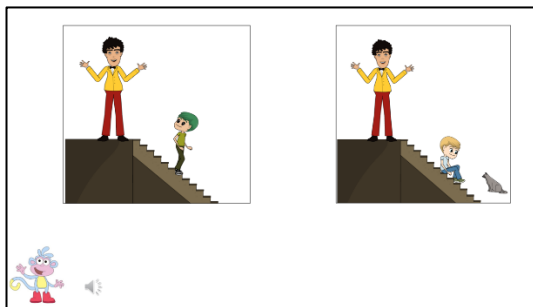
Items like (124) tested the comprehension of headed ORs with a lexical subject. In this condition, the subject in the relative clause, the lady, was lexical and conveyed given information with respect to the context, in which only one possible agent had been introduced. The salient information distinguishing the two pictures in this condition was the action the object was undergoing.

(124) OR lexical subject : « Ici il y a une dame et deux filles. Montre-moi la fille que la dame salue.»
                'Here there are a lady and two girls. Show me the girl that the lady is greeting.'
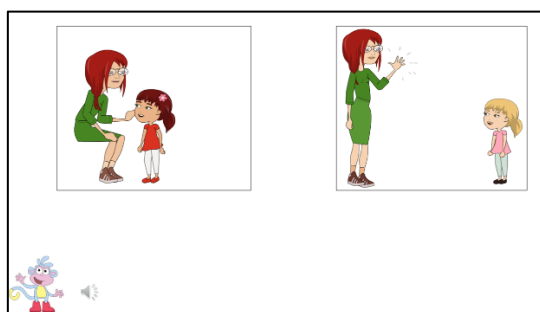
Items like (125) investigated the comprehension of headed ORs with a new information lexical subject. Here, the subject in the relative clause was lexical and salient new information with respect to the context in which there were two possible agents, the lady and the man, performing the same act on the object.

(125)   OR new information lexical subject : « Ici il y a une dame, un monsieur et deux garçons.
Montre-moi le garçon que le monsieur touche. »
'Here there are a lady, a man and two boys. Show me the boy that the man is touching.'
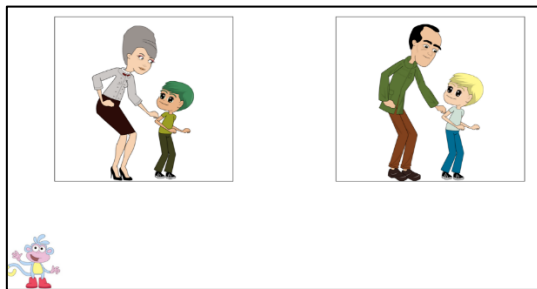
Items like (126) explored comprehension of headed ORs with a referential pronominal subject. In this condition, the subject in the relative clause was a 3rd person singular pronoun referring to the only character previously introduced (the lady). As in the headed OR with a lexical subject condition, the salient information distinguishing the two pictures was the action the object was undergoing.

(126)   OR referential pronominal subject : « Ici il y a une dame. Montre-moi la fille qu'elle lave. »
'Here there is a lady. Show me the girl that she is washing.'

Finally, items of the type in (127) tested headed ORs with a generic pronominal subject. In this condition, the description of the pictures only introduced the object and the agent was left undefined. The pronominal subject in the relative clause thus referred to a generic indeterminate agent. The two pictures differed in the action the object was undergoing.

(127) OR generic pronominal subject : « Ici il y a deux chanteuses. Montre-moi la chanteuse qu'on filme. »

'Here there are two singers. Show me the singer that someone is filming.'
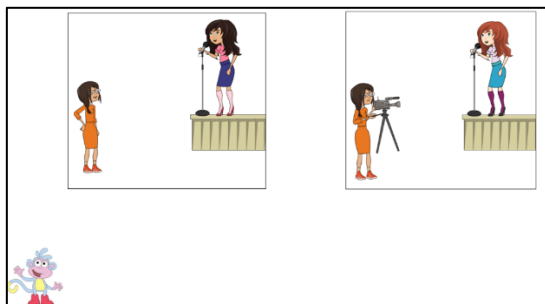
The way in which the pictures were introduced to the participant was thus different across conditions, so that the use of given/new information lexical noun phrases and referential/generic pronouns in the relative clauses was appropriate.

As shown in examples (123-127) above, in the OR new information subject condition the two pictures differed in the agent, aside from differences in the two characters about which the relative head restricted; in all other conditions they differed in the verb. The correct comprehension of the agent information in the OR new information subject condition, and of the verb information in the other conditions, were thus enough for the participant to select the correct picture between the two. Because of this, only the selection of the correct character in the correct picture demonstrated that the participant successfully computed the relative clause; for this reason, only such responses were coded as target. The experimenter asked the participant to point to the specific character in the picture by touching the screen of the laptop, so that the coding of his or her response could be as reliable as possible.

This type of picture pair was used instead of the picture pair type often used to test the comprehension of relative clauses, in which the two images represent the same characters and

action but reversed thematic roles (e.g. Friedmann & Novogrodsky, 2004), for the following reasons. The children that took part in this experiment also took part in Experiment 7 (with an interval of one or two weeks). Experiment 7, testing the effect of animacy on the comprehension of relative clauses, contained both reversible sentences with animate arguments and non-reversible sentences with inanimate arguments (see Chapter 3). The latter did not allow for the use of reversible scenes in the picture pairs, differently from the sentences tested in Friedmann and Novogrodsky (2004). With the aim of having the same type of picture pair throughout the task, we thus decided in Experiment 7 to only use picture pairs in which the two pictures differed in the verb, asking the participant to select a specific character, instead of a whole picture. In order, then, to use the same type of pictures and the same instructions with the same participants, we elected to use this picture pair type in both Experiments 7 and 3. This also allowed us to have perfectly comparable data across the two experiments (see Section 2.4.3.3 below on coding criteria). Moreover, the use of picture pair type with reversible scenes would not have been possible in the OR new information lexical subject condition of Experiment 3, in which the use of a new information subject in the object relative was appropriate due to the presence of two different potential agents in the context.

The task also included 10 fillers testing the comprehension of prepositional phrases involving the same number of words as the experimental items (128).

(128) Filler : « Ici il y a deux filles. Montre-moi la fille sur le vélo jeune. »

‘Here there are two girls. Show me the girl on the yellow bicycle’
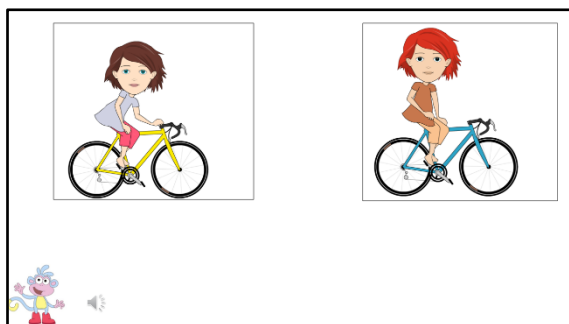
Two lists of 30 items were used, and the order of the items was pseudo-randomized so that there were no more than two consecutive items of the same type. Each session started with a warm-up

phase in which the participant saw two practice trials aimed at familiarizing him or her with the task. Consequently, each participant saw a total of 32 trials.

2.4.3.3. Coding

We coded as a target response the selection of the correct character in the correct picture, such as the girl in the picture on the right in example (129).

(129) OR lexical subject : « Ici il y a une dame et deux filles. Montre-moi la fille que la dame salue.»

'Here there are a lady and two girls. Show me the girl that the lady is greeting'
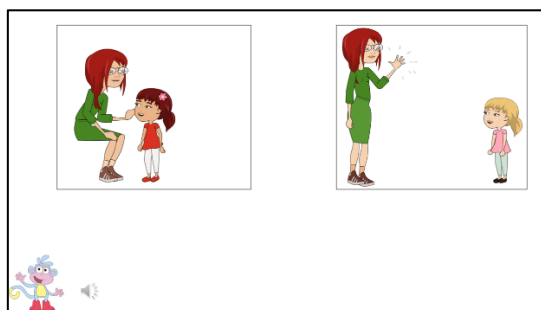
We coded as non-target responses the selection of the wrong character in the correct picture (the lady in the picture on the right above)[34], the selection of one of the characters in the wrong picture (the girl or the lady in the picture on the left above), and the selection of the wrong picture (the picture on the left above)[35]. We coded as ambiguous the selection of the correct picture (the picture on the right above) and we excluded this type of response from the data points. As we saw in the previous section, selection of the correct picture could indeed indicate a correct comprehension of the experimental item and inaccuracy in pointing with respect to the instructions, but it could also

---

[34] Plausibly, this type of error is due to selection of a character based on the correct computation of the part of the item following the complementizer, rather than of the entire relative clause (*La fille que la dame salue, 'The girl that the lady is greeting'*, in (129) in the text).

[35] It is implausible that selection of a character in the wrong picture, or selection of the wrong picture, stem from an incorrect comprehension of verb/agent information distinguishing the two pictures. All items contained very simple and common verbs and noun phrases well-known to children. More probably, these responses are due to an unsuccessful comprehension of the relative clause, and consequently an arbitrary choice of image to select, or to distraction.

indicate only a correct comprehension of the verb/agent information distinguishing the two pictures in the picture pair in this task. Thus, this type of response could not be classified confidently, and was accordingly removed from the data.[36]

2.4.3.4. Results

The effect of the structure. Table 2.27 reports the percentage of correct responses produced across conditions in Experiment 3. The children performed significantly better in the SR condition (87%, 183/248, correct responses) than in the OR lexical subject condition (74%, 149/248, correct responses), and significantly better in the OR referential pronominal subject condition (86%, 183/248, correct responses) than in the OR lexical subject condition. Indeed, their performance in the OR referential pronominal subject condition matched that in the SR condition. They also performed the same in the OR new information lexical subject condition (77%, 166/248, correct responses) and OR generic pronominal subject condition (77%, 158/248, correct responses), though performance in these conditions was not significantly better than that in the OR lexical subject condition. The most frequent error type across conditions was selection of the wrong character in the correct picture (90%, 186/207, of the errors)

Table 2.27. % of correct responses across conditions.

---
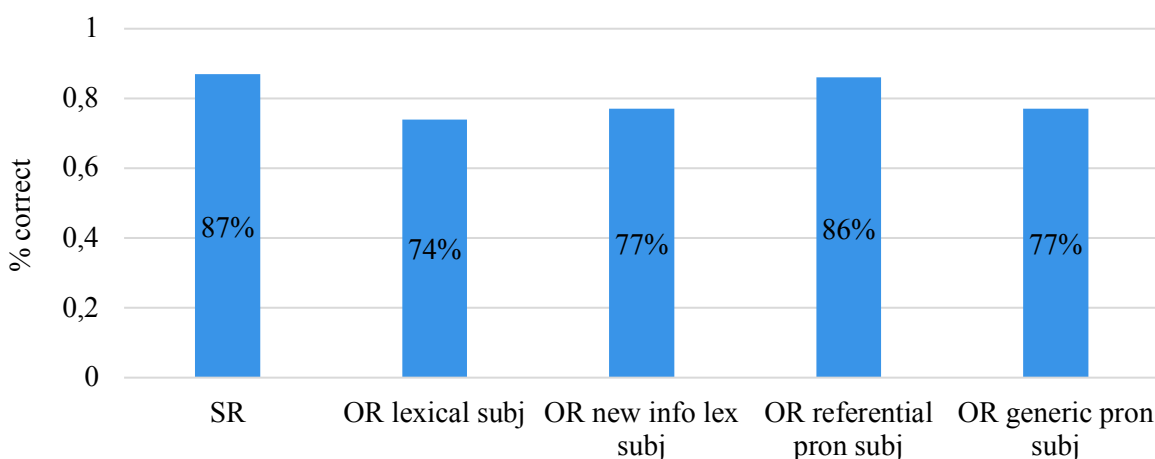
[36] Note that the participants were very careful in following the instructions and selected a specific character in the pictures in the 83% (1034/1240) of cases. In 16% (194/1240) of cases they selected the correct picture in the picture pair, and in 1% (12/1240) of cases they selected the wrong picture in the picture pair.

The effect of age. Table 2.28 reports the percentage of correct responses across age groups and conditions. Across age groups, the children performed significantly better with SRs than with ORs with a lexical subject, and better with ORs with a referential pronominal subject than with ORs with a lexical subject. Moreover, the 5-year-old group performed significantly better than the 3-year-old group, the 7-year-olds significantly better than the younger groups.

Table 2.28. % of correct responses across conditions by age.
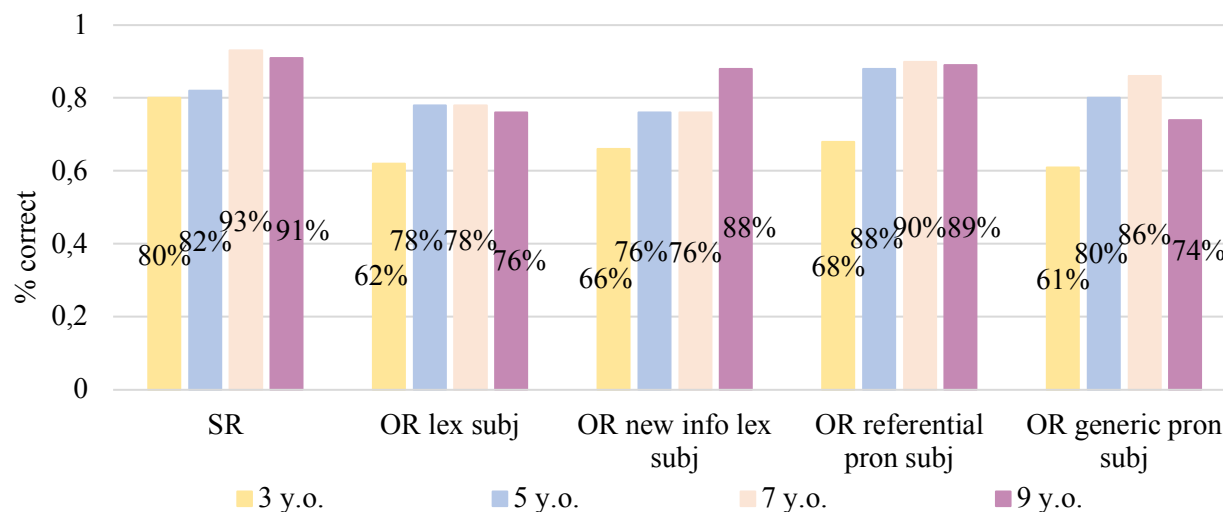
The effect of language exposure. No difference emerged between the performance of monolingual, bilingual, and early L2 learner participants (see Section 2.4.3.1)

The participants' performance in the filler condition. The participants performed very well in the filler condition across age groups, with a total of 95% (592/620) correct responses.

Data analysis. We analysed the data with generalized mixed-effects models for binomial distribution, estimated with the lme4 package in the R software environment. The data set consisted of 1240 data points, and we excluded no outlier. In order to verify the predictions from fRM on the effect of the STRUCTURE variable, we run a model with STRUCTURE as fixed factor and participants and items as random factors (Model 1). We also run a model with STRUCTURE and AGE GROUP as fixed factors and participants and items as random factors (Model 2), in order to analyse the effect of AGE.[37] In both models, the categorical dependent variable was response accuracy, representing

---

[37] Note that Model 2b: STRUCTURE * AGE GROUP + (1|participant) + (1|item) did not converge.

the accuracy in selecting the correct character. Tables SA18 and SA19 report the summary for fixed-effects for Models 1 and 2 respectively. Tables SA20-SA24 report the summary for fixed-effects for Models 3-7, exploring the effect of STRUCTURE comparing structure pairs. Finally, Table SA25 reports the summary for fixed effects for Model 8, analysing the effect of LANGUAGE EXPOSURE.

o   Model 1: STRUCTURE + (1|participant) + (1|item)
o   Model 2: STRUCTURE + AGE GROUP + (1|participant) + (1|item)
o   Model 3: STRUCTURE (SR *vs.* OR lex subj) + (1|participant) + (1|item)
o   Model 4: STRUCTURE (OR referential pron subj *vs.* OR lex subj) + (1|participant) + (1|item)
o   Model 5: STRUCTURE (OR new info lex subj *vs.* OR lex subj) + (1|participant) + (1|item)
o   Model 6: STRUCTURE (OR generic pron subj *vs.* OR lex subj) + (1|participant) + (1|item)
o   Model 7: STRUCTURE (SR *vs.* OR referential pron subj) + (1|participant) + (1|item)
o   Model 8: STRUCTURE + LANGUAGE EXPOSURE + (1|participant) + (1|item)

Table SA18: Summary of fixed effects for Model 1, Experiment 3.

MODEL 1	Estimate	Std. error	Z value	P value
(Intercept)	1.49	0.24	6.21	<.001***
Structure: OR generic pron subj	0.02	0.25	0.10	0.91
Structure: OR lex subj	-0.15	0.25	-0.59	0.54
Structure: OR referential pron subj	0.64	0.27	2.35	0.01*
Structure: SR	0.78	0.27	2.83	0.004***

Table SA19: Summary of fixed effects for Model 2, Experiment 3.

MODEL 2	Estimate	Std. error	Z value	P value
(Intercept)	0.54	0.52	1.03	0.303
Structure: OR generic pron subj	0.10	0.53	0.19	0.84
Structure: OR lex subj	-0.17	0.53	-0.33	0.73
Structure: OR referential pron subj	0.63	0.54	1.18	0.23
Structure: SR	0.84	0.54	1.54	0.12
Age: 5 y.o.	1.01	0.50	1.99	0.04*
Age: 7 y.o.	1.63	0.52	3.14	0.001**
Age: 9 y.o.	1.29	0.54	2.39	0.01*

Table SA20: Summary of fixed effects for Model 3, Experiment 3.

MODEL 3	Estimate	Std. error	Z value	P value
(Intercept)	1.34	0.25	5.2	<.001***
Structure: SR	0.91	0.28	3.18	0.001**

Table SA21: Summary of fixed effects for Model 4, Experiment 3.

MODEL 4	Estimate	Std. error	Z value	P value
(Intercept)	1.43	0.27	5.27	<.001***
Structure: OR referential pron subj	0.81	0.28	2.86	0.004**

Table SA22: Summary of fixed effects for Model 5, Experiment 3.

MODEL 5	Estimate	Std. error	Z value	P value
(Intercept)	1.60	0.43	3.68	<.001***
Structure: OR lex subj	-0.19	0.55	-0.34	0.72

Table SA23: Summary of fixed effects for Model 6, Experiment 3.

MODEL 6	Estimate	Std. error	Z value	P value
(Intercept)	1.72	0.55	3.12	<.0018**
Structure: OR lex subj	-0.39	0.72	-0.46	0.64

Table SA24: Summary of fixed effects for Model 7, Experiment 3.

MODEL 7	Estimate	Std. error	Z value	P value
(Intercept)	2.27	0.33	6.81	<.001***
Structure: SR	0.15	0.31	-0.49	0.61

Table SA25: Summary of fixed effects for Model 8, Experiment 3.

MODEL 8	Estimate	Std. error	Z value	P value
(Intercept)	1.28	0.35	3.60	<.000***
Structure: OR generic pron subj	0.02	0.25	0.10	0.91
Structure: OR lex subj	-0.14	0.25	-0.58	0.55
Structure: OR referential pron subj	0.64	0.27	2.36	0.018*
Structure: SR	0.78	0.27	2.82	0.004***
Language exposure: L1	0.30	0.38	0.80	0.420

2.4.3.5. *Interim discussion*

Experiment 3 aimed to explore the impact that the presence of two lexically restricted elements in an intervention configuration has on child sentence comprehension in French. It tested in child French the comprehension of headed SRs with a lexical object, headed ORs with a lexical subject, and headed ORs with a pronominal subject, as well as the comprehension of headed ORs with a new information lexical subject and of those with a generic pronominal subject. Results revealed that 3- to 9-year-old French-speaking children experience selective difficulties in the comprehension of sentences containing two lexical noun phrases in an intervention configuration. The children that took part in the experiment performed equally well in the comprehension of SRs and of ORs with a pronominal subject, and they performed significantly worse in the comprehension of ORs with a lexical subject than in that of SRs or ORs with a pronominal subject. Based on fRM and on the hypothesis that lexical restriction enters into the calculation of intervention in sentence computation, headed ORs with a lexical subject, illustrated again in (132), show two elements in an intervention configuration of inclusion, and as such, they are particularly hard to compute for children. In contrast, headed ORs with a pronominal subject, illustrated again in (131), show two elements in an intervention configuration of disjunction, and headed SRs with a lexical object, illustrated again in (130), show no intervention.

(130) SR with a lexical object: Le garçon$_{+R +NP}$ qui <le garçon$_{+R +NP}$> regarde le monsieur$_{+NP}$.

        The boy that <the boy> looks at the man

        'The boy that is looking at the man.'

(131) OR pronominal subject: La fille$_{+R +NP}$ qu'elle lave <la fille$_{+R +NP}$>.

        The girl that she washed <the girl>

        'The girl that she is washing.'

(132) OR lexical subject: La fille$_{+R +NP}$ que la dame$_{+NP}$ salue <la fille$_{+R +NP}$>.

        The girl that the lady greets <the girl>

        'The girl that the lady is greeting.'

This result clearly indicates that children do not struggle with ORs in general, but with ORs involving an intervention configuration of inclusion, namely ORs with a lexical head and subject

in this experiment. This falls in line with a number of previous studies on comprehension of object relatives in children and adults; see Friedmann et al. (2009) and Arnon (2010) on child Hebrew, Costa et al. (2012) on child European Portuguese, Varlokosta et al. (2014) on child Greek, Bentea (2017) on child French, Brandt et al. (2009) on child English and child German, and Gordon et al. (2001), Warren & Gibson (2002), and Warren & Gibson (2005) on adult English.

Both headed ORs with a new information lexical subject (133) and those with a generic pronominal subject (134) only gave rise to slightly (non-significantly) better performance than did those with a lexical subject (132). We suggest that this might be due to the nature of the material used in these conditions.

(133) Le garçon$_{+R +NP given}$ que le monsieur$_{+NP new}$ touche <le garçon$_{+R +NP given}$>.

The boy that the man touches <the boy>

'The boy that the man is touching.'

(134) La chanteuse$_{+R +NP}$ qu'on filme <la chanteuse$_{+R +NP}$>.

The singer that someone films <the singer>

'The singer that someone is filming.'

The experimental items that we used to test comprehension of ORs with a new information subject might not show the appropriate prosody. The items were recorded by a French native speaker, who had the instruction to read them in a natural way with respect to the given discourse context. However, the prosodic properties of French new information preverbal subjects are still to be clarified. This would explain why the effect of mismatch in the new information feature between object and subject did not show up in this experiment on comprehension, but did in Experiment 2 on production, where the participants themselves produced this type of structures (Section 2.4.2.5).

The children's performance with ORs containing a generic pronominal subject might be traced back to the fact that the generic interpretation *'quelqu'un'/'des gens'* ('someone'/'some people') associated with the pronominal subject *'on'* in the experiment is less productive compared to the referential interpretation *'nous'* ('we'), even though this interpretation is perfectly grammatical (see Section 2.4.2.4 on the production of ORs with a generic pronominal subject in the elicitation of ORs with a lexical subject in adults in Exp. 2, and also Creissels 2005). The referential

interpretation *'nous'* ('we') was not compatible with the picture pairs used in this condition; see example (135) below for clarity.[38] This would explain why the presence of this pronominal subject didn't lead to better performance than the lexical subject in the comprehension of headed ORs, contrary to predictions from fRM. Further experimental work is thus needed to assess speakers' performance with this structure.

(135) OR generic pronominal subject : « Ici il y a deux chanteuses. Montre-moi la chanteuse qu'on filme. »

'Here there are two singers. Show me the singer that someone is filming.'
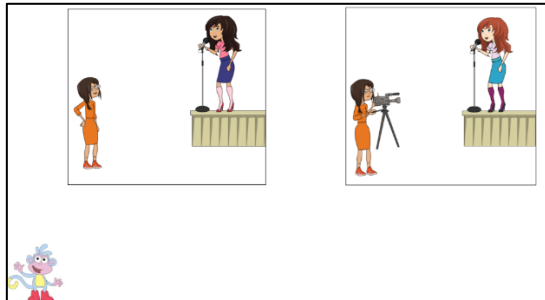
To sum up, the evidence from Experiment 3 shows that French-speaking children have selective difficulties in the comprehension of sentences involving two lexical noun phrases in an intervention configuration, just as they do in their production (Experiment 2 on production, Section 2.4.2.5). These findings strongly support the hypothesis that lexical restriction enters the computation of intervention in object dependencies.

2.5. GENERAL DISCUSSION

The studies described in this chapter aimed at assessing the relevance of the lexical restriction feature for the grammatical principle of intervention locality. In Section 2.2, we saw that the featural Relativized Minimality theory predicts the relevance of lexical restriction to the

---

[38] The above chance performance of the participants in the OR generic pronominal subject condition shows that they mastered the use of the pronominal subject 'on' and its interpretation as generic. See also Hamann, Rizzi, and Frauenfelder (1996) on the Augustin corpus, in which occurrences of the pronominal subject 'on' are attested since the earliest recorded productions at 2 years old.

computation of intervention, based on evidence for the relevance of this feature to syntactic movement (Rizzi 2018). In Section 2.3, we reviewed experimental results showing that the presence of two lexical elements in an intervention configuration indeed affects sentence comprehension (Friedmann et al. 2009 and Arnon 2010 on Hebrew, Brandt et al. 2009 on English and German, Costa et al. 2012 on European Portuguese, Varlokosta et al. 2014 on Greek, Bentea et al. 2017 on French). One major contribution of our studies was the investigation of sentence production. Under a grammar-based approach to intervention, such as fRM, the effect of a feature relevant for the grammatical principle of intervention locality is expected to show up in both comprehension and production. Other experimental work has shown that the number and gender features, that is, features relevant for intervention according to fRM, affect the computation of structures with intervention in both comprehension and production, and that Case, irrelevant for intervention according to fRM, does not in either comprehension or production (Section 1.3, Ch. 1). Although there existed some evidence suggesting that the presence of two lexically restricted elements in an intervention relation has an impact on sentence production, a systematic analysis of the impact of this feature on production was missing (see Section 2.3). We decided to analyse the impact of lexical restriction on the computation of sentences involving intervention in Italian and French. As for Italian, there was only indirect evidence for the effect of this feature, coming from production (Section 2.3 and Belletti & Contemori 2012); whereas in French there were data on the effect of this feature from comprehension, but not from production (Section 2.3 and Bentea 2017). Another important contribution of our studies was the comparative analysis of these languages. Italian and French provided the opportunity in some cases to explore the same structures across the two languages, and in other cases structures that are similar, yet different. Use of the same experiment, method and design across the languages allowed us to minimally compare their results.

We thus explored the role of lexical restriction in the computation of intervention configurations in production, testing the elicited production of relative clauses in child Italian and child French. To recall, according to fRM, certain object relatives (as well as certain other object A'-dependencies) involve an intervention configuration that makes their computation hard for children (and for speakers in general), compared to the computation of other object relatives and of subject relatives involving no intervention. In that type of object relatives, the subject structurally intervenes in the movement of the object to the relative head position and it shares with the object

some relevant features. When the featural specification of the object (the target) includes the featural specification of the subject (the intervener), the intervention configuration is particularly difficult to compute (see Section 1.2, Ch. 1). Experiment 1 thus explored the effect that the presence of two lexical elements in an intervention configuration has on production in Italian, testing the elicited production of (i) headed subject relatives with a lexical object, (ii) headed object relatives with a preverbal intervening lexical subject, (iii) headed object relatives with a preverbal intervening pronominal subject, and (iv) headed object relatives with a post-verbal non-intervening lexical subject, in 3- to 9-year-old children and in adults. Experiment 2 explored the same effect in French, testing the elicited production of (i) headed subject relatives with a lexical object, (ii) headed object relatives with a preverbal intervening lexical subject, (iii) headed object relatives with a preverbal intervening pronominal subject, and (iv) headed object relatives with a preverbal intervening new information lexical subject, in 3- to 8-year-old children and in adults. Finally, in order to have evidence from both production and comprehension, Experiment 3 explored the effect that the presence of two lexical elements in an intervention configuration has on comprehension in French, testing the comprehension of (i) headed subject relatives with a lexical object, (ii) headed object relatives with a preverbal intervening lexical subject, (iii) headed object relatives with a preverbal intervening pronominal subject, and (iv) headed object relatives with a preverbal intervening new information lexical subject, in 3- to 9-year-old children.

The main findings from the three experiments were as follows. First, in both Italian and French, headed SRs with a lexical object were easier to produce than headed ORs with a preverbal lexical subject, for both children and adults. Second, headed ORs with a post-verbal lexical subject were easier to produce than those with a preverbal lexical subject in child Italian. Third, in both child and adult French, headed ORs with a preverbal pronominal subject were easier to produce than those with a preverbal lexical subject. Fourth, headed ORs with a preverbal new information lexical subject were easier to produce than those with a preverbal given information lexical subject in child French. Fifth, in the elicitation of object relatives both children and adults tended to produce structures that do not involve intervention, in both Italian and French. Finally, in child French, headed ORs with a preverbal pronominal subject were as easy to comprehend as headed SRs with a lexical object, and both structures were easier to comprehend than headed ORs with a preverbal lexical subject.

The asymmetry between headed SRs with a lexical object and headed ORs with a preverbal lexical subject, found in the results from elicited production among children and adults in both languages, can be easily captured based on the fRM approach to intervention and the hypothesis that lexical restriction belongs to the set of features relevant for intervention. Although both structures involve two lexical noun phrases, only headed ORs with a preverbal lexical subject actually involve an intervention configuration, in which the featural specifications of object and subject are in an inclusion relation, as repeated in (136). Headed SRs with a lexical object, instead, involve no intervention, as repeated in (137). This result is in line with previous production data from Guasti and Cardinaletti (2003), Zukowski (2009), Friedmann et al. (2009), Belletti and Contemori (2010), Arnon (2010), Contemori and Belletti (2014), and Costa et al. (2014); see also Friedmann et al. (2015) on SLI, and Martini et al. (2019) on aphasia.

(136) a.   La bambina$_{+R\ +NP}$ che la signora$_{+NP}$ applaude <la bambina$_{+R\ +NP}$ >.
       The girl that the lady applauds <the girl>
       'The girl that the lady is applauding.'

   b.   Le fille$_{+R\ +NP}$ que la dame$_{+NP}$ applaudit <la fille$_{+R\ +NP}$ >.
       The girl that the lady applauds <the girl>
       'The girl that the lady is applauding.'

(137) a.   La bambina$_{+R\ +NP}$ che <la bambina$_{+R\ +NP}$> fotografa la ballerina$_{+NP}$.
       The girl that <the girl> photographs the dancer
       'The girl that is photographing the dancer.'

   b.   Le fille$_{+R\ +NP}$ qui <la fille$_{+R\ +NP}$> indique la danseuse$_{+NP}$.
       The girl that <the girl> points to the dancer
       'The girl that is pointing to the dancer.'

The presence of the same asymmetry between children's performance in the production of SRs with a lexical object and their performance in that of ORs with a preverbal lexical subject in Italian and in French also indirectly shows that the alternation in the complementizer form, distinguishing subject and object relatives in French (compare (136b) to (137b), and see Section 2.4.2.2), does not assist children in the production of ORs with intervention. What counts in the processing of ORs,

indeed, is the computation of the movement dependency between the relative head and the object gap. The morphosyntactic features relevant to this dependency do affect the processing of these structures, whereas other cues do not (see also Sections 1.2.1-1.3, Ch. 1). These findings are in line with results on child comprehension of subject and object relatives in French from Bentea (2017).

The same hypotheses explain the asymmetry, in the results on production in child Italian, between headed ORs with a post-verbal lexical subject and headed ORs with a preverbal lexical subject. Following Belletti and Contemori (2010) and Belletti and Chesi (2014) (see also Belletti 2020), ORs with a post-verbal subject can indeed be derived along the lines repeated in (138), with the object smuggled over the external argument as part of a verbal chunk, then moving from this position to the relative head position without intervention arising.

(138) La bambina$_{+R +NP}$ che [$_{TP}$ pro applaude [$_{VP}$ <V> <la bambina$_{+R +NP}$>] …[$_{vP}$ la signora <VP>]]

The girl that [$_{TP}$ pro applauds [$_{VP}$ <V> <the girl>] … [$_{vP}$ the lady <VP>]]
'The girl that the lady is applauding.'
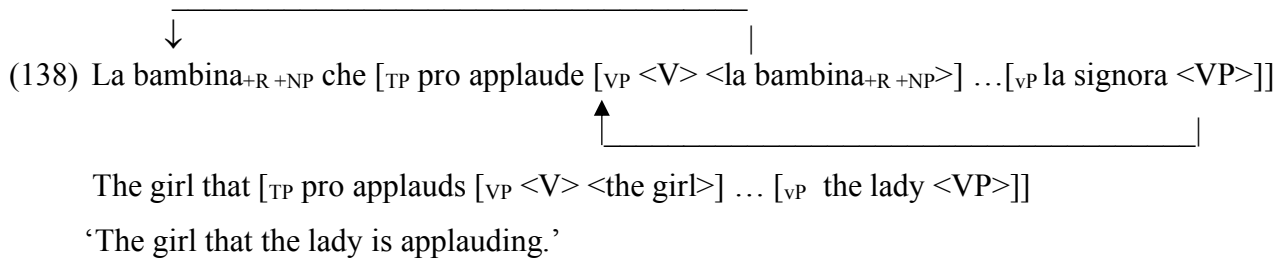
This result confirms previous evidence from Belletti and Contemori (2010) and Contemori and Belletti (2014) on the production of ORs with a post-verbal lexical subject in the elicitation of ORs with a preverbal lexical subject in Italian-speaking children (Section 2.3). In line with the evidence from Belletti and Contemori (2012), an increase in the production of ORs with a post-verbal subject at the age of 5 also emerged in our results. Following those authors, children at this age would start to productively master this smuggling type derivation. Finally, we suggested that the ameliorating effect that the post-verbal position of the lexical subject has on the production of headed ORs did not show up in the adult control group in our results because, instead of deriving object relatives with a post-verbal subject through smuggling, adults simply use passive object relatives with an overt by-phrase in order to correctly answer the elicitation, as seen in Section 2.3 and below in this section surrounding example (145), just like older children do.

In line with the predictions from fRM, headed ORs with a preverbal pronominal subject were easier to produce than headed ORs with a preverbal lexical subject in both child and adult French.

Headed ORs with a preverbal pronominal subject involve a configuration of disjunction between the lexical object and the non-lexical subject, as shown again in (139). Such a configuration is easier to compute than the intervention configuration of inclusion involved in headed ORs with a preverbal lexical subject (140), as is closer to no intervention.

(139) Le garçon$_{+R\ +NP}$ qu'il aide <le garçon$_{+R\ +NP}$>.

The boy that he helps <the boy>.

'The boy that he's helping.'

(140) Le garçon$_{+R\ +NP}$ que l'homme$_{+NP}$ aide <le garçon$_{+R\ +NP}$ >.

The boy that the man helps <the boy>

'The boy that the man is helping.'

In line with the results from production, headed ORs with a preverbal pronominal subject were also easier than those with a preverbal lexical subject in child French comprehension. Interestingly, the asymmetries that emerged in production between SRs (no intervention), ORs with a pronominal preverbal subject (disjunction configuration), and ORs with a lexical preverbal subject (inclusion configuration) did not emerge in comprehension. In production, participants performed better with SRs than with ORs with a pronominal subject, and better with ORs with a pronominal subject than with ORs with a lexical subject. In contrast, in comprehension, participants performed the same with SRs and with ORs with a pronominal subject, and they performed better with these conditions than with ORs with a lexical subject. Results from the comprehension experiment show us that children from age 5 on are equally well able to comprehend SRs and ORs with an intervening pronominal subject, but have more difficulties with ORs with an intervening lexical subject. Results from the production experiment reveal to us that ORs involving disjunction, although easier than ORs involving inclusion, are still less preferred compared to structures involving no intervention at all, like SRs and Passive ORs (see below in this section, surrounding (145) for the latter).

The asymmetry found between headed ORs with a lexical subject and those with a pronominal subject in French is line with previous results from both comprehension (Friedmann et al. 2009 and

Arnon 2010 on Hebrew, Brandt et al. 2009 on English and German) and production (Friedmann et al. 2009 on Hebrew, Belletti & Contemori 2012 on Italian).

The results of Experiment 1 showed no ameliorating effect of a pronominal subject on the production of headed ORs in Italian. We traced this absence back to the nature of the elicitation used for these ORs, which was probably not fully felicitous. The elicitation of ORs with a null pronominal subject in Experiment 1 involved a null pronominal subject (pro_{3ps}) referring to the subject in the previous sentence (*una maestra, 'a teacher'*) (141a). Although the expected OR was fully grammatical (141b), use of a lexical subject in the elicited answer was probably more natural than use of a null subject for referring to an antecedent in another sentence in the discourse. Note also that the presence of responses that could not be disambiguated between a SR and an OR reading in Italian made it difficult to precisely quantify how many ORs with a null pronominal subject the Italian-speaking children actually produced. For these reasons, we cannot draw valuable conclusions on the production of ORs with a pronominal subject in Italian from these results.

(141) a. Una maestra rivede i compiti con due bambine. Corregge una bambina, rimprovera
l'altra bambina. Tu quale bambina preferiresti essere?
A teacher revises the homework with two girls. pro_{3ps} corrects a girl, pro_{3ps} scolds
the other girl. Which girl would you rather be?
'A teacher is revising the homework with two girls. She corrects a girl, she scolds the
other girl. Which girl would you rather be?'
b. Expected response: La bambina che corregge.
The girl that pro_{3ps} corrects
'The girl that she is correcting.'

Note that the limitations of the elicitation used in the OR with a pronominal subject condition could also explain why the ameliorating effect of a pronominal subject on the production of headed ORs in French was less overwhelming than expected. As in Experiment 1 on Italian, in Experiment 2 on French, the elicitation of ORs with a pronominal subject involved a pronominal subject (*il, 'he'*) referring to the subject in the previous sentence (*un maestro, 'a teacher'*) (142a). Although the target OR (142b) was grammatical, the use of a lexical subject in the answer to the elicitation was

also appropriate and probably preferred over the use of a pronominal subject for referring to an antecedent in a previous sentence in the discourse.

(142) a. Un maître revoit les devoirs avec deux garçons. Il aide un garçon, il gronde un garçon.

Quel garçon est-ce que tu préfèrerais être ?

'A teacher is revising the homework with two boys. He helps a boy, he scolds a boy.

Which boy would you rather be?'

b. Expected response: Le garçon qu'il aide.

The boy that he helps

'The boy that he's helping'

Notice that the difference in the results from this condition between the two languages observed might be an interesting one. The type of elicitation used for ORs with a pronominal subject led to the production of target structures in French, whereas it did not in Italian. The elicitation only differed in the nature of the pronominal subject between the two languages, which was overt weak in French (142) and null in Italian (141). This might suggest that the use of overt weak pronominal subjects is more felicitous in discourse conditions like in (141-142), compared to that of null pronominal subjects. These results might thus open interesting questions for future research on the discourse properties of weak and null pronominal subjects in these languages.
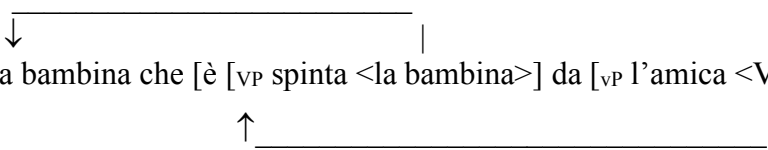
A mismatch in the new information feature between the subject and the object helped the children with the production of headed ORs with a lexical intervening subject in French. The presence of a new information lexical subject in ORs with a given information lexical head, did introduce a mismatch between the relative head and the subject, which modulated the intervention configuration of inclusion between these two elements; compare (143) to (144).

(143) Le garçon$_{+R +NP\ given}$ que le papa$_{+NP\ new}$ conduit <le garçon$_{+R +NP\ given}$>.

The boy that the dad drives <the boy>

'The boy that the dad is driving.'

(144) Le garçon$_{+R +NP\ given}$ que l'homme$_{+NP\ given}$ aide <le garçon$_{+R +NP\ given}$>.

The boy that the man helps <the boy>

'The boy that the man is helping.'

The relevance of such a mismatch for intervention is not surprising under fRM, as the new information focus feature is relevant for movement. The fact that the facilitating effect of this mismatch more clearly showed up in production, where the participants themselves produced this type of ORs, than it did in comprehension, might be due to the prosody associated to ORs with a new information subject in the comprehension experiment. The prosodic properties of French new information preverbal subjects remain indeed to be investigated. In the items of the comprehension experiment, such subjects might not have shown the appropriate prosody.

Also note that the facilitating effect that the mismatch in the new information feature between lexical object and subject has on the production of ORs did not emerge in the adult control group. Rather than use ORs involving intervention and a less productive focalization strategy, adults simply use Passive ORs with an overt by-phrase to correctly answer the elicitation, as outlined below.

The results from production revealed that both children and adults prefer structures that do not involve intervention over structures involving any intervention. In both Italian and French, younger children tend to produce incorrect SRs in the elicitation of ORs, whereas older children and adults, productively mastering passive, tend to produce correct Passive ORs instead of the target structures (in line with Belletti & Contemori 2010 and Contemori & Belletti 2014 on Italian, and Guasti & Cardinaletti 2003, Delage 2008 on Italian and French). Passive ORs indeed represent an appropriate and correct answer to the OR elicitation, one easier to compute than the elicited structure for speakers mastering passive, as it does not involve intervention; see again the derivation of Passive ORs in (145) (Belletti 2014 and Belletti & Collins 2020, based on Collins 2005). In particular, the results from Experiment 1 on Italian, testing 3- to 9-year-old children, show a drastic increase in the production of Passive ORs at the age of 9, and a consequent decrease of correct ORs and incorrect SRs.

(145) a. La bambina che [è [$_{vP}$ spinta <la bambina>] da [$_{vP}$ l'amica <VP>]]

The girl that [is [$_{vP}$ pushed <the girl>] by [$_{vP}$ the friend <VP>]]

'The girl that is pushed by the friend.

b. La fille qui [est [$_{vP}$ poussée <la fille>] par [$_{vP}$ l'amie <VP>]]

The girl that [is [$_{vP}$ pushed <the girl>] by [$_{vP}$ the friend <VP>]]

'The girl that is pushed by the friend.
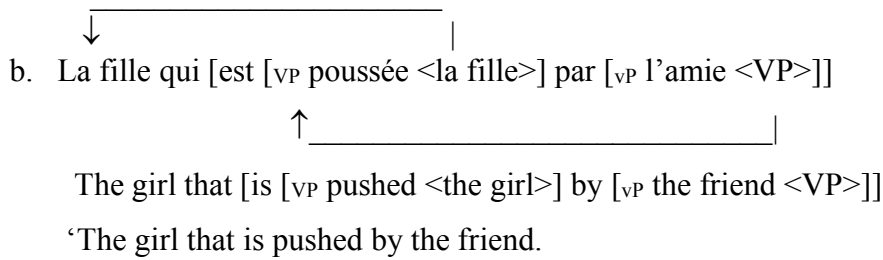
A further important piece of evidence for this peculiar difficulty that speakers experience, in the computation of ORs involving two lexical noun phrases in an intervention configuration of inclusion, came from the analysis that compared number of errors produced across the various OR conditions in the elicited production experiments. Both children and adults, in both languages, produced more errors in the elicitation of ORs with a lexical head and lexical subject in an inclusion relation than in all the other OR elicitations.

2.6. CONCLUSIONS

The studies presented in this chapter were concerned with the role played by the lexical restriction feature for intervention locality. The results demonstrated that the lexical restriction feature does affect the computation of intervention in both production and comprehension, as expected under a grammatical approach to intervention locality, such as the featural Relativized Minimality approach. In both observed languages, Italian and French, children encounter special difficulties in the production and comprehension of structures involving two lexically restricted noun phrases in an intervention configuration, such as ORs with a lexical head and a preverbal lexical subject. They do not experience the same difficulty with structures involving two lexically restricted noun phrases but not intervention, such as SRs with a lexical head and lexical object and ORs with a lexical head and post-verbal lexical subject; nor do they with structures involving intervention between a lexical target and a non-lexical intervener, such as ORs with a lexical head and pronominal preverbal subject, or with structures involving two lexical noun phrases in an intervention configuration mismatching in another feature relevant for the principle, like ORs with a given information lexical head and new information lexical preverbal subject. Thus, in line with the predictions from featural Relativized Minimality, the lexical restriction feature is relevant to the computation of intervention configurations in both Italian and French.

Chapter 3: The animacy feature

3.1. INTRODUCTION

As we saw in Chapter 1, particularly in Section 1.2, featural Relativized Minimality traces the difficulties that speakers experience with the computation of certain structures, such as object relatives of the type in (1), back to the intervention configuration between moved object and intervening subject that these structures involve. Intervention configurations in which the featural specification of the moved element includes the featural specification of the intervening element, as seen in (1), are a particularly hard to computing challenge for children, as well as for impaired speakers and even healthy adults. According to featural Relativized Minimality, only morphosyntactic features relevant for syntactic movement, specifying target and/or intervener, count for the computation of intervention.

(1)   **The girl**$_{+R\ +NP}$ that **the friend**$_{+NP}$ hugs <the girl>.

This chapter will focus on the animacy feature, with the goal of exploring whether a mismatch in animacy between target and intervener modulates the intervention configuration of inclusion involved in structures like (1) in Italian and French; namely the chapter asks whether the animacy feature counts for intervention in these languages. The following section will review evidence supporting the hypothesis that in languages like Italian and French animacy is not a feature relevant for movement in the sense of Belletti et al. (2012) and Friedmann et al. (2017). Section 3.3 will review the experimental work investigating the impact that the in/animate nature of arguments has on speakers' performance with structures involving intervention. Section 3.4 will then present the experimental work we run in order to further analyse the role of the animacy feature in the computation of sentences with intervention. We systematically analysed the effect of this feature on intervention in Italian and French by exploring the computation of relative clauses in production, repetition, and comprehension. Experiment 1 tested the elicited production of relative clauses in

child Italian; Experiment 2 tested the elicited production of relative clauses in child and adult French; Experiments 3 and 4 tested the repetition and the comprehension, respectively, of relative clauses in child French. Sections 3.5 and 3.6 will discuss the main results from this work and conclude.

3.2. ANIMACY AND FEATURAL RELATIVIZED MINIMALITY

According to the featural Relativized Minimality approach to intervention, only features that specify the moved element and intervening element, such as the object and subject in (1), and are involved in their syntactic movement enter into the calculation of intervention in movement operations (see Section 1.2.1, Ch. 1). In Chapter 1, we saw that the number feature is relevant to the computation of intervention in languages like Italian (Adani et al. 2010), English (Contemori & Marinis 2014) and French (Bentea 2017), where is also relevant to movement, being part of the set of phi features attracting the subject to the specifier of the inflectional head. We also saw that the gender feature affects the computation of intervention in Hebrew (Belletti et al. 2012, and Biran & Ruigendijk 2015), where this feature is among the phi features triggering subject movement, but it does not in Italian or Greek (Belletti et al. 2012, Adani et al. 2010, and Angelopoulos & Terzi 2017), where is not part of such a set.

In some languages, the animacy feature does play a crucial role in the argument-verb agreement. For instance, in some Algonquian languages such as Plains Cree, the most prominent argument in the animacy hierarchy of the language agrees in person with the verb (Bianchi 2006). As example (2) in Plains Cree illustrates, this agreement is realized as a prefix on the verb ('*ni*'), and a theme sign, realized as a suffix on the verb ('*iko*'), indicates whether the argument agreeing in person with the verb is the external (*direct*) or internal (*inverse*) argument.

(2)   ni-wa·pam-iko-na·n

       1-see-INVERSE-1PL

       'He sees us (excl.)'   [Bianchi 2006: 3, quoting Aissen 1997: 708]

In Georgian, the verb only agrees in number with the subject when the subject is animate, whereas it does not when the subject is inanimate; compare (3) and (4), from Arosio et al. (2011).

(3)   Knutebi goraven

        Kittens roll−3PLUR

        'The kittens are rolling'

(4)   Burtebi goravs

        Balls roll−3SING

        'The balls are rolling'   [Arosio et al. 2011: 142, quoting Harris 1981:149]

In contrast, animacy is not relevant to verb agreement in languages such as Italian or French. In these languages, the finite verb agrees in person and number with its subject, irrespective of the animacy of the subject; see (5-6) on Italian, and (7-8) on French.

(5) a. Paola ci segue

        Paola follows−3SING us

        'Paola is following us'

     b. La luce ci abbaglia

        The light blinds−3SING us

        'The light is blinding us'

(6) a. I cani abbaiano

        The dogs bark-3PLUR

        'The dogs are barking'

     b. Le stelle brillano

        The stars shine-3PLUR

        'The stars are shining'

(7) a. Paola nous suit

        Paola follows−3SING us

        'Paola is following us'

     b. La lumière nous éblouit

        The light blinds−3SING us

        'The light is blinding us'

(8) a. Les chiens aboient

    The dogs bark-3PLUR

    'The dogs are barking'

   b. Les étoiles brillent

    The stars shine-3PLUR

    'The stars are shining'

While in languages like Plains Cree and Georgian the animacy feature belongs to the set of phi features in verbal inflection triggering movement, it does not in languages like French and Italian. Nor does it belong to the set of features involved in the movement to the left periphery of the clause, unlike the lexical restriction feature (see Section 2.2, Ch. 2). Based on results on the number and gender features, animacy is not a feature relevant to movement in the sense of Belletti et al. (2012), or of Friedmann et al. (2017), in Italian and French, and as such it is not expected to modulate intervention in these languages.

3.3. EXPERIMENTAL EVIDENCE ON ANIMACY AND OBJECT RELATIVES

In this section we will review experimental work investigating the impact that the in/animate nature of arguments has on speakers' performance with object relatives containing intervention across languages.

A number of experimental studies have explored the impact that the in/animate nature of relative head and subject has on the computation of object relatives. The generalization that seems to emerge from these studies is that object relatives with an inanimate head and animate subject (9) are easier to compute for both children and adults, compared to object relatives with an animate head and animate subject (10). Moreover, object relatives with an inanimate head and animate subject (9) are the type of object relative most frequently found in spontaneous production corpora. In contrast, object relatives with an animate head and inanimate subject (11) are as difficult to compute as object relatives with two animate (9) or inanimate (12) arguments. In examples (13-27) below, the percentages in the parentheses to the right of the example correspond to the percentage of correct responses in that condition.

(9) The ball$_{+R\ +NP\ inan}$ that the girl$_{+NP\ anim}$ threw.

(10) The girl$_{+R\ +NP\ anim}$ that the friend$_{+NP\ anim}$ combed.

(11) The girl$_{+R\ +NP\ anim}$ that the ball$_{+NP\ inan}$ hit.

(12) The house$_{+R\ +NP\ inan}$ that the fire$_{+NP\ inan}$ destroyed.

Bentea (2017) tested the comprehension of object relatives with an animate head and animate subject, and of object relatives with an inanimate head and animate subject, in 5- to 11-year-old French-speaking children. She reported that 7- to 11-year-old children find object relatives like (14) easier to comprehend than they do object relatives like (13) (see also Bentea & Durrleman 2014).[1]

(13) Montre-moi la dame que la fille embrasse.   (43% at age 7; 50% at age 9; 80% at age 11)

    show-me the lady that the girl kisses

(14) Montre-moi la balle que la fille tape.   (69% at age 7; 67% at age 9; 91% at age 11)

    show-me the ball that the girl hits   [Bentea 2017: 131]

Brandt et al. (2009) showed that 3-year-old German-speaking children perform better in the comprehension of object relatives with an inanimate head and animate subject (16) than in that of those with an animate head and animate subject (15). They also showed that 3-year-old English-speaking children perform better in the comprehension of object relatives with an inanimate head and animate subject than in that of those with an animate head and animate subject, although this result didn't reach significance.

(15) Gib mir mal den Hund, den der Löwe geschubst hat.   ($\simeq$40%)

    give me.$_{DAT\ PRT}$ the.$_{ACC}$ dog who.$_{ACC}$ the.$_{NOM}$ lion pushed has

---

[1] The author reports the same asymmetry for wh-object questions. 7- to 11-year-old French-speaking children find wh-object questions with an inanimate wh-element and animate subject (I) easier to comprehend than wh-object questions with an animate wh-element and animate subject (II).

(I) Quelle balle est-ce que la fille tape?   (62% at age 7; 78% at age 9; 96% at age 11)
    which ball ESK the girl hit

(II) Quelle dame est-ce que la fille embrasse?   (38% at age 7; 38% at age 9; 66% at age 11)
    which lady ESK the girl kisses

      [Bentea 2017: 129]

(16) Gib mir mal den Stift, den der Papa angefasst hat. (≃75%)

give me.DAT PRT the.ACC pen that.ACC the.NOM dad touched has

[Brandt et al. 2009: 552]

Kidd et al. (2007) analysed the repetition of object relatives in 3- to 4-year-old English-speaking children and in 3- to 4-year-old German-speaking children, testing object relatives both with an animate head and animate subject and with an inanimate head and animate subject. The authors found an ameliorating effect of the inanimate head on the repetition of object relatives in 3- to 4-year-olds in both English and German; (18) repeated better than (17), and (20) repeated better than (19).

(17) This is the boy that the girl teased at school yesterday. (32% at age 3; 48% at age 4)

(18) Here is the food that the cat ate in the kitchen today. (34% at age 3; 54% at age 4)

[Kidd et al. 2007: 817]

(19) Das ist der Junge den der Mann gestern getroffen hat. (5% at age 3; 25% at age 4)

   that is the.NOM boy who.ACC the.NOM man yesterday met has.3SG

(20) Hier ist der Kuchen den der Mann heute gebacken hat (13% at age 3; 43% at age 4)

   here is the.NOM cake that.ACC the.NOM man today baked has.3SG

[Kidd et al. 2007: 880]

The ameliorating effect of an inanimate head in object relatives with an animate subject also emerges in adult processing. Adults perform better with object relatives with an inanimate head and animate subject than with those whose head and subject are both animate in eye tracking and reading studies (Traxler et al. 2002, Lowder & Gordon 2014 on English, Mak et al. 2002 on Dutch).

Moreover, object relatives with an inanimate head and animate subject appear to be the most frequent type of object relative found in corpora for both children and adults (Hamann & Tuller 2015 on child French, Kidd et al. 2007 on child English and child German, Belletti & Chesi 2014 on adult Italian, Mak et al. 2002 on adult Dutch and adult German).

Adani (2012) explored the comprehension of object relatives in 4- and 5-year-old German-speaking children, testing object relatives with an animate head and animate subject (21), with an inanimate head and animate subject (22), but also with an animate head and inanimate subject (23). She reported that 4-year-old children perform better with object relatives of the type in (22) than with object relatives of the types in (21, 23), but show the same performance between the types in (23, 21); 5-year-old children perform the same with all three types of object relatives.

(21) Welche Farbe hat der Mann, den der Junge kratzt?   (40,7% at age 4; 40,7% at age 5)
     'Which color is the man that the boy is scratching?'
(22) Welche Farbe hat der Pulli, den der Mann kratzt?   (61,8% at age 4; 43,4% at age 5)
     'Which color is the pullover that the man is scratching?'
(23) Welche Farbe hat der Mann, den der Pulli kratzt?   (48,6% at age 4; 47,3% at age 5)
     'Which color is the man that the pullover is scratching?'

[Adani 2012: 5]

Belletti and Chesi (2014) investigated the elicited production of object relatives with in/animate head and in/animate subject in Italian-speaking adults, shown in (24-27), reporting no effect of the in/animate nature of arguments on object relative production. The participants only produced a few target object relatives in conditions (25-26), as well as in conditions (24, 27). Instead of target object relatives, they mainly produced passive object relatives across conditions, as is well known for adults to do in elicited production studies on object relatives in languages like Italian.

(24) Vorrei incontrare il ragazzo che i poliziotti rincorrono.   (3%)
     'I would rather meet the child that the policemen chase'
(25) Vorrei leggere l'articolo che i giornalisti scrivono.   (3%)
     'I would rather read the article that the journalists write'
(26) Vorrei aiutare l'imbianchino che i secchi sporcano.   (0%)
     'I would rather help the decorator that buckets dirty'
(27) Vorrei scegliere l'appartamento che i camini riscaldano.   (3%)
     'I would rather choose the apartment that the fireplaces warm'

[Belletti and Chesi 2014: 19]

See also recent results from Belletti and Manetti (2020) for the lack of an animacy mismatch effect on the production of another structure involving intervention in Italian, object clitic left dislocations; object clitic left dislocations with an inanimate lexical object and animate lexical subject appear to be as hard to produce for Italian-speaking children as those with an animate lexical object and subject.[2]

Studies using online measures have also revealed that object relatives with an animate head and inanimate subject, and object relatives with an inanimate head and inanimate subject, are as hard to process for adults as object relatives with an animate head and animate subject (Traxler et al. 2002 on adult English, Mak et al. 2006 on adult Dutch).

Furthermore, Villata (2017) showed that the in/animate nature of the moved object in structures with an animate intervening subject affects acceptability judgments on grammatical that-clause sentences and wh-islands in adult French. French-speaking adults prefer (29) to (28), and (31) to (30). However, the effect of this animacy mismatch between object and subject is much reduced compared to the effect of mismatches in features triggering movement in French, such as lexical restriction (see Villata 2017 p. 97, and Chapter 2 of this dissertation for lexical restriction).

(28) Quel professeur crois-tu que l'étudiant a apprecié?

 'Which professor do you believe that the student appreciated?'

(29) Quel cours crois-tu que l'étudiant a apprecié?

 'Which class do you believe that the student appreciated?'

(30) Quel professeur te demandes-tu quel étudiant a apprécié?

 'Which professor do you wonder which student appreciated?'

(31) Quel cours te demandes-tu quel étudiant a apprécié?

 'Which class do you wonder which student appreciated?'

[Villata 2017: 87]

Under featural Relativized Minimality, if animacy was relevant to the calculation of intervention in object relatives in the languages studied above, a mismatch in animacy between relative head

---

[2] In contrast, animacy appears to affect Italian children's production of object clitic left dislocations with an a-marked object; see Belletti and Manetti (2020).

and intervening subject would ameliorate speaker performance with object relatives compared to an animacy match, regardless of the particular animacy configuration. In other words, both object relatives with an inanimate head and animate subject and those with an animate head and inanimate subject would lead to better performance than those with an animate head and animate subject or those with an inanimate head and inanimate subject. Instead, the presence of an inanimate head and animate subject only appears to reduce the difficulties involved in these structures. The absence of an asymmetry between object relatives with animacy match and object relatives with animacy mismatch is in line with the hypothesis from featural Relativized Minimality on the irrelevance of the animacy feature to intervention locality in these languages. The ameliorating effect of the inanimate head-animate subject configuration might be traced back to the fact that such an animacy configuration might facilitate the assignment of thematic roles. In the absence of other information, the in/animate nature of the two arguments might indeed serve as a cue for identifying the patient and agent of the action, as an inanimate entity would typically be the patient and an animate entity the agent (e.g. Lowder & Gordon 2014 and references therein). Featural Relativized Minimality does not conflict with the ameliorating effect of any cue helping the assignment of thematic roles in complex structures such as object relatives; neither is it in conflict with the facilitating effect of any mismatch that distinguishes the two noun phrases in the sentence to the benefit of memory encoding and retrieval. However, the effect of mismatches irrelevant to the intervention locality principle is expected to be smaller than the effect of mismatches relevant to intervention locality. This is exactly what the results from Villata (2017) showed. The effect of the animacy mismatch (inanimate object-animate subject) on acceptability judgments on that-clause sentences and wh-islands in adult French was much reduced, compared to the effect of lexical restriction mismatch. The same finding emerged in Belletti et al. (2012). A mismatch in gender between the two arguments has a marginal impact on the computation of object relatives in child Italian, where gender is not a feature relevant for intervention, but it does have a major effect on the computation of these structures in child Hebrew, where gender is relevant for fRM. Furthermore, under a grammar-based approach like fRM, if animacy was relevant to a grammatical principle of locality, its effect would show up in both comprehension and production, contrary to the evidence from Belletti and Chesi (2014) (and Belletti & Manetti 2020).

The role of animacy in intervention configurations is therefore not perfectly clear from the existing literature. Further research is needed to clarify the way in which animacy affects sentence computation. In what follows, we will present four experiments aimed at investigating the role of animacy in the computation of intervention configurations in Italian and French. For this purpose, we investigated children's performance with object relatives that included intervention and mis/match in animacy, testing the following four conditions: animate object and animate subject, inanimate object and animate subject, animate object and inanimate subject, and inanimate object and inanimate subject. Subject relatives in the same conditions were also tested. Performance with these structures was explored in production, repetition, and comprehension. Following featural Relativized Minimality and the hypothesis that animacy is irrelevant to the intervention locality principle in Italian and French, because is irrelevant for syntactic movement, in the sense of Belletti et al. (2012) and Friedmann et al. (2017), in these languages (see Section 3.2), we expected a major effect of structure, showing better performance with subject relatives than with object relatives across conditions, and no major effect of mismatch in animacy on the computation of object relatives, across modalities, in both languages.

3.4. THE STUDIES

These studies aimed at further exploring the role of the animacy feature for the grammatical principle of intervention locality. Four experiments analysed children's performance with relative clauses with mis/match in animacy between the two arguments, in two languages, Italian and French, where animacy is not expected to enter calculation of intervention (Section 3.2). Both subject relatives and object relatives were tested in the four following configurations: animate object and animate subject, inanimate object and animate subject, animate object and inanimate subject, and inanimate object and inanimate subject. Indeed, as discussed in the previous section, a mismatch effect related to featural Relativized Minimality should give rise to an asymmetry between object relatives with match and object relatives with mismatch, regardless of the particular noun phrase configuration. Moreover, such an effect should not show up in sentences that do not involve intervention, like subject relatives. Experiment 4 tested the effect of animacy on elicited production of relative clauses in child Italian; Experiment 5 tested such effect in child and adult French; Experiments 6 tested the impact of animacy on repetition of relative clauses in child

French; and Experiment 7 tested the impact of animacy on comprehension of relative clauses in child French. Following a grammatical approach to intervention effects such as featural Relativized Minimality, we expected the same pattern of results to appear across modalities. Observation of the same structures, using the same methods, in Italian and French, allowed us to minimally compare the results from these languages. In both languages, we expected a major effect of the structure type, namely, better performance with subject relatives than with object relatives, but no major effect of animacy mis/match.

3.4.1. Experiment 4: Elicited production of relative clauses with an animacy mis/match in Italian

In order to investigate the role that animacy plays in the computation of intervention configurations in production in Italian, Experiment 4 explored the elicited production of relative clauses with animacy mis/match in 3- to 9-year-old Italian-speaking children. We tested the elicited production of object relatives with two lexical noun phrases, matching in animacy and not, in an intervention configuration, as well as that of subject relatives with two lexical noun phrases matching in animacy and not. In particular, we tested the elicited production of SRs and ORs with (i) an animate object and an animate subject, (ii) an inanimate object and an animate subject, (iii) an animate object and an inanimate subject, and (iv) an inanimate object and an inanimate subject. Based on featural Relativized Minimality, we expected no selective and major effect of animacy mis/match on the production of sentences involving intervention in child Italian, in line with the results on adult production from Belletti and Chesi (2014); see Section 3.3, examples (24-27).

3.4.1.1. Participants

88 typically developing Italian-speaking children aged from 3;5 to 10;1 took part in Experiment 4. 3 were later excluded from the study, as they did not finish the task. The remaining 85 were divided into the following age groups: the 3-year-old, the 5-year-old, the 7-year-old, the 8-year-old, and the 9-year-old groups (Table 3.1). They were randomly selected from public kindergartens and primary schools in Rimini, Italy. All were monolingual native speakers of Italian, expect for 15 who were bilingual. No effect of this emerged in the results.

Table 3.1. Experiment 4: Participants.

Age Group	No. of Participants	Age Range	Mean Age
3 y.o.	15	3;5 - 4;2	3;8
5 y.o.	16	4;10 - 6;1	5;6
7 y.o.	18	7;3 - 8;1	7;7
8 y.o.	18	8;4 - 9;1	8;7
9 y.o.	18	9;2 - 10;1	9;7

As for the other experiments, only the children whose parents gave informed written consent participated in Experiment 4. The consent form included a short presentation of the experiment and a number of questions concerning the language history of the child[3]. Note that the same children also participated in Experiment 1 (discussed in Section 2.4.2, Ch. 2).

3.4.1.2. *Method and predictions*

In order to investigate the impact that mis/match in animacy has on the production of object relatives with intervention, we tested the elicited production of subject and object relatives with an animate object and animate subject, an inanimate object and animate subject, an animate object

---

[3] The consent form that the parents had to fill out and sign showed the following questions :

- Which languages does the child hear at home? ………………..
    - In which languages does his/her mother talk to him/her? ………………..
    - In which languages does his/her father talk to him/her? ………………..
    - In which languages do his/her brothers/sisters talk to him/her? ………………..
    - Which languages does the child hear on the TV? ………………..
    - Which languages do his/her parents use to talk to each other? ………………..
- Which languages does the child speak at home? ………………..
    - In which languages does he/she talk to his/her mother? ………………..
    - In which languages does he/she talk to his/her father? ………………..
    - In which languages does he/she talk to his/her brothers/sisters? ………………
- Does the child participate in other activities outside of school hours? ………………..
    - If so, in which languages do these activities take place? ………………..
- How many hours a day is the child exposed to Italian? ………………..
- Has the child been exposed to Italian from birth? ………………..
    - If not, since what age has the child been exposed to Italian? ………………..
- Which is the mother tongue of his/her mother? ………………..
- Which is the mother tongue of his/her father? ………………..

and inanimate subject, and an inanimate object and inanimate subject. In Table 3.2, we provide an example of elicitation and item for each experimental condition. A full list of the elicitations and items is given in Appendix D.

Table 3.2. Experiment 4: Example of elicitation and item in the eight experimental conditions and filler condition (male version).

SUBJECT RELATIVE CONDITIONS	
+An obj, +An subj	Ci sono due maestri. Un maestro rimprovera un bambino, l'altro maestro punisce un bambino. Tu quale maestro preferiresti? 'There are two teachers. A teacher is scolding a boy, the other teacher is punishing a boy. Which teacher would you prefer?' Expected answer: Il maestro che rimprovera/punisce il bambino. 'The teacher that is scolding/punishing the boy'
−An obj, +An subj	Ci sono due bambini. Un bambino cucina un dolce, l'altro bambino compra un dolce. Tu quale bambino preferiresti essere? 'There are two children. A child is making a cake, the other child is buying a cake. Which child would you prefer to be?' Expected answer: Il bambino che cucina/compra il dolce. 'The child that is making/buying the cake'
+An obj, −An subj	Ci sono due film. Un film spaventa un bambino, l'altro film incuriosisce un bambino. Tu quale film preferiresti guardare? 'There are two movies. A movie is scaring a child, the other movie is intriguing a child. Which movie would you prefer to watch? Expected answer: Il film che spaventa/incuriosisce il bambino. 'The movie that is scaring/intriguing the child'
−An obj, −An subj	Ci sono due stufe. Una stufa riscalda una stanza, l'altra stufa incendia una stanza. Tu quale stufa preferiresti usare? 'There are two stoves. A stove is warming a room, the other stove is burning a room. Which stove would you prefer to use?' Expected answer: La stufa che riscalda/incendia la stanza. 'The stove that is warming/burning the room'
OBJECT RELATIVE CONDITIONS	
+An obj, +An subj	Ci sono due bambini. Un babbo abbraccia un bambino, un babbo bacia l'altro bambino. Tu quale bambino preferiresti essere? 'There are two children. A dad is hugging a child, a dad is kissing the other child. Which child would you prefer to be?' Expected answer: Il bambino che il babbo bacia/abbraccia. 'The child that the dad is kissing/hugging'

147

−An obj, +An subj	Ci sono due palloni. Un bambino tira un pallone, un bambino buca l'altro pallone. Tu quale pallone preferiresti usare? 'There are two ball. A child is throwing a ball, a child is piercing the other ball. Which ball would you prefer?' Expected answer: Il pallone che il bambino tira/buca. 'The ball that the child is throwing/piercing'
+An obj, −An subj	Ci sono due bambini. Un rumore sveglia un bambino, un rumore disturba l'altro bambino. Tu quale bambino preferiresti essere? 'There are two children. A noise is waking up a child, a noise is bothering the other child. Which child would you prefer to be?' Expected answer: Il bambino che il rumore sveglia/disturba. 'The child that the noise is waking up/bothering'
−An obj, −An subj	Ci sono due lenzuoli. Un temporale inzuppa un lenzuolo, un temporale strappa l'altro lenzuolo. Tu quale lenzuolo preferiresti? 'There are two sheets. A storm is soaking a sheet, a storm is tearing the other sheet. Which sheet would you prefer?' Expected answer: Il lenzuolo che il temporale strappa/inzuppa. 'The sheet that the storm is tearing/soaking'
FILLER CONDITION	
	Un babbo sta aiutando un bambino a colorare un quaderno, ma sbaglia a colorare una pagina. Secondo te cosa fa il bambino? Strappa il foglio o strappa tutto il quaderno? 'A dad is helping a child to color a book, but he is wrong to color a page. What do you think that the child does? Does he rip out the page or the whole book?' Expected answer: (Il bambino) strappa il foglio/tutto il quaderno. '(The child) rips out the page/the whole book'

In order to elicit the production of these structures, we used the same game, inspired by Novogrodsky and Friedmann (2006), that was used in Experiments 1 and 2; see Section 2.4.1.2, Chapter 2. In this game, the participant plays on a laptop with cartoon characters Dora the Explorer and Boot, who speak to the participant through the pre-recorded voices of two native speakers. Dora and Boot have a mission to complete and ask the participant for help. They have to find out if children around the world love the same things and, to do so, they need to ask the children a few questions about their preferences (32). Dora describes to the participant some situations in which two characters or objects are involved, and the participant simply has to say which one she or he would prefer. In order to properly answer Dora's question, the participant is expected to use a relative clause; see (33) for female version. Note that no picture representing the situation described to the participant was used in any trial; see Fig. 3.1.

(32) Dora: « Io e Boot abbiamo una missione da compiere. Dobbiamo scoprire se tutti i bambini del mondo amano le stesse cose. Ti va di aiutarci? Dovrai solo rispondere alle nostre domande. Ci aiuterai a compiere la nostra missione e sarà divertente. Ti va allora?»

      'Boot and I have a mission to complete. We have to discover if children love the same things. Would you like to help us? The only thing that you have to do is to answer our questions. You will help us to accomplish our mission and it will be fun. Is it ok for you?'

(33) Dora: « Allora, io ti descrivo delle situazioni. In queste situazioni ci sono due personaggi o due oggetti. Tu devi solo dirmi quale preferiresti. Facciamo un esempio. Ci sono due bambine, una bambina cerca un tesoro, l'altra bambina trova un tesoro. Tu quale bambina preferiresti essere?»[4]

    'I will describe to you some situations. In these situations there are two characters or two objects. You only have to tell me which one you would prefer. For example. There are two little girls. One little girl is searching for a treasure, one little girl is finding a treasure. Which little girl would you rather be?'

Target response: « La bambina che trova/cerca il tesoro. »

        'The little girl that is looking for/finding the treasure.'

Fig. 3.1. Game screen for (33).
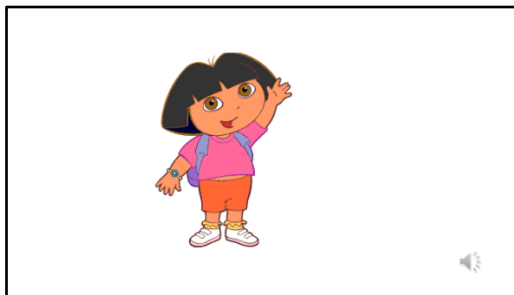
Funny slides with positive feedback were shown after each trial, and at the end of the task the child received a little gift. Each participant played the game in the presence of the experimenter, in a separate, quiet room in his school or kindergarten. The experimenter did not impose a time limit or give response-contingent feedback. All responses were tape-recorded and subsequently transcribed

---

[4] These instructions were used in the female version of the task. In the male version of the task the child had to choose between two little boys.

and coded by the experimenter. A preliminary meeting in the classrooms preceded the individual testing sessions, in order to familiarize the children with the cartoon characters and experimenter. The children were generally very happy to participate and engaged in the game.

We elicited 16 SRs and 16 ORs. We manipulated two variables in a 2 x 4 design: (1) STRUCTURE (SR vs. OR), and (2) ANIMACY CONFIGURATION (animate subject-animate object, animate subject-inanimate object, inanimate subject-animate object, inanimate subject-inanimate object). The four levels of ANIMACY CONFIGURATION were obtained by manipulating the animacy feature of the subject and object. The subject and object were always lexically restricted and matching in number and gender features. The target sentences were semantically reversible only in the animate subject-animate object condition. The STRUCTURE variable was manipulated within items, whereas the ANIMACY CONFIGURATION variable was manipulated between items. A within participants design was used. For each of the eight experimental conditions there were four experimental items. In all conditions the two situations described to the participant involved the same characters but two different actions, a *verb change condition* in Novogrodsky an Friedmann (2006)'s original design. Given the nature of the experimental items in the task, the elicitation question was not always "Which child would you rather be?", differing from Novogrodsky and Friedmann (2006), but similar to Belletti and Chesi (2014). In fact, the task included elicitation questions of the type "*Which stove would you prefer to use?*", but also "*Which teacher would you prefer?*" (See Table 3.2). This prevented children from identifying with the character in the relative head position all throughout the task, and thus from thinking of inanimate arguments as animate entities.

The task also included 16 fillers eliciting simple sentences. Fillers were included to introduce some variability in the structures and keep the participants attentive to the trials. The elicitation of simple sentences didn't make the task too demanding, and it boosted the participants' confidence.

Two lists of 48 items were used, in which the order of the items was pseudo-randomized so that no more than two consecutive items of the same type appeared consecutively. Each session started with a warm-up phase in which the child saw 2 practice trials.

Based on the featural Relativized Minimality approach to the difficulties that children experience with certain object relatives, and on the hypothesis predicting the irrelevance of the animacy feature to intervention in Italian, we expected to find a major effect of structure, namely better performance

with SRs (no intervention configuration, (34-37)) than with ORs (inclusion configuration, (38-41)) across conditions. We also expected no major effect of animacy mis/match on the production of ORs; namely, we expected ORs with an animacy mismatch (inclusion configuration, (39-40)) to be as difficult to produce as ORs with an animacy match (inclusion configuration, (38, 41). Indeed, if animacy does not enter into the calculation of intervention in Italian, a mismatch in animacy does not modulate the intervention configuration of inclusion involved in ORs with a lexical head and lexical intervening subject of the type in (38-41). A minor, structure-unselective effect of animacy mismatch might appear in the participants' performance, due to the facilitating effect of any dissimilarity between the elements in a sentence on sentence computation.

(34) Il maestro$_{+R\ +NP\ anim}$ che rimprovera il bambino$_{+NP\ anim}$.

'The teacher that is scolding the boy'

(35) Il bambino$_{+R\ +NP\ anim}$ che cucina il dolce$_{+NP\ inan}$.

'The child that is making the cake'

(36) Il film$_{+R\ +NP\ inan}$ che spaventa il bambino$_{+NP\ anim}$.

'The movie that is scaring the child'

(37) La stufa$_{+R\ +NP\ inan}$ che riscalda la stanza$_{+NP\ inan}$.

'The stove that is warming the room'

(38) Il bambino$_{+R\ +NP\ anim}$ che il babbo$_{+NP\ anim}$ abbraccia.

'The child that the dad is hugging'

(39) Il pallone$_{+R\ +NP\ inan}$ che il bambino$_{+NP\ anim}$ tira.

'The ball that the child is throwing'

(40) Il bambino$_{+R\ +NP\ anim}$ che il rumore$_{+NP\ inan}$ sveglia.

'The child that the noise is waking up'

(41) Il lenzuolo$_{+R\ +NP\ inan}$ che il temporale$_{+NP\ inan}$ inzuppa.

'The sheet that the storm is soaking'

3.4.1.3. *Coding*

The participants' productions were coded as follows.

In the SR conditions, we distinguished between correct SRs with a lexical object (42a), correct SRs with a clitic object (42b) and correct SRs with an unexpressed object (42c). [5]

(42) Ci sono due maestri. Un maestro rimprovera un bambino, l'altro maestro punisce un bambino.

    Tu quale maestro preferiresti?

  'There are two teachers. A teacher is scolding a boy, the other teacher is punishing a boy.

  Which teacher would you prefer?'

  a. Il maestro che rimprovera il bambino.

     The teacher that scolds the boy

     'The teacher that is scolding the boy'

  b. Il maestro che lo rimprovera.

     The teacher that OBJ-CL scolds

     'The teacher that is scolding him'

  c. Il maestro che rimprovera.

     The teacher that scolds

     'The teacher that is scolding'

Although the three types of SRs were correct responses to the elicitation, as in Experiments 1 and 2 (Ch. 2), with the goal of a minimal comparison between the production of subject and object relatives with two lexical noun phrases, only SRs with a lexical object were coded as target responses (see below in this section for consistent coding criteria for object relatives). Any other type of response produced in the elicitation of SRs was coded as non-correct, e.g., subject relatives with a wrong head, subject relatives with wrong theta roles, other incorrect subject relatives, incorrect object relatives, simple sentences (*The teacher rimprovera il bambino, 'The teacher is scolding the boy'*), fragments (*Rimprovera il bambino, 'Is scolding the boy' / Rimprovera, 'Is scolding' / Il maestro, 'The teacher'*), no responses, non-relevant responses, and ungrammatical responses.

---

[5] Note that, as in Experiments 1 and 2 (Ch. 2), SRs with an unexpressed object also were correct responses to the elicitation of SRs in this experiment. In answering the elicitation question, the participants had to express their preference between two characters performing two different actions on the same object. To this end, expression of the object was unnecessary. In the same type of SR elicitation, adults also mainly produced SRs with an unexpressed object; see Section 2.4.1.1 in Chapter 2.

In the OR conditions, we coded as target responses only correct ORs with a preverbal lexical subject (43a). The subject in the elicited OR was indeed expected to be lexical, as in the stimulus, and preverbal, as given information. To recall, Italian given information subjects do normally fill the preverbal position, in contrast to new information subjects that normally occupy the post-verbal new information focus position (Belletti 2004 and related work). We coded as correct, but not target, the few occurrences of correct ORs with a null pronominal subject (43b), correct ORs with a given topic post-verbal lexical subject (43c), and correct ORs with a post-verbal lexical subject in an all new clause (43d). Italian subjects can fill a post-verbal position associated with a downgrading prosody for expressing given topic, and can also appear in the post-verbal position as part of an all new verb phrase (Belletti 2018 and related work).

(43) Ci sono due bambini. Un babbo abbraccia un bambino, un babbo bacia l'altro bambino. Tu quale bambino preferiresti essere?

'There are two children. A dad is hugging a child, a dad is kissing the other child. Which child would you prefer to be?'

   a. Il bambino che il babbo abbraccia.

      The boy that the dad hugs

      'The boy that the dad is hugging'

   b. Il bambino che abbraccia

      The boy that (pro_{3ps}) hugs

      'The boy that he's hugging.'

   c. Il bambino che abbraccia, il babbo.

      The boy that (pro_{3ps}) hugs the dad.

      'The boy that the dad is hugging.'

   d. Il bambino che abbraccia il babbo.

      The boy that (pro_{3ps}) hugs the dad

      'The boy that the dad is hugging'

As we saw in Chapter 2, object relatives with a null pronominal subject and object relatives with a post-verbal subject with match in number between the two arguments are ambiguous between an object relative and a subject relative reading in Italian. In order to disambiguate these productions,

the experimenter asked the participants to paraphrase their response, or to answer a question about who performed the action. We coded as ambiguous the relative clauses that we could not successfully disambiguate.

Finally, we coded as correct, but not target, the correct Passive ORs and correct SRs produced in the elicitation of active ORs. For the purpose of the discussion in this chapter, we did not distinguish between the types of Passive ORs produced by the participants (namely, copular, causative or reduced Passive ORs (44-46); for more on this, see Chapter 4 devoted to these structures). Both Passive ORs with an overt by-phrase and those with an unexpressed by-phrase were correct responses to the elicitation, as the agent conveyed given information and, as such, could be left unexpressed. An example of a correct SR produced in the elicitation of OR is given in (47).

(44) Il bambino che viene/è abbracciato (dal babbo).
    The boy that is/comes hugged (by the dad)
    'The boy that is being hugged (by the dad)'
(45) Il bambino che si fa abbracciare (dal babbo).
    The boy that SI-cl makes hug (by the dad)
    'The boy that gets hugged (by the dad)'
(46) Il bambino abbracciato (dal babbo).
    The boy hugged (by the dad)
    'The boy hugged (by the dad)'
(47) Il bambino che riceve un abbraccio.
    The boy that gets a hug
    'The boy that is getting a hug'

We coded any other response produced in the elicitation of ORs as incorrect, including incorrect SRs with head/role reversal, ORs with a new information post-verbal subject, simple sentences, fragments, no responses, non-relevant responses, and unclassifiable responses.

In the next section, the tables will show the percentages of correct responses, which better illustrate the relevant findings from this experiment, whereas the percentages of target responses will be reported in the text.

Notice that, as in Experiments 1-2 (Ch. 2), we did not distinguish between relative clauses in which the head is a lexical definite noun (48), and those in which the head is a demonstrative pronoun (49). We know indeed that the use of a demonstrative pronominal head is a task-related effect, unrelated to intervention locality (see Section 2.4.1.3, Ch. 2, surrounding example (87)). Nor did we distinguish between ORs with or without a clitic pronoun or a DP resuming the relative head (50-51). Use of relative clauses with resumptive pronouns or DPs is indeed cross-linguistically attested in children (see Section 2.4.1.3, Ch. 2, surrounding (88)).

(48) Il bambino che il babbo abbraccia.

    'The boy that the dad is hugging'

(49) Quello che il babbo abbraccia.

    'The one that the dad is hugging'

(50) Il bambino che il babbo lo abbraccia.

    The boy that the dad OBJ-CL hugs

    'The boy that the dad is hugging him'

(51) Il bambino che il babbo abbraccia il bambino.

    The boy that the dad hugs the boy

    'The boy that the dad is hugging.'

In the Filler condition, we coded simple sentences as correct responses (52), whilst all other productions were coded as non-correct.

(52) Un babbo sta aiutando un bambino a colorare un quaderno, ma sbaglia a colorare una pagina.

    Secondo te cosa fa il bambino? Strappa il foglio o strappa tutto il quaderno?

    'A dad is helping a child to color a book, but he is wrong to color a page. What do you think that the child does? Does he rip out the page or the whole book?'

   Target response: (Il bambino) strappa il foglio/tutto il quaderno.

            '(The child) rips out the page/the whole book'

3.4.1.4. Results

This section will present the results from Experiment 4, which will be discussed in Section 3.4.1.5.

The effect of animacy. Table 3.3 reports the percentage of correct SRs the children produced in the various SR conditions and the percentage of correct ORs they produced in the various OR conditions.

Table 3.3. % of correct SRs produced in the SR conditions and of correct ORs produced in the OR conditions.
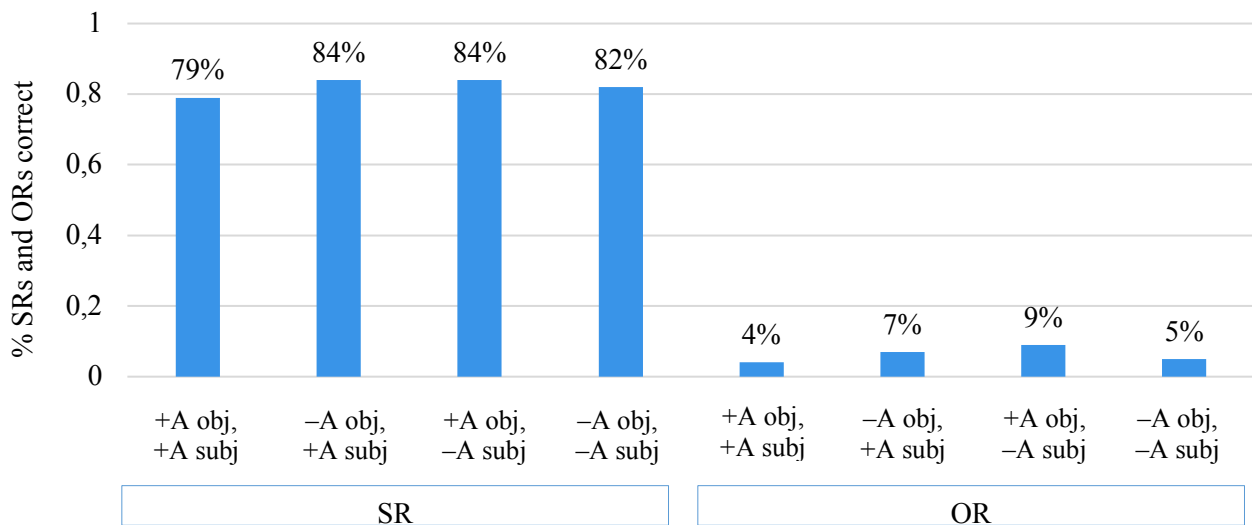
As is apparent from the table, the children performed much better in the elicitation of SRs than in the elicitation of ORs. They indeed produced correct SRs in the majority of the cases, but correct ORs in only a few cases. They performed slightly better in mismatch conditions than in match conditions for the elicitation of both SRs and ORs. The results were the same both when we considered as accurate responses the correct SRs and ORs produced in the elicitation of SRs and of ORs respectively (that is, SRs with a lexical object, SRs with a clitic object, and SRs with an unrealized object in the elicitation of SRs; ORs with a lexical preverbal subject, ORs with a null pronominal subject, and ORs with a lexical post-verbal subject in the elicitation of ORs), and when we only considered as accurate responses the target SR and ORs produced in the elicitation of SRs and of ORs respectively (that is, SRs with a lexical object in the elicitation of SRs, and ORs with

a lexical preverbal subject in the elicitation of ORs). No other significant asymmetries between the animacy configurations emerged.

In particular, the children produced 48% (161/340) of target SRs with a lexical object, 12% (41/340) of correct SRs with a clitic object, and 19% (64/340) of correct SRs with an unexpressed object in the SR animate object-animate subject condition; 60 % (205/340) of target SRs with a lexical object, 13% (43/340) of correct SRs with a clitic object, and 11% (36/340) of correct SRs with an unexpressed object in the SR inanimate object-animate subject condition; 51% (173/340) of target SRs with a lexical object, 11% (38/340) of correct SRs with a clitic object, and 22% (76/340) of correct SRs with an unexpressed object in the SR animate object-inanimate subject condition; 57% (193/340) of target SRs with a lexical object, 10% (33/340) of correct SRs with a clitic object, and 15% (52/340) of correct SRs with an unexpressed object in the SR inanimate object-inanimate subject condition.

They produced target ORs with a lexical subject in 2% (7/340) of cases, correct ORs with a null pronominal subject in 1% (5/340) of cases, and correct ORs with a post-verbal lexical subject in 1% (3/340) of cases, in the OR animate object-animate subject condition; they produced target ORs with a lexical subject in 3% (11/340) of cases, correct ORs with a null pronominal subject in 2% (7/340) of cases, and correct ORs with a post-verbal lexical subject in 2% (7/340) of cases, in the OR inanimate object-animate subject condition; they produced target ORs with a lexical subject in 5% (18/340) of cases, correct ORs with a null pronominal subject in 2% (5/340) of cases, and correct ORs with a post-verbal lexical subject in 3% (9/340) of cases, in the OR animate object-inanimate subject condition; they produced target ORs with a lexical subject in 2% (5/340) of cases, correct ORs with a null pronominal subject in 2% (8/340) of cases, and correct ORs with a post-verbal lexical subject in 1% (3/340) of cases, in the OR inanimate object-inanimate subject condition.[6]

---

[6] In the elicitation of ORs, 10% of all participants' productions were ambiguous between an OR with null subject reading and a SR with head reversal reading (12% in the animate object-animate subject condition, 7% in the inanimate object-animate subject condition, 8% of animate object-inanimate subject condition, and 11% in the inanimate object-animate subject condition). It was not always possible to disambiguate the children's productions, as they did not always answer the comprehension question and in some cases did not give it a clear answer. Nevertheless, it is plausible to assume that most of those productions were incorrect SRs with head reversal produced instead of the elicited ORs, as well attested in elicited production studies. The use of ORs with a null pronominal subject was not expected in response to the elicitations used in the task in this experiment (see Section 3.4.1.3).

In the elicitation of SRs, in addition to correct SRs, the children also produced fragments (13%), non-correct SRs (1%), non-correct Passive ORs (1%), simple sentences (1%), and unclassifiable responses (2%). In the elicitation of ORs, in addition to correct active ORs, the participants produced correct Passive ORs (36%), correct SRs (5%), and non-correct SRs (30%), simple sentences (1%), and fragments and unclassifiable responses (12%). No effect of animacy emerged on the type of errors the participants made across conditions.

The effect of age. The 9-year-old group performed significantly better than the younger age groups in the elicited production of SRs, whereas no effect of age emerged in the elicited production of ORs. No interactions emerged between animacy mis/match and age. As Table 3.4 shows, the production of non-correct responses, mainly incorrect SRs with head/roles reversal, decreased with age in the elicitation of ORs, and the production of correct Passive ORs drastically increased.

Table 3.4 Responses produced in the elicitation of SRs and of ORs across age groups.
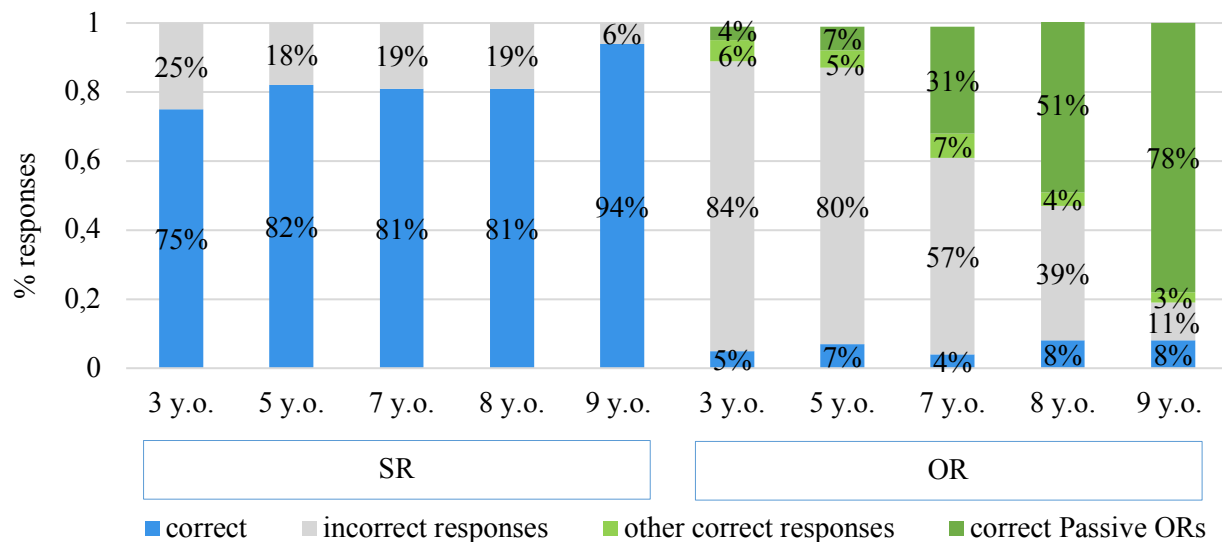
The effect of language exposure. The results showed no difference between the performance of monolingual and bilingual participants (see Section 3.4.1.1).

The participants' performance in the filler condition. In the Filler condition, all age groups performed very well (84% of responses correct in the 3-year-old group, 78% in the 5-year-old group, 88% in the 7-year-old group, 88% in the 8-year-old group, and 92% in the 9-year-old group).

When they did not produce the elicited simple sentence they almost always answered the elicitation question with a noun phrase.

Data analysis. We analysed the whole data set of 2720 data points without excluding any outlier. As in the previous experiments, data were analysed with generalized mixed-effects models for binomial distribution in the R software environment. In order to explore the fRM's predictions on the comparison between ORs with animacy match and ORs with an animacy mismatch, and the corresponding structures without intervention, namely SRs, we ran a model (Model 1) with STRUCTURE and MIS/MATCH as fixed factors, Age as a covariate, *participants* and *items* as random factors, and response accuracy, representing the accuracy in producing correct SRs in the elicitation of SRs and correct ORs in the elicitation of ORs, as categorical dependent variable. We report in Table SA26 a summary of the fixed effects for Model 1. Note that the output of Model 1 did not change when we considered as accurate response only the production of target SRs in the elicitation of SRs and of target ORs in the elicitation of ORs (major effect of structure: $p<0.0001***$; small effect of mismatch: $p=0.017*$; no significant interaction between structure and mismatch; no effect of age except for the 9-year-old group: $p=0.008**$). In order to investigate the effect of ANIMACY CONFIGURATION we also run Model 2 (Table SA27). Based on fRM, we expected a major effect of STRUCTURE and no major selective effect of MIS/MATCH on response accuracy.

o Model 1: STRUCTURE * MIS/MATCH + Age + (1|participant) + (1|item)
o Model 2: STRUCTURE * ANIMACY CONFIGURATION + Age + (1|participant) + (1|item)

Table SA26: Summary of fixed effects for Model 1, Experiment 4.

MODEL 1	Estimate	Std. error	Z value	P value
(Intercept)	-4.95	0.50	-9.83	<0.0001***
Structure: SR	6.22	0.30	19.24	<0.0001***
Mis/match : Mismatch	0.66	0.30	2.19	0.028*
Interaction : SR & Mismatch	-0.30	0.36	-0.82	0.409
Age : 5 y.o.	0.72	0.59	1.23	0.21
Age : 7 y.o.	0.50	0.57	0.87	0.38
Age : 8 y.o.	0.74	0.57	1.29	0.19
Age : 9 y.o.	1.56	0.57	2.69	0.006**

Table SA27: Summary of fixed effects for Model 2, Experiment 4.

MODEL 2	Estimate	Std. error	Z value	P value
(Intercept)	-3.51	0.47	-7.34	<0.0001***
Structure: SR	5.36	0.33	16.23	<0.0001***
Animacy configuration : An An	-0.97	0.37	-2.60	0.011*
Animacy configuration : In An	-0.32	0.33	-0.98	0.32
Animacy configuration : In In	-0.89	0.36	-2.42	0.015*
Interaction : SR & An An	0.41	0.45	0.91	0.36
Interaction : SR & In An	0.31	0.43	0.73	0.46
Interaction : SR & In In	0.73	0.45	1.60	0.10
Age : 5 y.o.	0.48	0.58	0.83	0.40
Age : 7 y.o.	0.22	0.56	0.40	0.68
Age : 8 y.o.	0.43	0.56	0.77	0.43
Age : 9 y.o.	1.23	0.56	2.17	0.029*

3.4.1.5. *Interim discussion*

Experiment 4 aimed to investigate the role of animacy for the computation of sentences containing intervention in production in Italian. It tested the elicited production of headed ORs with a lexical intervening subject and of headed SRs with a lexical object, given both match and mismatch in animacy, in 3- to 9-year-old Italian-speaking children.

The results showed the well-known SR-OR asymmetry (in line with the results from Guasti & Cardinaletti 2003, Zukowski 2009, Friedmann et al. 2009, Belletti & Contemori 2010, Arnon 2010, Contemori & Belletti 2014, and Costa et al. 2014). The children produced correct SRs in the elicitation of SRs most of the time, whereas they only produced corrects ORs in the elicitation of ORs in a very few cases. Moreover, they showed that mismatch in animacy has a small ameliorating effect on the production of SRs and ORs. These results corroborate the predictions from featural Relativized Minimality on the difficulties that children experience with ORs involving two lexical noun phrases in an intervention configuration of inclusion (see Chapter 2), and on the irrelevance of the animacy feature for intervention in Italian. Children have no difficulties in the production of SRs with a lexical head and a lexical object (53-56), as there is no intervention to calculate, whereas

they struggle with the production of ORs with a lexical head and a lexical subject (57-60). The mismatch in animacy between the two lexical noun phrases does not significantly and selectively help children in the production of ORs. Instead, it unselectively and mildly helps them in the production of correct relative clauses. In the animacy mismatch conditions, the children produced more correct subject relatives (with and without a lexical object) in the elicitation of subject relatives, and more correct object relatives (with and without a lexical intervening subject) in the elicitation of object relatives.

(53) Il maestro$_{+R\ +NP\ anim}$ che <il maestro$_{+R\ +NP\ anim}$> rimprovera il bambino$_{+NP\ anim}$.

the teacher that <the teacher> is scolding the boy

(54) Il bambino$_{+R\ +NP\ anim}$ che <il bambino$_{+R\ +NP\ anim}$> cucina il dolce$_{+NP\ inan}$.

the child that <the child> is making the cake

(55) Il film$_{+R\ +NP\ inan}$ che <il film$_{+R\ +NP\ inan}$> spaventa il bambino$_{+NP\ anim}$.

the movie that <the movie> is scaring the child

(56) La stufa$_{+R\ +NP\ inan}$ che <la stufa$_{+R\ +NP\ inan}$> riscalda la stanza$_{+NP\ inan}$.

the stove that <the stove> is warming the room

(57) Il bambino$_{+R\ +NP\ anim}$ che il babbo$_{+NP\ anim}$ abbraccia <il bambino $_{+R\ +NP\ anim}$>.

the child that the dad is hugging <the child>

(58) Il pallone$_{+R\ +NP\ inan}$ che il bambino$_{+NP\ anim}$ tira <il pallone $_{+R\ +NP\ inan}$>.
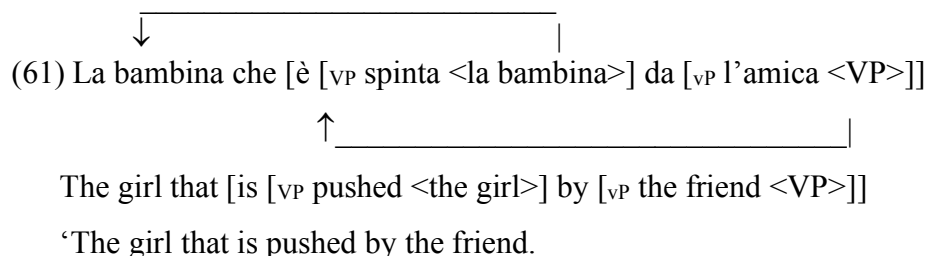
the ball that the child is throwing <the ball>

(59) Il bambino$_{+R\ +NP\ anim}$ che il rumore$_{+NP\ inan}$ sveglia <il bambino$_{+R\ +NP\ anim}$>.

the child that the noise is waking up <the child>

(60) Il lenzuolo$_{+R\ +NP\ inan}$ che il temporale$_{+NP\ inan}$ inzuppa <il lenzuolo$_{+R\ +NP\ inan}$>.

the sheet that the storm is soaking <the sheet>

Thus, the effect of animacy mismatch that we found appears to be structure unselective, affecting production of both structures with an intervention configuration of inclusion to modulate (ORs with a preverbal lexical subject) and structures without (ORs with a null pronominal subject and ORs with a post-verbal subject), as well as the production of structures with no intervention at all (SRs). Moreover, when we compare the effect on OR production in this experiment of animacy

mismatch with that of any mismatch relevant to intervention, such as mismatch in lexical restriction in French (see Section 2.4.2, Ch. 2), we observe that the effect of animacy mismatch is much smaller. Mismatch in lexical restriction (lexical object-pronominal subject) considerably helped children produce elicited ORs in Experiment 2, compared to match in lexical restriction (lexical object-lexical subject), whereas animacy mismatch in this experiment only led to the production of a few more ORs than animacy match. In line with fRM, a mismatch in animacy does not modulate intervention in object relatives in Italian, as animacy is not a feature relevant to movement in Italian in Belletti et al. (2012) and Friedmann et al. (2017)'s terms, and as such plays no role in the calculation of intervention in movement dependencies. Instead, a dissimilarity in animacy between the two noun phrases in the sentence appears to assist children in the computation of complex structures like relative clauses in general. No effect of a particular animacy configuration emerged in our results, in concordance with the results on production in adult Italian from Belletti and Chesi (2014).

In line with previous studies on the elicited production of relative clauses (Belletti & Contemori 2010, Contemori & Belletti 2014, Guasti & Cardinaletti 2003), when ORs were elicited, instead of the target structures, most of the time the younger children produced incorrect subject relatives with head/role reversal and the older children produced correct passive object relatives. As we saw in Chapter 2 (surrounding example (43)), passive object relatives represent an entirely correct response to the elicitation of ORs, one that is preferred over ORs by children mastering passive, as it does not involve intervention; see the smuggling derivation of passive object relatives repeated in (61) (Belletti 2014, Belletti & Collins 2020).

(61) La bambina che [è [$_{vP}$ spinta <la bambina>] da [$_{vP}$ l'amica <VP>]]

The girl that [is [$_{vP}$ pushed <the girl>] by [$_{vP}$ the friend <VP>]]

'The girl that is pushed by the friend.

In contrast, the production of correct SRs in the elicitation of SRs increases with age, with a significant improvement at the age of 9.

To sum up, the results from Experiment 4 showed a major effect of structure on the production of relative clauses in child Italian (SR conditions showed considerably better performance than OR conditions), as well as a small and structure unselective effect of mismatch in animacy (RCs with animacy mismatch saw slightly better production than RCs with animacy match). These results support predictions from featural Relativized Minimality on the role of the animacy feature for the intervention locality principle in Italian.

3.4.2. Experiment 5: Elicited production of relative clauses with an animacy mis/match in French

With the aim of investigating what effect animacy has on the computation of intervention in production in French, Experiment 5 explored the elicited production of subject and object relative clauses with animacy mis/match in 3- to 8-year-old French-speaking children, as well as in French-speaking adults. It tested elicited production of object relatives with two lexical noun phrases in an intervention configuration, as well as that of subject relatives with two lexical noun phrases, with match or mismatch in animacy. In particular, it tested SRs and ORs with (i) an animate object and an animate subject, (ii) an inanimate object and an animate subject, (iii) an animate object and an inanimate subject, and (iv) an inanimate object and an inanimate subject, just as did Experiment 4 on Italian. Based on predictions from the featural Relativized Minimality theory, no selective and major effect of the animacy mis/match on the production of sentences involving intervention was expected. Notice that Bentea (2017) reported a facilitating effect of the animacy mismatch configuration inanimate object-animate subject on French children's comprehension of object relatives involving intervention; Villata (2017) reported a marginal effect of that same configuration on acceptability judgements of wh-islands and that-clause structures in French adults; see Section 3.3, examples (13-14) and (28-31).

3.4.2.1. Participants

95 typically-developing French-speaking children aged from 3;2 to 9;2 participated in this experiment. 4 were later excluded from the study as they were very distracted during the experimental session, and another 3 were later excluded as they could not understand the task. The

remaining 88 were divided into four groups by age: the 3-year-old, the 5-year-old, the 7-year-old, and the 8-year-old groups (see Table 3.5)[7]. The children were randomly selected from kindergartens and primary schools in Geneva, Switzerland. 43 of them were monolingual native speakers of French, 11 were bilingual native speakers of French, and 34 were early L2 learners of French.[8] As in experiments presented in Chapter 2, we considered as early L2 learners those children who have been exposed to French from birth, but whose parents are not native French speakers. [9] As we will see, no effect of this appeared in the results.

Table 3.5 Experiment 5: Participants.

Age Group	No. of Participants	Age Range	Mean Age
3 y.o.	20	3;2 - 4;5	3;8
5 y.o.	24	4;7 - 6;2	5;5
7 y.o.	23	6;9 - 7;4	7;1
8 y.o.	21	8;4 - 9;2	8;8
Adults	23	18 - 66	29

Note that, except for one child in the 3-year-old group, the same children also participated in Experiment 6 (see Section 3.4.3). The two experiments were run at least a week apart, and order of administration of the two tasks was counterbalanced. 23 adults (15 women and 8 men) participated in the experiment as control group. They were monolingual native speakers of French, from various regions of Switzerland and France and from diverse educational backgrounds. An informed written consent was mandatory for both children and adults to participate in the experiment

---

[7] In the 3-year-old group, 15 children were aged 3;2–3;11 and 5 were aged 4;0-4;5. In the 5-year-old group, 15 children were aged 5;0-5;11, 4 were aged 6;0-6;2, and 5 were aged 4;9-4;11. In the 7-year-old group, 18 children were aged 7;0-7;4 and 5 were aged 6;9-6;11. Finally, in the 8-year-old group, 15 children were aged 8;4-8;11 and 6 were aged 9;0-9;2.

[8] In the 3-year-old group, 16 children were monolingual native speakers, 2 were bilingual native speakers, and 2 were early L2 learners of French. In the 5-year-old group, 9 children were monolingual, 6 were bilingual, and 9 were early L2 learners. In the 7-year-old group, 10 children were monolingual, 2 were bilingual, and 11 were early L2 learners. In the 8-year-old group, 9 children were monolingual, 1 child was bilingual, and 11 children were early L2 learners.

[9] Some of these non-native French speaking parents have lived in a French-speaking country for many years becoming near-native French speakers, whereas others have a very poor knowledge of French. Some of them only speak their L1 at home, whilst others also or mainly speak French at home.

3.4.2.2.   *Method and predictions*

We explored the impact of animacy mismatch on relative clause production in French using the same experimental conditions and methods as in Experiment 4 on Italian (Section 3.4.1.2). The French versions of the Italian experimental items were used whenever possible. An example of elicitation and item for each experimental condition in Experiment 5 is shown in Table 3.6. A full list of the elicitations and items is given in Appendix E. Also, with the aim of gathering the most comparable results possible across children and adults, the child and adult versions of the task differed only a few times in the characters involved in the situations described to the participants. The experimenter administered the task to adults without the support of the game.

Table 3.6. Experiment 5: Example of elicitation and item in the eight experimental conditions and filler condition (male version).

SUBJECT RELATIVE CONDITIONS	
+An obj, +An subj	Deux hommes sont à un spectacle. Un homme applaudit un garçon, un homme écoute un garçon. Quel homme est-ce que tu préférerais? 'Two men are at a show. A man is applauding a boy, a man is filming a boy. Which man would you prefer?' Expected answer: L'homme qui applaudit/écoute le garçon. 'The man that is applauding/listening to the boy'
−An obj, +An subj	Il y a deux garçons. Un garçon prépare un gâteau, un garçon achète un gâteau. Quel garçon est-ce que tu préférerais être? 'There are two boys. A boy is making a cake, a boy is buying a cake. Which boy would you prefer to be?' Expected answer: Le garçon qui prépare/achète le gâteau. 'The boy that is making/buying the cake'
+An obj, −An subj	Il y a deux câbles. Un câble gratte un garçon, un câble coupe un garçon. Quel câble est-ce que tu préférerais utiliser? 'There are two cords. A cord is scratching a boy, a cord is cutting a boy. Which cord would you prefer to use?' Expected answer: Le câble qui gratte/coupe le garçon. 'The cord that is scratching/cutting the boy'
−An obj, −An subj	Il y deux cheminées. Une cheminée réchauffe une salle, une cheminée brûle une salle. Quelle cheminée est-ce que tu préférerais utiliser? 'There are two fireplaces. A fireplace is warming a room, a fireplace is burning a room. Which fireplace would you prefer to use?' Expected answer: La cheminée qui réchauffe/brûle la salle. 'The fireplace that is warming/burning the room'

OBJECT RELATIVE CONDITIONS	
+An obj, +An subj	Il y a deux garçons. Un papa caresse un garçon, un papa embrasse un garçon. Quel garçon est-ce que tu préférerais être? 'There are two boys. A dad is hugging a boy, a dad is caressing a boy. Which boy would you prefer to be?' Expected answer: Le garçon que le papa embrasse/caresse. 'The boy that the dad is hugging/caressing'
−An obj, +An subj	Il y a deux ballons. Un garçon lance un ballon, un garçon perce un ballon. Quel ballon est-ce que tu préférerais ? 'There are two balls. A boy is throwing a ball, a boy is piercing a ball. Which ball would you prefer to use?' Expected answer: Le ballon que le garçon lance/perce. 'The ball that the boy is throwing/piercing'
+An obj, −An subj	Il y a deux garçons. Un bruit réveille un garçon, un bruit gêne un garçon. Quel garçon est-ce que tu préférerais être? 'There are two boys. A noise is waking up a boy, a noise is bothering a boy. Which boy would you prefer to be?' Expected answer: Le garçon que le bruit réveille/gêne. 'The boy that the noise is waking up/bothering'
−An obj, −An subj	Il y a deux poussettes. Une tempête mouille une poussette, une tempête abîme une poussette. Quelle poussette est-ce que tu préférerais? 'There are two strollers. A storm is wetting a stroller, a storm is ruining a stroller. Which stroller would you prefer?' Expected answer: La poussette que la tempête mouille/abîme. 'The stroller that the storm is wetting/ruining'
FILLER CONDITION	
	Le papa colorie le cahier au garçon, mais il fait une erreur sur une page. À ton avis, qu'est-ce qu'il fait le garçon? Il déchire la page ou tout le cahier? 'A dad is coloring the book for the child, but he's wrong in coloring a page. What do you think that the child does? Does he rip out the page or the whole book?' Expected answer: (Le garçon) déchire la page/tout le cahier. '(The child) rips out the page/the whole book'

Based on featural Relativized Minimality and the hypothesis that animacy does not modulate intervention configurations in French, we expected to find a major effect of structure. Namely, we expected better performance with SRs (no intervention, (62-65)) than with ORs (inclusion

configuration, (66-69)) across conditions.[10] Additionally, we expected no major effect of animacy mis/match on the production of ORs, such that ORs with animacy mismatch (inclusion configuration, (67-68)) would be as difficult to produce as those with animacy match (inclusion configuration, (66, 69). A weak and structure-unselective effect of animacy mismatch on participants' performance might appear, given the possible ameliorating effect of any dissimilarity between noun phrases in a sentence on sentence computation.

(62) L'homme$_{+R +NP anim}$ qui applaudit le garçon$_{+NP anim}$.

'The man that is applauding the boy'

(63) Le garçon$_{+R +NP anim}$ qui prépare le gâteau$_{+NP inan}$.

'The boy that is making the cake'

(64) Le câble$_{+R +NP inan}$ qui coupe le garçon$_{+NP anim}$.

'The cord that is cutting the boy'

(65) La cheminée$_{+R +NP inan}$ qui réchauffe la salle$_{+NP inan}$.

'The fireplace that is warming the room'

(66) Le garçon$_{+R +NP anim}$ que le papa$_{+NP anim}$ embrasse.

'The boy that the dad is hugging'

(67) Le ballon$_{+R +NP inan}$ que le garçon$_{+NP anim}$ lance.

'The ball that the boy is throwing'

(68) Le garçon$_{+R +NP anim}$ que le bruit$_{+NP inan}$ réveille.

'The boy that the noise is waking up'

(69) La poussette$_{+R +NP inan}$ que la tempête$_{+NP inan}$ mouille.

'The stroller that the storm is wetting'

3.4.2.3. *Coding*

We coded participants' productions following the same coding criteria used in Experiment 4 (see Section 3.4.1.3).

---

[10] Notice that, in line with the findings from Bentea (2017) and Experiment 2 (Ch. 2), we indeed didn't expect complementizer form (distinguishing object relatives from subject relatives in French) to assist the participants in the production of object relatives; see Section 2.4.2.2 in Chapter 2.

In the SR conditions, we distinguished between correct SRs with a lexical object (70a), correct SRs with a clitic object (70b) and correct SRs with an unexpressed object (70c) (see Footnote 5 in Section 3.4.1.3 on SRs of the type in (70c)). Only SRs with a lexical object (70a) were coded as target responses.

(70) Deux hommes sont à un spectacle. Un homme applaudit un garçon, un homme écoute un garçon. Quel homme est-ce que tu préférerais ?

'Two men are at a show. A man is applauding a boy, a man is filming a boy. Which man would you prefer?'

a. L'homme qui écoute le garçon.

The man that listens to the boy

'The man that is listening to the boy'

b. L'homme qui l'écoute

The man that OBJ-CL listens

'The man that listens to him'

c. L'homme qui écoute

The man that listens

'The man that is listening'

Any other type of response produced in the elicitation of SRs was coded as non-correct, including subject relatives with a wrong head, subject relatives with wrong theta roles, other incorrect subject relatives, incorrect object relatives, simple sentences, fragments, no responses, non-relevant responses, and ungrammatical responses.

In the OR conditions, we only coded correct ORs with a lexical subject (71a) as target responses. The subject in the elicited OR was indeed expected to be lexical, just as in the stimulus. We coded correct ORs with a pronominal subject (72b) as correct, but not target. The use of a pronominal subject was correct under an interpretation of the elicitation as involving the same agent (the same dad) in two different situations, although this interpretation was less expected than the one involving two agents (two different dads) given the use of two indefinite noun phrases in the elicitation.

(71) Il y a deux garçons. Un papa caresse un garçon, un papa embrasse un garçon. Quel garçon est-
ce que tu préférerais être?

'There are two boys. A dad is hugging a boy, a dad is caressing a boy. Which boy would you

prefer to be?'

   a. Le garçon que le papa caresse.

     The boy that the dad caresses

     'The boy that the dad is caressing'

   b. Le garçon qu'il caresse

     The boy that he caresses

     'The boy that he is caressing'

We also coded as correct, but not target, those correct Passive ORs (72-74) and correct SRs (75) produced in the elicitation of active ORs. Both Passive ORs with an overt by-phrase and with an unexpressed by-phrase were correct responses to the elicitation, as the agent conveyed given information and, as such, it could be left unexpressed.

(72) Le garçon qui est caressé (par le papa).

   The boy that is caressed (by the dad)

   'The boy that is being caressed (by the dad)'

(73) Le garçon qui se fait caresser (par le papa).

   The boy that SE-cl makes caress (by the dad)

   'The boy that gets caressed (by the dad)'

(74) Le garçon caressé (par le papa).

   The boy caressed (by the dad)

   'The boy caressed (by the dad)'

(75) Le garçon qui reçoit une caresse.

   The boy that gets a caress

   'The boy that is getting a caress'

We coded any other response produced in the elicitation of ORs as incorrect, including incorrect SRs with head/role reversal, simple sentences, fragments, no responses, non-relevant responses, and unclassifiable responses.

Note that, as in Experiment 4, we did not distinguish between relative clauses in which the head is a lexical definite noun and those in which the head is a demonstrative pronoun; nor did we distinguish between ORs with and without a resumptive clitic pronoun or a DP (Section 3.4.1.3).

As for the Filler condition, simple sentences were coded as correct responses (76), whilst all other productions were coded as non-correct.

(76) Le papa colorie le cahier au garçon, mais il fait une erreur sur une page. À ton avis, qu'est-ce qu'il fait le garçon? Il déchire la page ou tout le cahier?

'A dad is coloring the book for the child, but he's wrong in coloring a page. What do you think that the child does? Does he rip out the page or the whole book?'

a. (Le garçon) déchire la page/tout le cahier.
    '(The child) rips out the page/the whole book'

3.4.2.4.   *Results*

The effect of animacy. Table 3.7 reports the percentage of correct SRs the children produced in the SR conditions, and the percentage of correct ORs they produced in the OR conditions.

Table 3.7. % of correct SRs produced in the SR conditions and of correct ORs produced in the OR conditions.
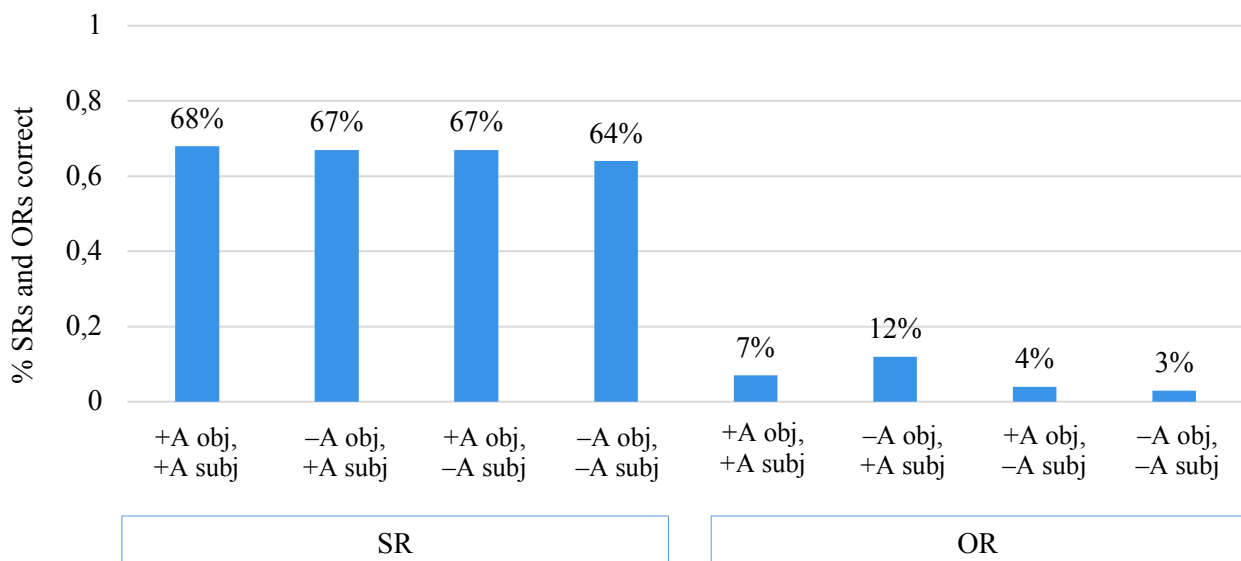
As Table 3.7 above clearly shows, the children performed significantly better in the SR conditions than in the OR conditions. They produced correct SRs most of the time, whereas they rarely produced correct ORs. No effect of animacy mismatch on the production of target SRs (with a lexical object) and target ORs (with a lexical subject) emerged in the results (p=0.98), whereas a small effect of animacy mismatch on the production of correct SRs (with a lexical/clitic/unrealized object) and correct ORs (with a lexical/pronominal subject) did appear (p=0.03). We found no effect of animacy configuration on the production of target SRs and ORs, but did find it had a small effect on the production of correct SRs and ORs, showing that in the inanimate object-inanimate subject condition the children produced less correct SRs and ORs than in the other conditions (p=0.01).

The participants produced 58% (205/352) of correct SRs with a lexical object and 10% (37/352) of correct SRs with an unrealized object in the animate object-animate subject condition; they produced 61% (214/352) of correct SRs with a lexical object and 6% (21/352) of correct SRs with an unrealized object in the inanimate object-animate subject condition; they produced 61% (215/352) of correct SRs with a lexical object, 3% (9/352) of correct SRs with a clitic object, and 4% (13/352) of correct SRs with an unrealized object in the animate object-inanimate subject condition; finally, they produced 57% (200/352) of correct SRs with a lexical object and 8% (27/352) of correct SRs with an unrealized object in the inanimate object-inanimate subject condition. The percentage of correct OR productions in the different animacy configurations was 5% (17/352) for correct ORs with a lexical subject and 3% (9/352) for correct ORs with a pronominal subject in the animate object-animate subject condition; 3% (11/352) for correct ORs with a lexical subject and 9% (33/352) for correct ORs with a pronominal subject in the inanimate object-animate subject condition; 3% (10/352) for correct ORs with a lexical subject and 1% (3/352) for correct ORs with a pronominal subject in the animate object-inanimate subject condition; and finally, 1% (4/352) for correct ORs with a lexical subject and 2% (7/352) for correct ORs with a pronominal subject in the animate object-inanimate subject condition.

When SRs were elicited, in addition to correct SRs, the children also produced SRs with verb change in 2% (21/1408) of cases, simple sentences in 13% (188/1408) of cases, fragments in 17% (238/1408) of cases, incorrect SRs in 1% (9/1408) of cases, and incorrect Passive ORs in 1%

(10/1408) of cases. When ORs were elicited, in addition to correct active ORs, the participants produced correct Passive ORs in 19% (271/1408) of cases, correct SRs in 6% (80/1408) of cases, incorrect SRs in 36% (501/1408) of cases, simple sentences in 11% (159/1408) of cases, and fragments and other incorrect responses in 22% (303/1408) of cases. No effect of animacy mismatch or configuration on type of errors emerged.

The effect of Age. The children's performance in the production of correct SRs and ORs significantly improved with age. In particular, the 5-year-olds performed significantly better than the 3-year-olds, and the 8-year-olds performed significantly better than the 7-year-olds. The performance of the 3-year-old children in the SR elicitation was low compared to the performance of the 3-year-olds in Experiment 2 (see Section 2.4.2.4, Ch. 2). Instead of correct SRs, in response to the elicitation of SRs, the 3-year-olds in this experiment produced indeed a large amount of fragments and other incorrect responses (35%), and simple sentences (19%). The 7-year-old group also produced a large number of simple sentences (19%) in response to the elicitation of SRs, compared to the 5-year-old (7%) and 8-year-old groups (9%). No interaction emerged between age and animacy mis/match or configuration. In the elicitation of ORs, the production of incorrect responses decreased with age, as the production of correct Passive ORs increased.

Table 3.8. Responses produced in the elicitation of SRs and in the elicitation of ORs across age groups.
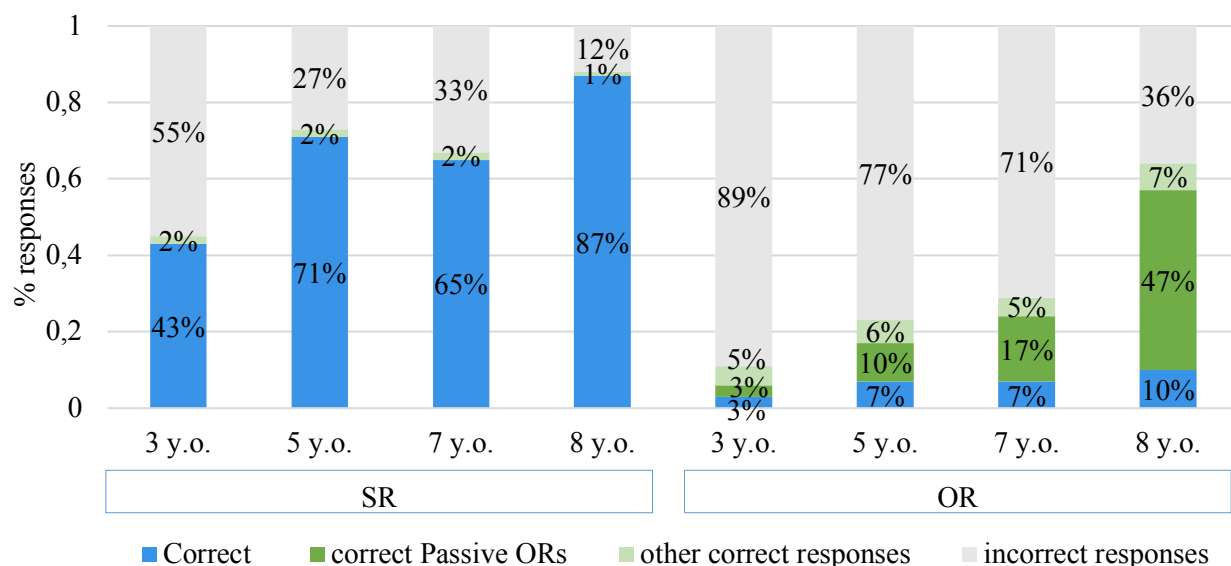
Language exposure. No difference emerged between the performance of monolingual, bilingual, and early L2 learner participants (see Section 3.4.1.1) in the production of correct SRs and ORs.

The performance of the control group. Table 3.9 below reports the results from the adult control group.

Table 3.9. % of correct SRs produced in the SR conditions and of correct ORs produced in the OR conditions in the adult control group.
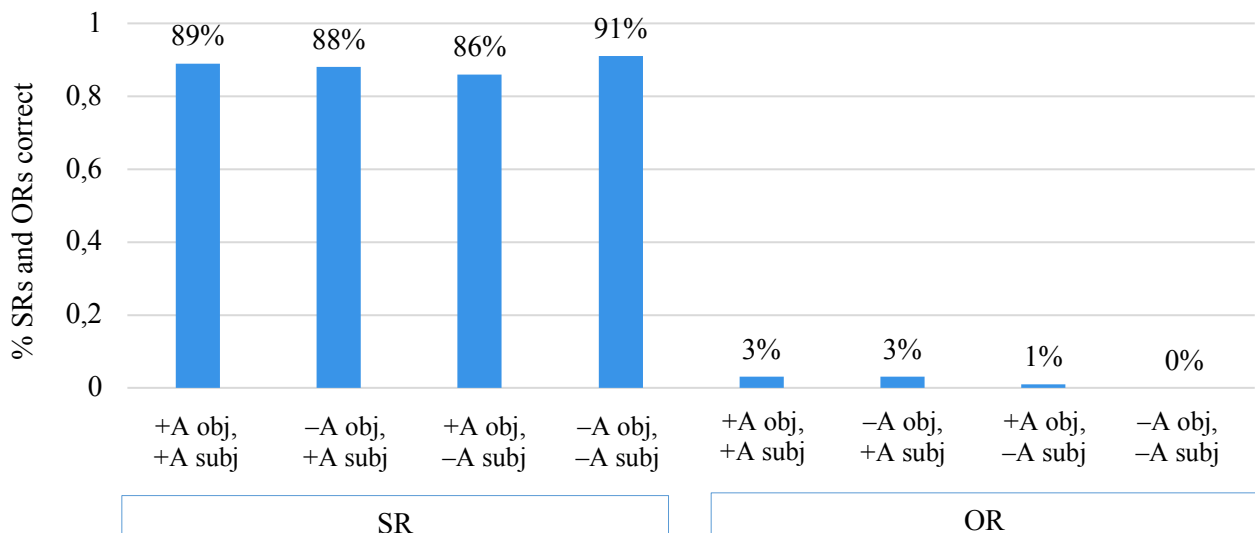
In the results from the adult group, the SR-OR asymmetry was also apparent, and no effect of animacy mismatch or configuration on the production of correct SRs and ORs emerged.

Out of all OR elicitations, the adults only produced 1 OR with a lexical subject (1/368), in the inanimate object-animate subject condition, and 1 OR with a referential pronominal subject (1/368), in the animate object-animate subject condition. They also produced 5 ORs with a generic pronominal subject (5/368) as in *La dame qu'on salue ('The lady that someone/some people greets/greet')*: 2 in the animate object-animate subject condition, 2 in the inanimate object-animate subject condition, and 1 in the animate object-inanimate subject condition.

When ORs were elicited, they mainly produced correct Passive ORs (67%, 246/368); they also produced correct SRs in 5% (19/368) of cases, incorrect SRs in 15% (54/368) of cases, simple sentences in 1% (5/368) of cases, and fragments or other incorrect responses in 10% (37/368) of

cases. When SRs were elicited, in addition to correct SRs, the adults produced incorrect Passive ORs in 2% (6/368) of cases, simple sentences in , 2% (6/368) of cases, and fragments or other incorrect responses in 8% (29/368) of cases.

The participants' performance in the filler condition. In the Filler condition, all the age groups performed at ceiling (98% of responses correct in the 3-year-old group, 98% in the 5-year-old group, 99% in the 7-year-old group, and 99% in the 8-year-old group), as the adults did (98% of responses correct).

Data analysis. The data were analysed with generalized mixed-effects models for binomial distribution, estimated with the lme4 package in the R software environment. As for the child group, we analysed the whole data set, consisting of 2816 data points, without excluding any outlier. With the aim of assessing the predictions fRM makes when comparing ORs with animacy match and ORs with animacy mismatch, and the corresponding structures without intervention, namely SRs, we ran two models with STRUCTURE and MIS/MATCH as fixed factors, Age as covariate, and *participants* and *items* as random factors. In Model 1, the categorical dependent variable was accuracy in producing target SRs in the elicitation of SRs and target ORs in the elicitation of ORs, whereas in Model 2 the categorical dependent variable was accuracy in producing correct SRs and correct ORs in the elicitation of SRs and ORs, respectively. With the aim of exploring the effect of ANIMACY CONFIGURATION on the production of target and correct SRs and ORs, we also run Models 3 and 4.[11] A summary of the fixed effects for Models 1-4 is given in Tables SA28-31. Model 5 (Table SA32) and Model 6[12] (Table SA33) were used to analyse the data from the adult control group. Based on fRM, we expected a major effect of STRUCTURE and no major selective effect of MIS/MATCH on response accuracy in both children and adults.

---

[11] Models 3b and 4b below did not converge. In any case, they revealed no significant interaction between STRUCTURE and ANIMACY CONFIGURATION.
o   Model 3b: Target ~ STRUCTURE * ANIMACY CONFIGURATION + Age + (1|participant) + (1|item)
o   Model 4b: Correct ~ STRUCTURE * ANIMACY CONFIGURATION + Age + (1|participant) + (1|item)
[12] Models 6b and 6c below failed to converge. However, they revealed no interaction between STRUCTURE and ANIMACY CONFIGURATION.
o   Model 6b: Correct ~ STRUCTURE * ANIMACY CONFIGURATION + (1|participant) + (1|item)
o   Model 6c: Correct ~ STRUCTURE + ANIMACY CONFIGURATION + (1|participant) + (1|item)

- o   Model 1: Target ~ STRUCTURE * MIS/MATCH + Age + (1|participant) + (1|item)

- o   Model 2: Correct ~ STRUCTURE * MIS/MATCH + Age + (1|participant) + (1|item)

- o   Model 3: Target ~ STRUCTURE + ANIMACY CONFIGURATION + Age + (1|participant) + (1|item)

- o   Model 4: Correct ~ STRUCTURE + ANIMACY CONFIGURATION + Age + (1|participant) + (1|item)

- o   Model 5: Correct ~ STRUCTURE * MIS/MATCH + (1|participant) + (1|item)

- o   Model 6: Correct ~ ANIMACY CONFIGURATION + (1|participant) + (1|item)

Table SA28: Summary of fixed effects for Model 1, Experiment 5.

MODEL 1	Estimate	Std. error	Z value	P value
(Intercept)	-5.51	0.42	-13.01	<0.0001***
Structure: SR	4.78	0.27	17.32	<0.0001***
Mis/match : Mismatch	-0.005	0.35	-0.01	0.988
Interaction : SR & Mismatch	0.20	0.35	0.57	0.565
Age : 5 y.o.	1.20	0.41	2.89	0.003**
Age : 7 y.o.	0.94	0.41	2.25	0.024*
Age : 8 y.o.	2.29	0.43	5.28	<0.0001***

Table SA29: Summary of fixed effects for Model 2, Experiment 5.

MODEL 2	Estimate	Std. error	Z value	P value
(Intercept)	-5.20	0.40	-12.73	<0.0001***
Structure: SR	4.78	0.23	20.30	<0.0001***
Mis/match : Mismatch	0.53	0.24	2.15	0.031*
Interaction : SR & Mismatch	-0.51	0.27	-1.90	0.061
Age : 5 y.o.	1.57	0.45	3.45	0.0005***
Age : 7 y.o.	1.33	0.45	2.91	0.003**
Age : 8 y.o.	2.52	0.47	5.32	<0.0001***

Table SA30: Summary of fixed effects for Model 3, Experiment 5.

MODEL 3	Estimate	Std. error	Z value	P value
(Intercept)	-5.47	0.41	-13.23	<0.0001***
Structure: SR	4.88	0.21	22.80	<0.0001***
Animacy configuration : An In	0.04	0.25	0.16	0.865
Animacy configuration : In An	0.04	0.25	0.16	0.865
Animacy configuration : In In	-0.25	0.25	-0.99	0.317
Age : 5 y.o.	1.20	0.41	2.89	0.003**
Age : 7 y.o.	0.94	0.41	5.28	0.024*
Age : 8 y.o.	2.29	0.43	5.28	<0.0001***

Table SA31: Summary of fixed effects for Model 4, Experiment 5.

MODEL 4	Estimate	Std. error	Z value	P value
(Intercept)	-4.76	0.38	-12.23	<0.0001***
Structure: SR	4.50	0.17	25.85	<0.0001***
Animacy configuration : An In	-0.26	0.17	-1.52	0.127
Animacy configuration : In An	0.13	0.17	0.796	0.425
Animacy configuration : In In	-0.43	0.17	-2.49	0.0125*
Age : 5 y.o.	1.56	0.45	3.44	0.0005***
Age : 7 y.o.	1.32	0.45	2.89	0.003*
Age : 8 y.o.	2.51	0.47	5.31	<0.0001***

Table SA32: Summary of fixed effects for Model 5, Experiment 5.

MODEL 5	Estimate	Std. error	Z value	P value
(Intercept)	-4.67	0.68	-6.85	<0.0001***
Structure: SR	7.40	0.76	9.70	<0.0001***
Mis/match : Mismatch	0.30	0.78	0.38	0.69
Interaction : SR & Mismatch	-0.78	0.85	-0.91	0.35

Table SA33: Summary of fixed effects for Model 6, Experiment 5.

MODEL 6	Estimate	Std. error	Z value	P value
(Intercept)	-0.15	0.14	-1.03	0.30
Animacy configuration : An In	-0.13	0.20	-0.62	0.52
Animacy configuration : In An	-2.18	2.09	-0.10	0.91
Animacy configuration : In In	4.77e-14	0.20	0.00	1.00

3.4.2.5. Interim discussion

Experiment 5 was designed to investigate the impact of animacy on the production of intervention configurations in French. The experiment tested the elicited production of headed ORs with a lexical intervening subject and of headed SRs with a lexical object, both with match and mismatch in animacy, in 3- to 8-year-old children and in adults. In particular, it tested ORs and SRs in the following four conditions: (i) animate object-animate subject; (ii) inanimate object-animate subject; (iii) animate object-inanimate subject; (iv) inanimate object-inanimate subject.

The results clearly showed the well-known SR-OR asymmetry in both children and adults. The participants produced correct SRs in response to the elicitation of SRs most of the time, but rarely produced corrects ORs in response to the elicitation of ORs. Moreover, there emerged a small effect of mismatch in animacy on the production of correct SRs and correct ORs in children.

These results are consistent with predictions from featural Relativized Minimality and the results from Experiment 4 on Italian (see Section 3.4.1.4). In ORs of the type in (81-84), the lexical object crosses over an intervening lexical subject in its movement to the left periphery of the clause. In SRs (77-80), no intervention is involved in the movement of the lexical subject to the left periphery. Thus, when SRs like (77-80) are elicited, speakers produce correct SRs most of the time, but when ORs like (81-84) are elicited, speakers tend to produce structures that do not involve intervention (Guasti & Cardinaletti 2003, Zukowski 2009, Friedmann et al. 2009, Belletti & Contemori 2010, Arnon 2010, Contemori & Belletti 2014, Costa et al. 2014). Younger children tend to produce incorrect responses, such as incorrect SRs with theta/role reversal, simple sentences, and fragments, whereas older children and adults tend to produce correct Passive ORs in languages like French (see Chapter 2 surrounding example (43)).

(77) L'homme$_{+R\ +NP\ anim}$ qui <l'homme$_{+R\ +NP\ anim}$> applaudit le garçon$_{+NP\ anim}$.

     the man that <the man> is applauding the boy

(78) Le garçon$_{+R\ +NP\ anim}$ qui <le garçon$_{+R\ +NP\ anim}$> prépare le gâteau$_{+NP\ inan}$.

     the boy that <the boy> is making the cake

(79) Le câble$_{+R\ +NP\ inan}$ qui <le câble$_{+R\ +NP\ inan}$> coupe le garçon$_{+NP\ anim}$.

     the cord that <the cord> is cutting the boy

(80) La cheminée$_{+R\ +NP\ inan}$ qui <la cheminée$_{+R\ +NP\ inan}$> réchauffe la salle$_{+NP\ inan}$.

     the fireplace that <the fireplace> is warming the room

(81) Le garçon$_{+R\ +NP\ anim}$ que le papa$_{+NP\ anim}$ embrasse <le garçon$_{+R\ +NP\ anim}$>.

the boy that the dad is hugging <the boy>

(82) Le ballon$_{+R\ +NP\ inan}$ que le garçon$_{+NP\ anim}$ lance <le ballon$_{+R\ +NP\ inan}$>.

the ball that the boy is throwing <the ball>

(83) Le garçon$_{+R\ +NP\ anim}$ que le bruit$_{+NP\ inan}$ réveille <le garçon$_{+R\ +NP\ anim}$>.

the boy that the noise is waking up <the boy>

(84) La poussette$_{+R\ +NP\ inan}$ que la tempête$_{+NP\ inan}$ mouille <la poussette$_{+R\ +NP\ inan}$>.

the stroller that the storm is wetting <the stroller>

Consistent with fRM, mismatch in animacy between lexical subject and object did not assist children or adults in the production of target ORs (that is, ORs with a lexical subject and an intervention configuration of inclusion), as such mismatch does not modulate intervention in French. Instead, it slightly helped children in the production of correct ORs (those with a pronominal subject and an intervention configuration of disjunction) and correct SRs (those without a lexical object and no intervention). The effect of animacy mismatch that emerged in the children's performance in this experiment is thus structure unselective, affecting the production of all types of relative clause. Moreover, it is much smaller than the effect of mismatches relevant for intervention, such as the mismatch in lexical restriction explored in Experiment 2 (see Section 2.4.2, Ch. 2). As is the case in Italian, animacy is not a feature relevant for movement in French, in the sense of Belletti et al. (2012) and Friedmann et al. (2017), and as such it plays no role in the computation of intervention in movement operations. Here animacy differs from features relevant to the intervention locality principle in these languages (e.g. lexical restriction). Nevertheless, like any other mismatch, a mismatch in animacy between noun phrases in a sentence may help the computation of such complex sentences as relative clauses.

In line with results from Italian, there emerged no significant effect of animacy configuration on the participants' performance. Note that in the elicitation of ORs like (82) with an inanimate head and animate subject, children produced more correct ORs with a referential pronominal subject (*Le ballon qu'il lance, 'The ball that he's throwing'*) compared to the other conditions, although this result didn't reach significance. We suggest that this might be due to the combination of (i) a preference for the use of a pronominal subject to refer to an animate entity rather than to an

inanimate entity, and (ii) the particular animacy configuration (inanimate head-animate subject) facilitating theta role assignment (inanimate entity -> patient, animate entity -> agent). Moreover, the children performed slightly worse in the elicitation of relative clauses with an inanimate subject and object than in the other conditions.

Also note that, in line with the results from Belletti and Chesi (2014) on adult Italian, no effect of animacy mismatch emerged in the adult participants. The adults mostly answered the elicitation of object relatives with correct passive object relatives, producing a very few active object relatives, the majority of which were ORs with a generic pronominal subject (*Le ballon qu'on lance, 'The ball that someone/some people is/are throwing'*).

To summarize, the results from Experiment 5 revealed a major effect of structure on the production of relative clauses in both child and adult French, with participants performing considerably better on SRs than on ORs, as well as an unselective small effect of animacy mismatch on the production of relative clauses in child French, with participants performing slightly better on RCs with animacy mismatch than on those with animacy match. These results corroborate predictions from featural Relativized Minimality on the irrelevance of animacy to intervention in French.

3.4.3. Experiment 6: Repetition of relative clauses with an animacy mis/match in French

Experiment 6 explored the effect of mismatch in animacy on the repetition of relative clauses in French, with the aim of gathering evidence on the role of animacy for intervention in this language from a different modality. The experiment tested the repetition of subject and object relatives with match and mismatch in animacy in 3- to 8-year-old children, using the same design as in Experiment 5. In Experiments 4 and 5 on the elicited production of relative clauses, children rarely used active ORs in response to the elicitation of ORs; in fact, they more often used structures not involving intervention when answering the elicitation of ORs (see Sections 3.4.1.4 and 3.4.2.4). The use of a sentence repetition task also allowed us to more easily collect data on ORs, as in sentence repetition tasks the target structure is given to the participant by the experiment.
Sentence repetition has been used as a measure of children's language abilities in a number of studies, according to the hypothesis that repeating a sentence is not playing back what was just heard from auditory memory, but in fact involves the comprehension and production of that

sentence (Vender et al. 1981, Friedmann & Grodzinsky 1997, Conti-Ramsden et al. 2001, Friedmann & Lavi 2006, Devescovi & Caselli 2007, Chiat & Roy 2008, Seef-Gabriel et al. 2008, 2010, Contemori 2011, Chiat et al. 2013). Children tend to omit or inaccurately repeat sentences that they have not yet mastered (Sturner et al. 1996), and they tend to repeat the correct form of ungrammatical sentences (Munnich et al. 1994). Preschool children repeat subject relatives without any difficulty, but show difficulties in the repetition of object relatives (Diessel & Tommasello 2005, Kidd et al. 2007, Contemori 2011). Thus, repetition appears to be an interesting modality to explore in the analysis of children's language skills, in combination with comprehension and production. We did not test adults in this modality, as it is well known that the sensitivity of sentence repetition tasks decreases with age (Vender et al. 1981, Marinis et al. 2010).

3.4.3.1. *Participants*

88 typically-developing French-speaking children, aged from 3;2 to 9;2, participated in Experiment 6. They were divided into four age groups: the 3-year-old, the 5-year-old, the 7-year-old, and the 8-year-old groups (see Table 3.10)[13]. They were randomly selected from kindergartens and primary schools in Geneva, Switzerland. 43 of them were monolingual native speakers of French, 11 were bilingual native speakers, and 34 were early L2 learners of French.[14] As in the previous experiments, we categorized those children who have been exposed to French from birth, but whose parents are not native French speakers, as early L2 learners; as we will see, no effect of this emerged in the results.[15] Note that, except for one child in the 5-year-old group, the same children also participated in Experiment 5 (see Section 3.4.2). The two experiments were run at least a week apart, and the order of administration of the two tasks was counterbalanced.

---

[13] In the 3-year-old group, 15 children were aged 3;2–3;11 and 5 were aged 4;0-4;5. In the 5-year-old group, 15 were aged 5;0-5;11, 4 were aged 6;0-6;2, and 5 were aged 4;9-4;11. In the 7-year-old group, 18 were aged 7;0-7;4 and 5 were aged 6;9-6;11. Finally, in the 8-year-old group, 15 were aged 8;4-8;11 and 6 were aged 9;0-9;2.

[14] In the 3-year-old group, 15 children were monolingual native speakers, 2 were bilingual native speakers, and 2 were early L2 learners of French. In the 5-year-old group, 10 children were monolingual, 6 were bilingual, and 9 were early L2 learners. In the 7-year-old group, 10 children were monolingual, 2 were bilingual, and 11 were early L2 learners. In the 8-year-old group, 9 children were monolingual, 1 child was bilingual, and 11 children were early L2 learners.

[15] As mentioned in Section 3.4.2, some of the non-native French speaking parents have lived in a French-speaking country for many years, becoming near-native French speakers, whereas others have a very poor knowledge of French; some of them only speak their L1 at home, whilst others also or mainly speak French at home.

Table 3.10. Experiment 6: Participants.

Age Group	No. of Participants	Age Range	Mean Age
3 y.o.	19	3;2 - 4;5	3;7
5 y.o.	25	4;7 - 6;2	5;4
7 y.o.	23	6;9 - 7;4	7;1
8 y.o.	21	8;4 - 9;2	8;8

3.4.3.2.   *Method and predictions*

We analysed the impact of animacy mismatch on the repetition of object relatives with intervention using the exact same design as in Experiments 4-5. Examples of item for each condition are given in Table 3.11. A full list of the experimental items can be found in Appendix F.

Table 3.11. Experiment 6: Example of item in the eight experimental conditions and filler condition.

SUBJECT RELATIVE CONDITIONS	
+An obj, +An subj	La femme qui applaudit la fille. 'The woman that is applauding the girl'
−An obj, +An subj	La fille qui prépare la tarte. 'The girl that is making the cake'
+An obj, −An subj	La corde qui gratte la fille. 'The cord that is scratching the girl'
−An obj, −An subj	La cheminée qui réchauffe la salle. 'The fireplace that is warming the room'
OBJECT RELATIVE CONDITIONS	
+An obj, +An subj	La fille que la maman embrasse. 'The girl that the mom is hugging'
−An obj, +An subj	La balle que la fille lance. 'The ball that the girl is throwing'
+An obj, −An subj	Le garçon que le bruit réveille. 'The boy that the noise is waking up'
−An obj, −An subj	La poussette que la tempête mouille. 'The stroller that the storm is wetting'

FILLER CONDITION
Le garçon regarde un dessin animé.
'The boy is watching a cartoon'

We tested the repetition of 16 SRs and 16 ORs in isolation. We manipulated two variables in a 2 x 4 design: (1) STRUCTURE (SR vs. OR), and (2) ANIMACY CONFIGURATION (animate subject-animate object, animate subject-inanimate object, inanimate subject-animate object, inanimate subject-inanimate object). The four levels of ANIMACY CONFIGURATION were obtained by manipulating the animacy feature of the subject and the object. Subject and object were lexically restricted and matching in number and gender. The target sentences were semantically reversible only in the animate subject-animate object condition. The STRUCTURE variable was manipulated within items, whereas the ANIMACY CONFIGURATION variable was manipulated between items. A within participants design was used. For each of the eight experimental conditions there were four experimental items. The repetition of 16 simple sentences as fillers was also tested. Two lists of 48 items were used, in which the order of the items was pseudo-randomized so that there were no more than two consecutive items of the same type. Each session started with a warm-up phase in which the child saw 2 practice trials.

In order to assess whether the correct repetition of an item corresponded to its actual correct computation, in the animate object-animate subject conditions, we also asked the participant a comprehension question of the type in (85) after each correct repetition. It was not possible to ask the comprehension question in all conditions, due to the duration of the task, which already included 48 trials and would have been far too long for the participants. The comprehension question in the animate object-animate subject condition was particularly worthwhile compared to the other conditions, as in such a condition, the items were semantically reversible and the participants had no semantic cues for theta role assignment.

(85) Relative clause to repeat: La femme qui applaudit la fille.

'The woman that is applauding the girl'

Comprehension question: C'est qui qui applaudit?

'Who is applauding?'

In order to elicit the repetition of subject and object relative clauses, we created another game using the cartoon character Dora. In this game, Dora asks the participant to play with her the parrot game, and the participant, like a parrot, has simply to repeat what Dora says (86). As in the previous experiments, the participant plays on a laptop with Dora, who speaks to him/her through the voice of a native speaker. Each participant played the game in the presence of the experimenter in a separate room in his/her school or kindergarten. The experimenter did not impose a time limit or give response-contingent feedback. Participant's responses were tape-recorded, and subsequently transcribed and coded.

(86) Dora: « Je voudrais tellement jouer un peu au perroquet avec toi. Tu sais comment on joue?
   Moi je dis une phrase et toi tu dois la répéter. »
   'I would love to play the parrot game with you. Do you know how to play? I say a
    sentence and you have to repeat it.'
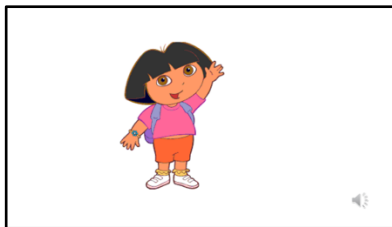
Fig. 3.2. Game screen for (86).

Based on featural Relativized Minimality, we expected the same pattern of results found in elicited production to also show up in repetition. Namely, we expected a major effect of the structure type on the repetition of relative clauses; SRs, which involve no intervention, were expected to see better performance across conditions than ORs, which involve intervention. Thus, sentences like (87-90) should see better performance than those like (91-94). We also expected no selective, major effect of animacy mismatch on the repetition of ORs; that is, ORs with animacy mismatch were expected to be as difficult to repeat as ORs with animacy match, given that both structures involve an inclusion configuration. Thus, sentences like (92) and (93) should prove as difficult as those like (91) and (94). An unselective, minor effect of animacy mismatch on the repetition of relative clauses might emerge in the results, showing better performance for RCs with mismatch better than for those RCs with match, given a possible ameliorating effect of any mismatch between noun phrases in a sentence on sentence computation.

(87) La femme$_{+R +NP\ anim}$ qui applaudit la fille$_{+NP\ anim}$.

'The woman that is applauding the girl'

(88) La fille$_{+R +NP\ anim}$ qui prépare la tarte$_{+NP\ inan}$.

'The girl that is making the cake'

(89) La corde$_{+R +NP\ inan}$ qui gratte la fille$_{+NP\ anim}$.

'The cord that is scratching the girl'

(90) La cheminée$_{+R +NP\ inan}$ qui réchauffe la salle$_{+NP\ inan}$.

'The fireplace that is warming the room'

(91) La fille$_{+R +NP\ anim}$ que la maman$_{+NP\ anim}$ embrasse.

'The girl that the mom is hugging'

(92) La balle$_{+R +NP\ inan}$ que la fille$_{+NP\ anim}$ lance.

'The ball that the girl is throwing'

(93) Le garçon$_{+R +NP\ anim}$ que le bruit$_{+NP\ inan}$ réveille.

'The boy that the noise is waking up'

(94) La poussette$_{+R +NP\ inan}$ que la tempête$_{+NP\ inan}$ mouille.

'The stroller that the storm is wetting'

3.4.3.3.   Coding

We coded as correct responses the identical repetitions of the relative clauses, as well as repetitions of the relative clauses with a subject/object resumptive clitic as in (95-96). The participants only used resumptive clitics in a few cases, and the results did not change when we considered those repetitions as incorrect.

(95) SR to repeat: La femme qui applaudit la fille.

             The woman that applauds the girl

           'The woman that is applauding the girl'

        a. La femme qu'elle applaudit la fille.

           The woman that she applauds the girl

           'The woman that is applauding the girl'

(96) OR to repeat : La fille que la maman embrasse.

          The girl that the mother hugs

          'The girl that the mother is hugging'

    a. La fille que la maman l'embrasse.

        The girl that the mother CL-OBJ hugs

        'The girl that the mother is hugging her'

All other responses, including incorrect repetitions with complementizer omission (97a), incorrect repetitions with substitution of the complementizer (97b), incorrect repetitions with wrong complementizer (97c), incorrect SRs (97d-e), and simple sentences (97f), were coded as incorrect.

(97) RC to repeat : La fille que la maman embrasse.

          The girl that the mother hugs

          'The girl that the mother is hugging'

  a. La fille la maman embrasse.

     The girl the mother hugs

  b. La fille et/il/de la maman embrasse.

     The girl and/he/of mother hugs

  c. La fille qui la maman embrasse.

     The girl who the mother hugs

  d. La fille qui embrasse la maman.

     The girl who hugs the mother

     'The girl that is hugging the mother'

  e. La maman qui embrasse la fille.

     The mother who hugs the girl

     'The mother that is hugging the girl'

  f. La maman embrasse la fille.

     The mother hugs the girl

     'The mother is hugging the girl'

Similarly, in the filler condition, identical repetition of the item was coded as correct and any other response as incorrect.

3.4.3.4. Results

The effect of animacy. Table 3.12 reports the percentage of correct repetitions in the various SR conditions, and the percentage of correct repetitions in the various OR conditions.

Table 3.12. % of correct repetitions in the SR conditions and OR conditions.
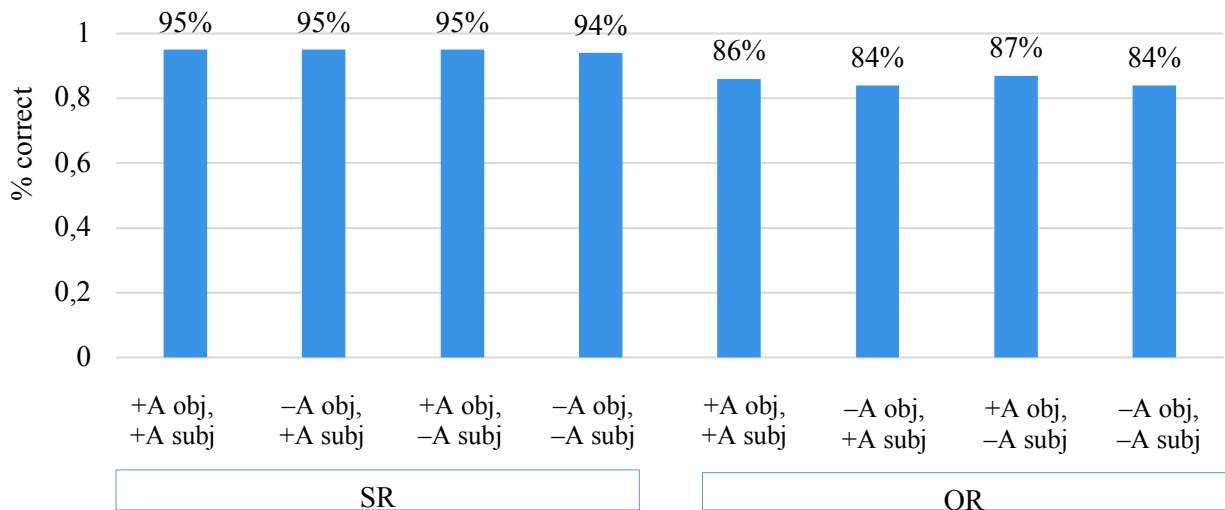
As Table 3.12 above shows, the children performed well in the repetition of both SRs and ORs. A significant effect of structure on the repetition of correct relative clauses emerged in the results, showing that the children performed better in the repetition of SRs than in the repetition of ORs, whereas no effect of animacy mismatch appeared. The children performed the same in the repetition of relative clauses with animacy match as they did in the repetition of those with animacy mismatch. Neither did we find an effect of animacy configuration on the participant's performance. In the repetition of SRs, in addition to correct repetitions, the children also produced incorrect repetitions with complementizer omission (4%), incorrect repetitions with substitution of the complementizer (1%), and fragments (1%). In the repetition of ORs, in addition to correct repetitions, the participants also produced incorrect repetitions with complementizer omission (4%), incorrect repetitions with substitution of the complementizer (2%), incorrect repetition with a wrong complementizer (1%), incorrect SRs (3%), simple sentences (1%), and fragments or other incorrect responses (4%). No effect of animacy mismatch or animacy configuration on the type of errors emerged.

The effect of Age. No significant effect of age on the repetition of SRs and ORs emerged in the results, except for the performance of the 8-year-old group, which was significantly better than that of the younger groups. Except for the 8-year-old group, SRs were correctly repeated more often than ORs in all age groups. No interaction emerged between age and animacy mismatch or configuration, nor between age and error type.

Table 3.13. % of correct repetitions in the SR conditions and OR conditions across age groups.
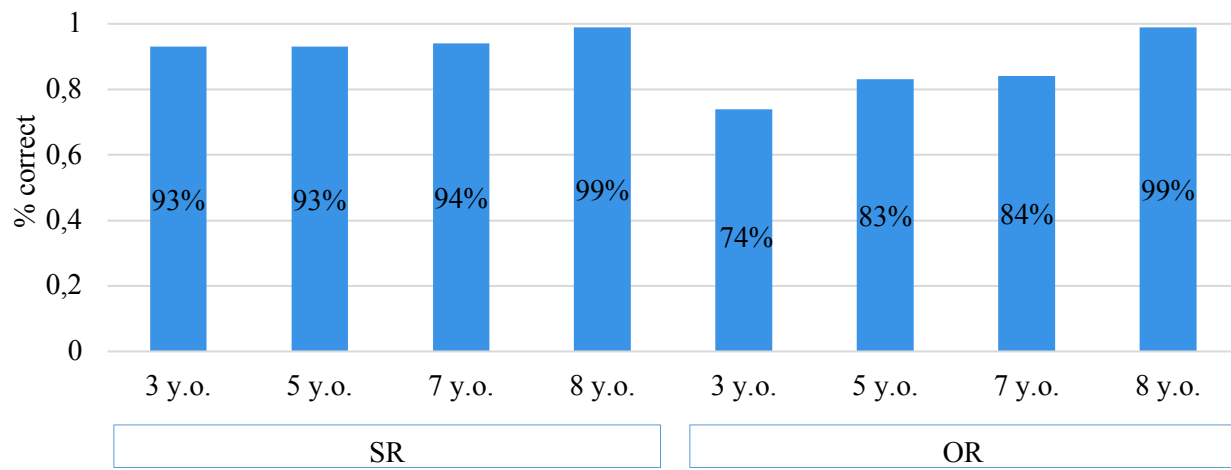
Evidence for the effect of age also comes from the children's answers to the comprehension question asked by the experimenter in the animate object-animate subject condition; see Section 3.4.3.2 surrounding example (85). We report in Table 3.14 below the percentage of correct responses to the comprehension question out of the total number of comprehension questions asked. As the table shows, participants in the majority of cases correctly answered the comprehension question after correct repetition of the relative clause. Thus, response accuracy in sentence repetition would seem to be a reliable measure for sentence computation. Interestingly, the SR-OR asymmetry also showed up in these responses. The participants correctly answered the comprehension question more often with SRs than with ORs. Moreover, an effect of age showed up. The percentage of correct responses to comprehension questions improved with age, and there was still an asymmetry between SRs and ORs among 8-year-olds that didn't emerge in sentence repetition accuracy.

Table 3.14. % of correct responses to the comprehension question in the SR animate object-animate subject condition and in the OR animate object-animate subject condition.

	% correct
SR	**86%**
3 y.o.	73%
5 y.o.	80%
7 y.o.	93%
8 y.o.	95%
OR	**70%**
3 y.o.	62%
5 y.o.	69%
7 y.o.	67%
8 y.o.	80%

Language exposure. No asymmetries emerged between the performance of monolingual, bilingual, and early L2 learner participants (see Section 3.4.2.1) in the repetition of SRs and ORs.

The participants' performance in the filler condition. In the Filler condition, all age groups performed very well and the performance improved with age. They produced 94% of repetitions correct in the 3-year-old group, 96% in the 5-year-old group, 99% in the 7-year-old group, and 100% in the 8-year-old group.

Data analysis. We analysed the whole data set of 2816 data points with generalized mixed-effects models for binomial distribution estimated with the lme4 package in the R software environment, without excluding any outlier. In order to assess the predictions from featural Relativized Minimality on the impact of animacy mismatch on the computation of intervention, we ran a model with STRUCTURE and MIS/MATCH as fixed factors, Age as covariate, and participants and items as random factors. We also ran a model with STRUCTURE and ANIMACY CONFIGURATION as fixed factors in order to explore the effect of animacy configuration on participant performance. In both models, the categorical dependent variable was response accuracy, representing the accuracy in repeating subject relatives and object relatives.[16] A summary of the fixed effects for these models

---

[16] Note that Model 1b and Model 2b below do not converge, but they show no interaction between STRUCTURE and MIS/MATCH or between STRUCTURE and ANIMACY CONFIGURATION.
o   Model 1b: STRUCTURE * MIS/MATCH + Age + (1|participant) + (1|item)

is given in Tables SA34 and SA35. Based on featural Relativized Minimality, we expected to find a major effect of STRUCTURE, but no major selective effect of MIS/MATCH, on response accuracy.

- o Model 1: STRUCTURE + MIS/MATCH + Age + (1|participant) + (1|item)
- o Model 2: STRUCTURE + ANIMACY CONFIGURATION + Age + (1|participant) + (1|item)

Table SA34: Summary of fixed effects for Model 1, Experiment 6.

MODEL 1	Estimate	Std. error	Z value	P value
(Intercept)	2.44	0.95	2.56	0.010*
Structure: SR	2.57	0.23	10.91	<0.0001***
Mis/match : Mismatch	0.09	0.23	0.39	0.694
Age : 5 y.o.	1.15	1.23	0.93	0.350
Age : 7 y.o.	1.60	1.29	1.24	0.021
Age : 8 y.o.	4.79	1.36	3.52	0.0004***

Table SA35: Summary of fixed effects for Model 2, Experiment 6.

MODEL 2	Estimate	Std. error	Z value	P value
(Intercept)	2.70	0.96	2.81	0.004**
Structure: SR	2.57	0.23	10.92	<0.0001***
Animacy configuration : An In	-0.54	0.29	-1.85	0.065
Animacy configuration : In An	0.21	0.30	0.70	0.481
Animacy configuration : In In	-0.54	0.29	-1.83	0.066
Age : 5 y.o.	1.15	1.23	0.93	0.352
Age : 7 y.o.	1.60	1.29	1.23	0.213
Age : 8 y.o.	4.79	1.36	3.52	0.0004***

3.4.3.5. *Interim discussion*

Experiment 6 explored the effect that animacy mismatch between subject and object has on the repetition of relative clauses in child French. The investigation of repetition allowed us to collect

---

- o Model 2b: STRUCTURE * ANIMACY CONFIGURATION + Age + (1|participant) + (1|item)

evidence from a different modality on the role the animacy feature plays in the computation of intervention configurations in French.

The results from this experiment revealed no effect of animacy mismatch or animacy configuration, on the repetition of relative clauses. Children up to age 7 performed significantly better in the repetition of SRs than in that of ORs, but performed the same in the repetition of relative clauses with animacy mismatch and in that of relative clauses with animacy match. They also performed the same across animacy configurations. These results corroborate the hypotheses made by fRM on the difficulties that children experience with certain relative clauses, and on the features relevant for intervention involved in those sentences. The presence of an intervention configuration of inclusion between object and subject makes ORs like (102-105) harder for children to repeat than SRs (98-101). Mismatch in animacy between object and subject does not make sentences like (102) or (103) easier to repeat for children compared to (101) and (104), as it plays no role in intervention configurations in French.

(98)   La femme$_{+R\ +NP\ anim}$ qui <la femme$_{+R\ +NP\ anim}$> applaudit la fille$_{+NP\ anim}$.
      the woman that <the woman> is applauding the girl

(99)   La fille$_{+R\ +NP\ anim}$ qui <la fille$_{+R\ +NP\ anim}$> prépare la tarte$_{+NP\ inan}$.
      the girl that <the girl> is making the cake

(100)   La corde$_{+R\ +NP\ inan}$ qui <la corde$_{+R\ +NP\ inan}$> gratte la fille$_{+NP\ anim}$
      the cord that <the cord> is scratching the girl

(101)   La cheminée$_{+R\ +NP\ inan}$ qui <la cheminée$_{+R\ +NP\ inan}$> réchauffe la salle$_{+NP\ inan}$.
      the fireplace that <the fireplace> is warming the room

(102)   La fille$_{+R\ +NP\ anim}$ que la maman$_{+NP\ anim}$ embrasse <la fille$_{+R\ +NP\ anim}$>.
      the girl that the mom is hugging <the girl>

(103)   La balle$_{+R\ +NP\ inan}$ que la fille$_{+NP\ anim}$ lance <la balle$_{+R\ +NP\ inan}$>.
      the ball that the girl is throwing <the ball>

(104)   Le garçon$_{+R\ +NP\ anim}$ que le bruit$_{+NP\ inan}$ réveille <le garçon$_{+R\ +NP\ anim}$>.
      the boy that the noise is waking up <the boy>

(105)   La poussette$_{+R\ +NP\ inan}$ que la tempête$_{+NP\ inan}$ mouille <la pousette$_{+R\ +NP\ inan}$>.
      the stroller that the storm is wetting <the stroller>

Except for the 8-year-olds, who performed significantly better than younger children, children's performance did not improve with age. We trace the absence of an age effect on the performance of 3- to 7-year-old children back to the use of relative clauses in isolation in the task. The repetition of relative clauses in isolation, rather than complete sentences, led indeed to high percentages of correct responses across age groups and conditions. However, we observed an ameliorating effect of age on participants' performance in response to the comprehension questions. Results from the comprehension questions also revealed SR-OR asymmetry in the performance of 8-year-olds, which did not appear in the results from sentence repetition due to the low sensitivity of repetition tasks in older children (Vender et al. 1981, Marinis et al. 2010, and Contemori 2011 for the same result on Italian-speaking children).

To summarize, Experiment 6 tested the effect of animacy on the repetition of subject and object relative clauses in child French, and revealed an effect of structure (SRs were repeated with better performance than were ORs), but no effect of animacy (RCs with animacy mismatch proved as hard to repeat as RCs with animacy match), as expected under featural Relativized Minimality.

3.4.4. Experiment 7: Comprehension of relative clauses with an animacy mis/match in French

Experiment 7 explored relative clause comprehension in child French, in order to assess whether the same type of animacy effect found in production is also found in comprehension. In Experiment 5, we saw that animacy mismatch does not facilitate the production of relative clauses involving intervention in French, consistent with the irrelevance of the animacy feature to the grammatical principle of intervention locality in this language. In contrast, animacy mildly affects the computation of relative clauses in general. According to a grammatical approach to intervention phenomena like featural Relativized Minimality, the same pattern of results should show up in production and comprehension. This experiment thus tested, in 3- to 9-year-old French-speaking children, comprehension of object relatives with intervention between two lexical arguments matching or mismatching in animacy, as well as comprehension of subject relatives with two lexical arguments matching or mismatching in animacy. In order to gather comparable results across modalities, it tested the same experimental conditions as did Experiments 5 and 6.

3.4.4.1. Participants

61 French-speaking typically developing children aged 3;0-9;8 took part in the experiment. They were divided into four groups by age: the 3-year-old, the 5-year-old, the 7-years-old, and the 9-year-old groups (Table 3.15). They were randomly selected from kindergartens and primary schools in Geneva, Switzerland. 31 were monolingual native French speakers, 13 were bilingual native French speakers, and 17 were early L2 learners of French.[17] No effect of that emerged in the results. Notice that except for one child in the 9-year-old group, the same children participated in Experiment 3 (presented in Section 2.4.3, Ch. 2). The two experiments were run at least one week apart, and order of administration of the two tasks was balanced across participants.

Table 3.15. Experiment 7: Participants.

Age Group	No. of Participants	Age Range	Mean Age
3 y.o.	12	3;0-4;5	3;8
5 y.o.	17	5;1-6;6	5;8
7 y.o.	16	7;0-8;5	7;8
9 y.o.	16	8;11-9;7	9;3

3.4.4.2. Method and predictions

In Table 3.16, we report an example of item for the eight experimental conditions and for the filler condition tested in Experiment 7.

---

[17] In the 3-year-old group, 4 children were monolingual native speakers, 2 were bilingual native speakers, 6 were early L2 learners of French. In the 5-year-old group, 9 children were monolingual native speakers, 6 were bilingual native speakers, and 2 were early L2 learners. In the 7-year-old group, 7 participants were monolingual native speakers, 2 were bilingual native speakers, and 7 were early L2 learners. Finally, in the 9-year-old group, 8 participants were monolingual native speakers, 3 were bilingual native speakers, and 5 were early L2 learners. To recall, with the term early L2 learners, we refer to those children who have been exposed to French from birth but whose parents are not native French speakers.

Table 3.16. Experiment 7: Example of item in the eight experimental conditions and filler condition.

SUBJECT RELATIVE CONDITIONS		
+An obj, +An subj	Ici il y a deux femmes. Montre-moi 'Here there are two ladies. Show me	la femme qui applaudit la fille. the lady that is applauding the girl'
−An obj, +An subj	Ici il y a deux filles. Montre-moi 'Here there are two girls. Show me	la fille qui prépare la tarte. the girl that is making the cake'
+An obj, −An subj	Ici il y a deux explosions. Montre-moi 'Here there are two explosions.Show me	l'explosion qui réveille la fille. the explosion that is waking up the girl'
−An obj, −An subj	Ici il y a deux orages. Montre-moi 'Here there are two storms. Show me	l'orage qui détruit le parapluie. the storm that is breaking the umbrella'
OBJECT RELATIVE CONDITIONS		
+An obj, +An subj	Ici il y a deux filles. Montre-moi 'Here there are two girls. Show me	la fille que la maman embrasse. the girl that the mom is hugging'
−An obj, +An subj	Ici il y a deux balles. Montre-moi 'Here there are two balls. Show me	la balle que la fille lance. the ball that the girl is throwing'
+An obj, −An subj	Ici il y a deux garçons. Montre-moi 'Here there are two boys. Show me	le garçon que le vase cogne. the boy that the vase is hurting'
−An obj, −An subj	Ici il y a deux trous. Montre-moi 'Here there are two holes. Show me	le trou que le tapis cache. the hole that the carpet is covering'
FILLER CONDITION		
	Ici il y a deux garçons. Montre-moi 'Here there are two boys. Show me	le garçon avec le pyjama vert. the boy with the green pajama'

As in the tasks in Experiments 5-6, the comprehension task included 16 SRs and 16 ORs. Two variables in a 2 x 4 design were manipulated: (1) STRUCTURE (SR vs. OR), and (2) ANIMACY CONFIGURATION (animate subject-animate object, animate subject-inanimate object, inanimate subject-animate object, inanimate subject-inanimate object). The four levels of ANIMACY CONFIGURATION were obtained by manipulating the animacy feature of subject and object. Subject and object were always lexically restricted and matching in number and gender. The items were semantically reversible only in the animate subject-animate object condition. The STRUCTURE variable was manipulated within items, whereas the ANIMACY CONFIGURATION variable was manipulated between items. A within participants design was used. For each of the eight experimental conditions there were four experimental items. The task also included 16 fillers testing the comprehension of prepositional phrases involving the same number of words as the

experimental items. There were two lists of 48 items, in which the order of items was pseudo-randomized so that there were no more than two consecutive items of the same type. Each session started with a warm-up phase in which the child saw 2 practice trials. Also, the position of the target character was also pseudo-randomized.

As we did in Experiments 5-6, according to featural Relativized Minimality, we expected a major effect of the structure on the participant's performance, such that SRs involving no intervention (106-109) would be comprehended better than ORs involving intervention (110-113) across conditions. We also expected no selective major effect of the animacy mismatch on participants' performance with object relatives, such that ORs involving intervention and animacy mismatch (111-112) would prove as difficult to comprehend as those involving intervention and animacy match (110, 113). A mild effect of animacy mismatch, unrelated to intervention locality, on the participants' performance with relative clauses in general might emerge in the results, such that RCs with mismatch are comprehended better than RCs with match.

(106) La femme$_{+R\ +NP\ anim}$ qui applaudit la fille$_{+NP\ anim}$.
'The woman that is applauding the girl'

(107) La fille$_{+R\ +NP\ anim}$ qui prépare la tarte$_{+NP\ inan}$.
'The girl that is making the cake'

(108) L'explosion$_{+R\ +NP\ inan}$ qui réveille la fille$_{+NP\ anim}$.
'The explosion that is waking up the girl'

(109) L'orage$_{+R\ +NP\ inan}$ qui détruit le parapluie$_{+NP\ inan}$.
'The storm that is breaking the umbrella'

(110) La fille$_{+R\ +NP\ anim}$ que la maman$_{+NP\ anim}$ embrasse.
'The girl that the mom is hugging'

(111) La balle$_{+R\ +NP\ inan}$ que la fille$_{+NP\ anim}$ lance.
'The ball that the girl is throwing'

(112) Le garçon$_{+R\ +NP\ anim}$ que le vase$_{+NP\ inan}$ cogne.
'The boy that the vase is hurting'

(113) Le trou$_{+R\ +NP\ inan}$ que le tapis$_{+NP\ inan}$ cache.
'The hole that the carpet is covering'

In order to test comprehension of the relative clauses in Table 3.16, as in the comprehension experiment discussed in Chapter 2 (Exp. 3, Section 2.4.3), we used a game that involved the participant in a character selection task. In this game, the participant played on a laptop with Boot, the usual character from the cartoon Dora the Explorer, who spoke to him/her through the prerecorded voice of a French native speaker, as seen in (114) and Fig. 3.3[18]. Using a relative clause, Boot asked the participant to find a specific character or object among the ones showed in the pictures. In order to select the correct character or object, the participant had to correctly understand the relative clause (ex. (115) and Fig. 3.4).

(114) Boot : « Tu as envie de faire un jeu avec moi? Je te montrerai des personnages et des objets, et je te demanderai d'en trouver un. On essaie? ».

'Would you like to play a game with me ? I will show you some characters and some objects, and I will ask you to find one of them. Let's try.'
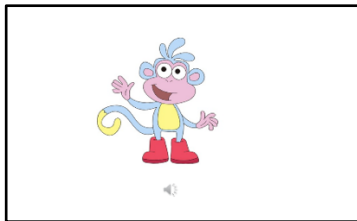
Fig. 3.3. Game screen for (114).

(115) Boot : « Ici il y a deux filles. Montre-moi la fille qui photographie la fleur. »

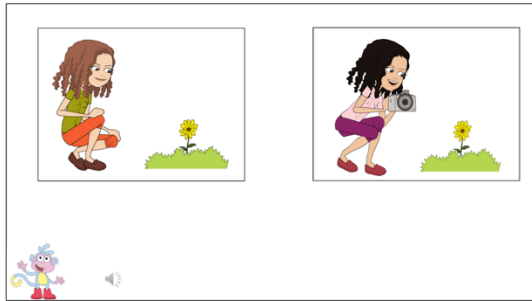'Here there are two girls. Show me the girl that is photographing the flower'
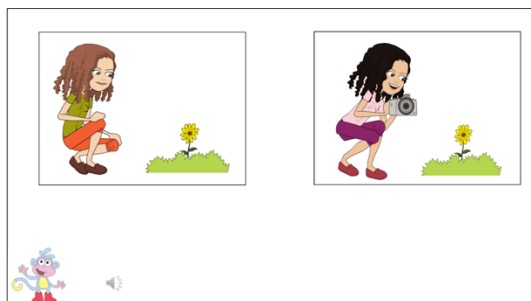
Fig. 3.4. Picture pair for trial (115).

---

[18] The sound editor Audacity was used to make the voice of the adult speaker sound like a child voice.

Funny slides with positive feedback were shown after each trial, irrespective of whether the participant's response was correct or not. The chance of gradually winning two medals, and finally a trophy, made the task similar to a tree-level game (Fig. 3.5).

Fig.3.5. Game screens for rewards.

As in the other experiments, each participant played the game in the presence of the experimenter in a separate room in his or her school or kindergarten. The experimenter did not impose a time limit or give response-contingent feedback. All responses were recorded on a response sheet and then transcribed and coded at a later stage. A preliminary meeting in the classroom preceded the individual testing sessions, in order to familiarize the children with Boot and the experimenter. The children happily engaged in the game.

Examples (116-124) and Figures 3.6-3.14. below show examples of items and picture pairs used to test the conditions in this experiment.

(116)   SR +An obj +An subj: Ici il y a deux garçons. Montre-moi le garçon qui embrasse le papa.
                                   'Here there are two boys. Show me the boy that is hugging the dad'
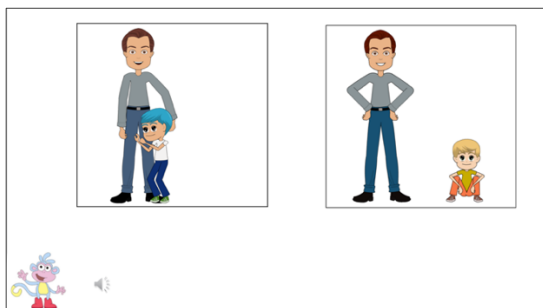
Fig. 3.6. Picture pair for trial (116).

(117) SR –An obj +An subj : Ici il y a deux filles. Montre-moi la fille qui photographie la fleur.

  'Here there are two girls. Show me the girl that is photographing the

  flower.'

Fig. 3.7. Picture pair for trial (117).

(118) SR +An obj –An subj : Ici il y a deux musiques. Montre-moi la musique qui endort la fille.

  'Here there are two melodies. Show me the melody that is putting

  the girl to sleep'
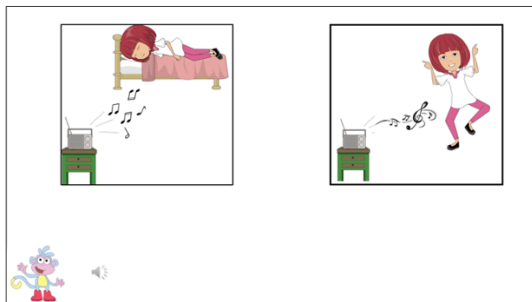
Fig. 3.8. Picture pair for trial (118).

(119) SR –An obj –An subj : Ici il y a deux orages. Montre-moi l'orage qui détruit le parapluie.

  'Here there are two storms. Show me the storm that is breaking the

  umbrella'
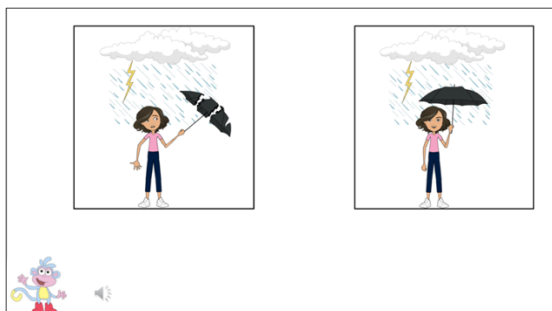
Fig. 3.9. Picture pair for trial (119).

(120) OR +An obj +An subj: Ici il y a deux filles. Montre-moi la fille que la maitresse gronde.

         'Here there are two girls. Show me the girl that the teacher is

          scolding'
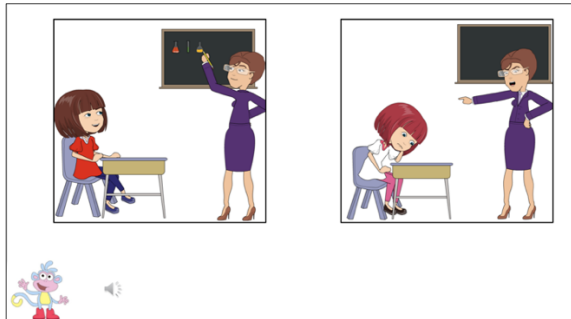
Fig. 3.10. Picture pair for trial (120).

(121) OR –An obj +An subj : Ici il y a deux chaises. Montre-moi la chaise que la fille peint.

          'Here there are two chairs. Show me the chair that the girl is painting'

Fig. 3.11. Picture pair for trial (121).

(122) OR +An obj –An subj: Ici il y a deux filles. Montre-moi la fille que l'explosion réveille.

          'Here there are two girls. Show me the girl that the explosion is

          waking up'
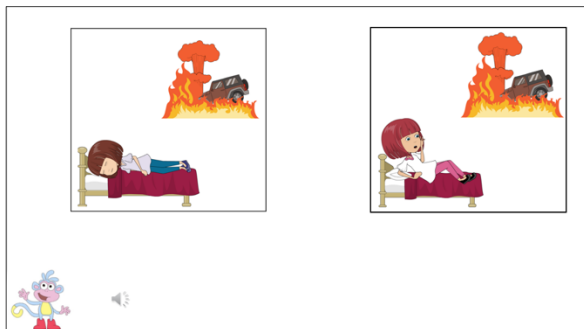
Fig. 3.12. Picture pair for trial (122).

(123) OR –An obj –An subj : Ici il y a deux trous. Montre-moi le trou que le tapis cache.

'Here there are two holes. Show me the hole that the carpet is hiding'
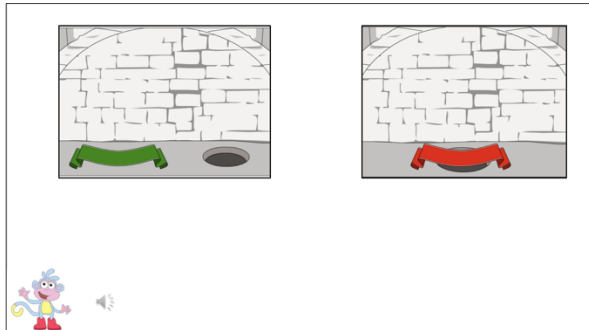
Fig. 3.13. Picture pair for trial (123).

(124) Filler : Ici il y a deux garçons. Montre-moi le garçon avec le pyjama vert.

'Here there are two boys. Show me the boy with the green pajama'
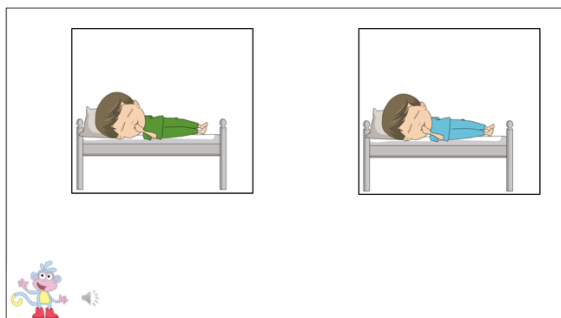
Fig. 3.14. Picture pair for trial (124).

Thus, for each experimental item, Boot introduced two characters or objects, about which the relative clause restricted. In the SR conditions (116-119) (Figures 3.6-3.9), the two pictures in each picture pair differed in the subject and in the action the subject was performing. In the OR conditions (120-123) (Figures 3.10-3.13), the two pictures in each picture pair differed in the object and in the action the object was undergoing.

Correct comprehension of the action in the item was thus sufficient for the participant to select the correct picture in the picture pair. This is why only the selection of the correct character in the correct picture verified that the participant successfully computed the relative clause, and why only such responses were coded as correct. The experimenter asked the participant to point to the specific character in the picture by touching the screen of the laptop, so that his/her response was clear.

The picture pair type often used in relative clause comprehension tasks, with two pictures representing the same characters and action but in reversed thematic roles (e.g., Friedmann & Novogrodsky 2004) could not be used for the non-reversible items in this task. We thus used the picture pair types shown in Figures 3.6-3.13 for both reversible and non-reversible items, with the aim of having the same picture pair type throughout the task, and we asked the participants to select a specific character instead of a whole picture.

3.4.4.3. *Coding*

We coded as correct response the selection of the correct character in the correct picture, such as the boy in the picture on the left in Figure 3.15 (125).

(125)   Ici il y a deux garçons. Montre-moi le garçon qui embrasse le papa.

'Here there are two boys. Show me the boy that is hugging the dad'
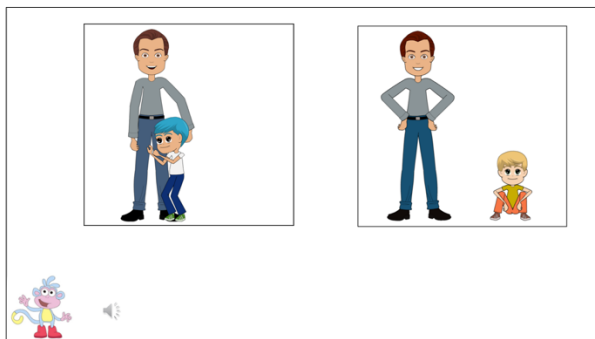
Fig. 3.15. Picture pair for trial (125).

We coded the following as non-target responses (using Figure 3.15 as an example): selection of the wrong character in the correct picture (the dad in the picture on the left), selection of one of the characters in the wrong picture (the boy or the dad in the picture on the right), and selection of the wrong picture (the picture on the right). We coded the selection of the correct picture (the picture on the left) as ambiguous, and excluded this type of response from the data points. As we did see in the previous section, the selection of the correct picture could indicate correct comprehension of the experimental item and inaccuracy in pointing with respect to the instructions, but it could also

indicate only a correct comprehension of the action distinguishing the two pictures. This type of response thus could not be confidently classified, and was removed from the data.[19]

3.4.4.4. *Results*

The effect of animacy. The children performed significantly better in the comprehension of SRs than in that of ORs (p<0.0001). Animacy mismatch had no impact on their performance (p=0.68). In the comprehension of SRs, the animacy configuration animate object-inanimate subject led to slightly worse performance than the other animacy configurations (p=0.02). The percentage of correct responses in the four SR conditions and four OR conditions is given in Table 3.17.

Table 3.17. % of correct responses in the SR conditions and in the OR conditions.
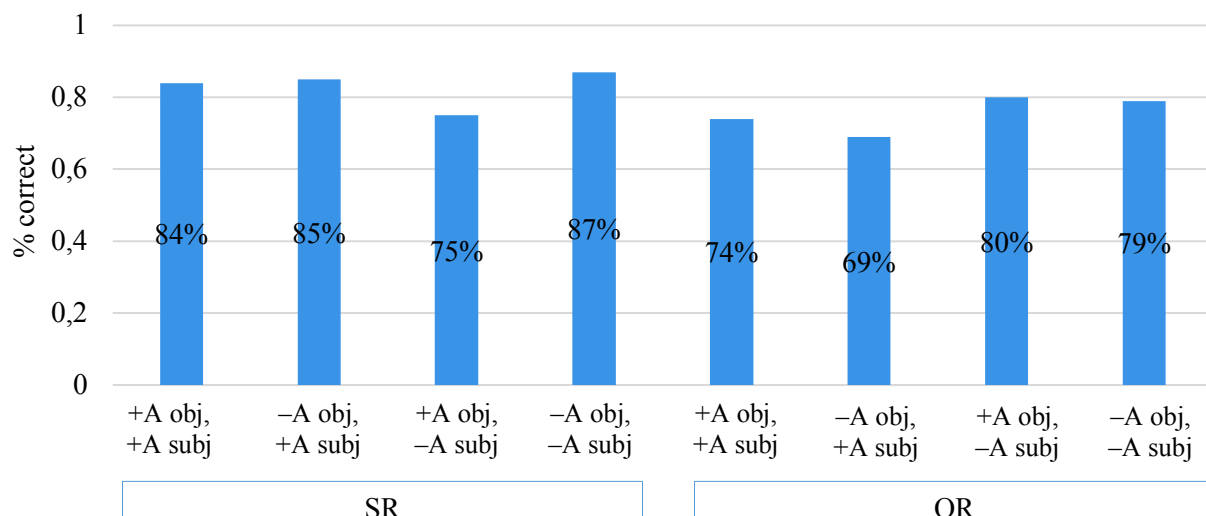
The most frequent error type across conditions was the selection of the wrong character in the correct picture (91% of all errors). This type of error might be traced backed to selection of the character based on computation of the part of the item following the complementizer, instead of

---

[19] Note that the participants were very careful in following the instructions, and they selected a specific character in the pictures in 81% of cases (1638/1952). In 18% of cases (355/1952) they selected only the correct picture in the picture pair, and in 1% of cases (14/1952) they selected the wrong picture. It is thus plausible that the cases of selection of the correct picture, rather than of the correct character, were errors. When this type of response was included in the data set and coded as incorrect, the results did not change. Note that the participants selected the correct picture to the same extent both in response to SRs and ORs.

the entire relative clause, that is, basing selection on the subject-verb sequence in ORs (*Le garcon que le papa embrasse, 'The boy that the dad is hugging'*) or on the verb-object sequence in SRs (*Le papa qui embrasse le garcon, 'The dad that is hugging the boy'*). Participants only selected a character in the wrong picture or the entire wrong picture in a few cases (9% of the errors). It is unlikely that this type of error is due to incorrect comprehension of the verb information distinguishing the two pictures in the picture pair. Indeed, all items contained very simple and frequent verbs, well-known to children. More plausibly, this type of error indicates an unsuccessful comprehension of the item and consequent arbitrary choice of character or picture to select, or distraction.

The effect of Age. The children's performance in the comprehension of subject and object relatives improved with age. In particular, the 5-year-old group performed better than the 3-year-old group, and the 7-year-old group performed better than the younger age groups. The participants performed better in the comprehension of SRs than in that of object relatives across age groups, and no interaction emerged between age and animacy mismatch or configuration.

Table 3.18. % of correct responses in the SR and OR conditions across age groups.
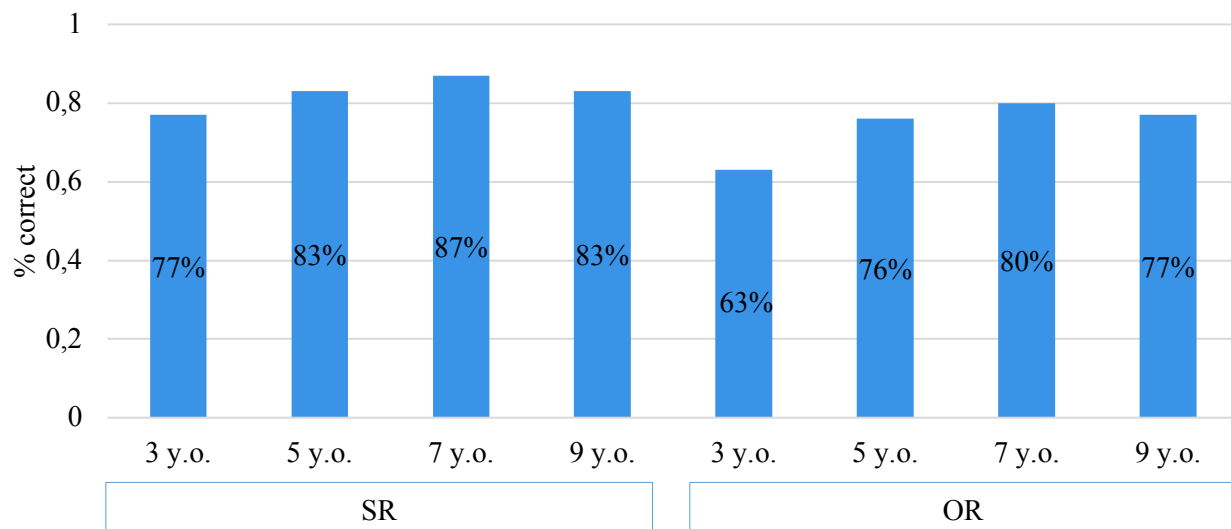
Language exposure. No asymmetries were found between the performance of monolingual, bilingual, and early L2 learner children.

The participants' performance in the filler condition. The children performed well with fillers across age groups, with 95% of responses correct in the 3-year-old group, 98% in the 5-year-old group, and 99% in both the 7-year-old and 9-year-old groups.

Data analysis. As in Experiments 4-6, the data were analysed with generalized mixed-effects models for binomial distribution. The data set consisted of 1952 data points with no exclusion of outliers. In order to assess the predictions from fRM on the effect of the STRUCTURE variable, based on the hypothesis that animacy is irrelevant to intervention in French, we run a model (Model 1) with STRUCTURE and MIS/MATCH as fixed factors, Age as a covariate, and *participants* and *items* as random factors, as well a model (Model 2) with STRUCTURE and ANIMACY CONFIGURATION as fixed factors, and *participants* and *items* as random factors.[20] In both models, response accuracy, representing accuracy in selecting the correct character, was the categorical dependent variable. We only expected a major effect of STRUCTURE on the children's comprehension of relative clauses, with significantly better performance in the comprehension of SRs than in the comprehension of ORs. Also, older children were expected to perform better than younger children. Tables SA36-SA37 report the fixed-effects for Models 1-2. Table SA38 reports the fixed-effects for Model 3, used to explore the effect of LANGUAGE EXPOSURE on participants' performance.

o   Model 1: STRUCTURE * MIS/MATCH + Age + (1|participant) + (1|item)
o   Model 2: STRUCTURE * ANIMACY CONFIGURATION + (1|participant) + (1|item)
o   Model 3: STRUCTURE * LANGUAGE EXPOSURE + Age + (1|participant) + (1|item)

Table SA36: Summary of fixed effects for Model 1, Experiment 7.

MODEL 1	Estimate	Std. error	Z value	P value
(Intercept)	0.72	0.28	2.54	0.011*
Structure: SR	0.81	0.19	4.11	<0.0001***
Mis/match : Mismatch	-0.09	0.23	-0.40	0.688
Interaction : SR & Mismatch	-0.50	0.26	-1.90	0.076
Age : 5 y.o.	0.61	0.30	2.01	0.044*
Age : 7 y.o.	0.86	0.30	2.81	0.004**
Age : 9 y.o.	0.65	0.30	2.12	0.033*

---

[20] Model 2b (below) with Age as a covariate showed the same results as Model 2, but failed to converge.
o   Model 2b: STRUCTURE * ANIMACY CONFIGURATION + Age + (1|participant) + (1|item)

Table SA37: Summary of fixed effects for Model 2, Experiment 7.

MODEL 2	Estimate	Std. error	Z value	P value
(Intercept)	1.06	0.24	4.40	<0.0001***
Structure: SR	0.78	0.25	3.02	0.002**
Animacy configuration : An In	0.78	0.33	2.34	0.019*
Animacy configuration : In An	-0.31	0.31	-1.01	0.30
Animacy configuration : In In	0.51	0.32	1.57	0.114
Interaction : SR & An In	-1.43	0.37	-3.85	0.0001***
Interaction : SR & In An	0.37	0.36	1.01	0.308
Interaction : SR & In In	0.09	0.40	0.23	0.815

Table SA38: Summary of fixed effects for Model 3, Experiment 7.

MODEL 3	Estimate	Std. error	Z value	P value
(Intercept)	0.48	0.28	1.68	0.091
Structure: SR	0.56	0.23	2.43	0.014*
Language exposure	0.38	0.25	1.50	0.131
Age : 5 y.o.	0.46	0.30	1.50	0.132
Age : 7 y.o.	0.84	0.30	2.80	0.005**
Age : 9 y.o.	0.54	0.30	1.80	0.071.
Interaction : SR & L1	-0.03	0.28	-0.12	0.90

3.4.4.5. *Interim discussion*

In Experiment 7 we investigated the comprehension of relative clauses with both animacy match and mismatch in French-speaking children. Following a grammar-based approach to intervention, such as fRM, we expected the same pattern of results found in production and in repetition (Experiments 5 and 6 respectively) to also emerge in comprehension. The experiment tested comprehension of object relatives with two lexical arguments in an intervention configuration, and of subject relatives with two lexical arguments, under different animacy conditions, in 3- to 9-year-old French-speaking children.

Consistent with the results from production and repetition (see Sections 3.4.2.5 and 3.4.3.5, respectively) and with the hypothesis that animacy is irrelevant to the grammatical principle of

locality in French, the results from comprehension showed no effect of animacy mismatch on the computation of intervention. 3- to 9-year-old French-speaking children encountered more difficulties in the comprehension of object relatives (130-133), than they did in the comprehension of subject relatives (126-129), in line with previous results on subject-object relative asymmetry. Animacy mismatch between subject and object in object relatives like in (131) and (132) did not improve their performance with these structures; that is, (131) and (132) were as difficult for children to comprehend as (130) and (133) were. Nor did animacy mismatch improve comprehension of subject relatives; that is, (127) and (128) led to the same performance as did (126) and (129).

(126) La femme$_{+R\ +NP\ anim}$ qui <la femme$_{+R\ +NP\ anim}$> applaudit la fille$_{+NP\ anim}$.
the woman that <the woman> is applauding the girl

(127) La fille$_{+R\ +NP\ anim}$ qui <la fille$_{+R\ +NP\ anim}$> prépare la tarte$_{+NP\ inan}$.
the girl that <the girl> is making the cake

(128) L'explosion$_{+R\ +NP\ inan}$ qui <l'explosion$_{+R\ +NP\ inan}$> réveille la fille$_{+NP\ anim}$.
the explosion that <the explosion> is waking up the girl

(129) L'orage$_{+R\ +NP\ inan}$ qui <l'orage$_{+R\ +NP\ inan}$> détruit le parapluie$_{+NP\ inan}$.
the storm that <the storm> is breaking the umbrella

(130) La fille$_{+R\ +NP\ anim}$ que la maman$_{+NP\ anim}$ embrasse <la fille$_{+R\ +NP\ anim}$>.
the girl that the mom is hugging <the girl>

(131) La balle$_{+R\ +NP\ inan}$ que la fille$_{+NP\ anim}$ lance <la balle$_{+R\ +NP\ inan}$>.
the ball that the girl is throwing <the ball>

(132) Le garçon$_{+R\ +NP\ anim}$ que le vase$_{+NP\ inan}$ cogne <le garçon$_{+R\ +NP\ anim}$>.
the boy that the vase is hurting <the boy>

(133) Le trou$_{+R\ +NP\ inan}$ que le tapis$_{+NP\ inan}$ cache <le trou$_{+R\ +NP\ inan}$>.
the hole that the carpet is covering <the hole>

In the comprehension of subject relatives, the animacy configuration animate object-inanimate subject led to slightly worse performance than the other animacy configurations. This might be due to the nature of the experimental items in that condition. In some items in that condition, as in

(134), interpretation of the inanimate noun phrase as instrument of the action, as in (135), was more natural than interpretation of the inanimate noun phrase as agent of the action. Indeed, the participants selected the wrong character in the correct picture – that is, in item (134), the girl in the picture on the left in Fig. 3.16, rather than the candle in the picture on the left – in that condition more often than in the other conditions, consistent with an interpretation of the argumental structure as in (135). See Appendix G for all items in that condition.

(134)   SR +An obj –An subj : (Montre-moi) la bougie qui brûle la fille.

                                    (show me) the candle that burns the girl
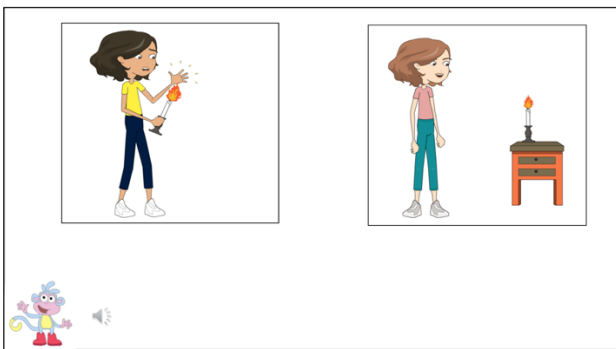
 Fig. 3.16. Picture pair for trial (134).

(135)   La fille qui se brûle avec la bougie.
         the girl that burns herself with the candle

No effect of animacy configuration emerged in object relatives, contrary to the results from Bentea (2017) on comprehension of object relatives in 7- to 11-year-old French-speaking children; see Section 3.3, examples (13-14).

Finally, we observed that children's performance in the comprehension of relative clauses improves with age.

To summarize, Experiment 7 tested the impact of animacy mismatch between subject and object on the comprehension of subject and object relatives in child French. The results from this experiment revealed an impact of structure on the comprehension of relative clauses by French-speaking children, such that subject relatives were comprehended better than object relatives, but

no impact of animacy mismatch, as relative clauses with animacy match were comprehended as well as those with animacy mismatch. Thus, the presence of animacy mismatch between subject and object does not seem to help children compute intervention in comprehension in French, just as it does not in production and repetition (Experiments 5 and 6), all in line with the predictions made by featural Relativized Minimality.

3.5. GENERAL DISCUSSION

The studies presented in this chapter aimed to assess whether the animacy feature is relevant to intervention locality in Italian and French. In Section 3.2, we saw that the fRM approach predicts the animacy feature to be irrelevant to the calculation of intervention in movement dependencies in both these languages, as, in both of them, such feature is irrelevant to movement, in the sense of Belletti et al. (2012) and Friedmann et al. (2017). In Section 3.3, we reviewed experimental evidence indicating that animacy mismatch in the configuration inanimate object-animate subject facilitates comprehension of object relatives with intervention in French (Bentea 2017; see Brandt et al. 2009, Kid et al. 2007, and Mak et al. 2002 for the same effect in English, German, and Dutch). We also saw, however, that animacy mismatch in the configuration animate object-inanimate subject does not facilitate production of the same structures in Italian (Belletti & Chesi 2014; see Traxler et al. 2002, Adani 2012, and Mak et al. 2006 for the same result in English, German, and Dutch). Moreover, we saw that animacy mismatch in the configuration inanimate object-animate subject improves acceptability of sentences with intervention in adult French, but not as much as do mismatches relevant for intervention in that language, under fRM, e.g. lexical restriction (Villata 2017). Further research was therefore needed to clarify these data on the role of animacy in intervention configurations in these languages.

In Experiments 4-7 we investigated the role of animacy in the computation of sentences with intervention in Italian and French, testing children's computation of object relatives with two lexical elements in an intervention configuration and with match or mismatch in animacy. We tested the following four animacy configurations: animate object-animate subject, inanimate object-animate subject, animate object-inanimate subject, and inanimate object-inanimate subject. We also tested subject relatives with two lexical elements in the same four conditions. We

investigated children's performance with these structures in production, repetition, and comprehension. According to fRM, we expected a major effect of structure, showing better performance with subject relatives (no intervention) than with object relatives (intervention), and no major effect of animacy mismatch on the computation of intervention in object relatives, across modalities.

Two major contributions of these studies are the investigation of the four possible animacy configurations, and the investigation of subject relatives in the same conditions. As discussed in Section 3.3., if animacy was relevant to the calculation of intervention in object relatives in these languages, animacy mismatch between object and subject would lead to better performance than would animacy match, regardless of the particular animacy configuration. Also, an effect of animacy related to intervention would not show up in performance with sentences such as subject relatives, which do not involve intervention. Another major contribution of this work is the analysis of the role of this feature in both sentence production and comprehension. Indeed, under featural Relativized Minimality, the same pattern of results is expected to emerge across modalities (see Section 1.3, Ch. 1, for the effect of featural mismatches relevant to intervention on both comprehension and production, and the lack of the same type of effect for featural mismatches irrelevant to intervention). Last but not least, this work aimed to contribute to the cross-linguistic study of these structures and of features relevant for their computation. To this aim, we compared two languages, Italian and French, for which fRM makes the same predictions with respect to the status of animacy for intervention. As seen again above in this section, a systematic assessment of the impact of animacy on the computation of sentences with intervention was missing in these languages.

Experiment 4 explored elicited production of relative clauses in 3- to 9-year-old Italian-speaking children. Experiment 5 tested elicited production of relative clauses in 3- to 8-year-old French-speaking children and in adult French speakers. Experiment 6 observed repetition of relative clauses in 3- to 8-year-old French-speaking children. Finally, Experiment 7 explored comprehension of relative clauses in 3- to 9-year-old French-speaking children. The following three main findings emerged from the four experiments : (i) in both Italian and French, SRs with two lexical noun phrases lead to better performance, in production, repetition, and comprehension,

than ORs with two lexical noun phrases in an intervention configuration; (ii) animacy mismatch has no selective effect on the computation of intervention in object relatives in Italian or French, neither in production nor in repetition or comprehension; (iii) in both Italian and French, animacy mismatch has a weak and unselective impact on production of correct relatives clauses, i.e. of both SRs and ORs.

The presence of subject-object relative asymmetry in the results from Experiments 4-7 is in line with previous literature (see Section 1, Ch. 1), and the predictions made by fRM. While the derivation of subject relatives with a lexical object and lexical subject involves no intervention between the two arguments, derivation of object relatives involves an intervention configuration between moved lexical object and lexical subject, as illustrated again in (136-151); such intervention configuration makes these structures harder to produce, repeat, and comprehend compared to subject relatives. Mismatch in animacy between the two lexical arguments in object relatives like in (145-146) and (149-150) does not help children compute intervention. Object relatives with animacy mismatch, as in (145-146) and (149-150), are as difficult to produce, repeat, and comprehend for children as those with animacy match, as in (144, 147-148, 151). Animacy mismatch does not modulate intervention configurations of inclusion between the featural specifications of moved lexical object and intervening lexical subject in object relatives like (144-151), because animacy does not enter into the calculation of intervention in Italian and French. Children thus struggle to compute such object relatives, given their particularly challenging intervention configuration (see Section 1.2, Ch. 1).

(136) Il maestro$_{+R\ +NP\ anim}$ che <il maestro$_{+R\ +NP\ anim}$> rimprovera il bambino$_{+NP\ anim}$.

the teacher that <the teacher> is scolding the boy

(137) Il bambino$_{+R\ +NP\ anim}$ che <il bambino$_{+R\ +NP\ anim}$> cucina il dolce$_{+NP\ inan}$.

the child that <the child> is making the cake

(138) Il film$_{+R\ +NP\ inan}$ che <il film$_{+R\ +NP\ inan}$> spaventa il bambino$_{+NP\ anim.}$

the movie that <the movie> is scaring the child

(139) La stufa$_{+R\ +NP\ inan}$ che <la stufa$_{+R\ +NP\ inan}$> riscalda la stanza$_{+NP\ inan.}$

the stove that <the stove> is warming the room

(140) L'homme$_{+R\ +NP\ anim}$ qui <l'homme$_{+R\ +NP\ anim}$> applaudit le garçon$_{+NP\ anim.}$

the man that <the man> is applauding the boy

(141) Le garçon$_{+R\ +NP\ anim}$ qui <le garçon$_{+R\ +NP\ anim}$> prépare le gâteau$_{+NP\ inan.}$

the boy that <the boy> is making the cake

(142) Le câble$_{+R\ +NP\ inan}$ qui <le câble$_{+R\ +NP\ inan}$> coupe le garçon$_{+NP\ anim.}$

the cord that <the cord> is cutting the boy

(143) La cheminée$_{+R\ +NP\ inan}$ qui <la cheminée$_{+R\ +NP\ inan}$> réchauffe la salle$_{+NP\ inan.}$

the fireplace that <the fireplace> is warming the room

(144) Il bambino$_{+R\ +NP\ anim}$ che il babbo$_{+NP\ anim}$ abbraccia <il bambino $_{+R\ +NP\ anim}$>.

the child that the dad is hugging <the child>

(145) Il pallone$_{+R\ +NP\ inan}$ che il bambino$_{+NP\ anim}$ tira <il pallone $_{+R\ +NP\ inan}$>.

the ball that the child is throwing <the ball>

(146) Il bambino$_{+R\ +NP\ anim}$ che il rumore$_{+NP\ inan}$ sveglia <il bambino$_{+R\ +NP\ anim}$>.

the child that the noise is waking up <the child>

(147) Il lenzuolo$_{+R\ +NP\ inan}$ che il temporale$_{+NP\ inan}$ inzuppa <il lenzuolo$_{+R\ +NP\ inan}$>.

the sheet that the storm is soaking <the sheet>

(148) Le garçon$_{+R\ +NP\ anim}$ que le papa$_{+NP\ anim}$ embrasse <le garçon$_{+R\ +NP\ anim}$>.

the boy that the dad is hugging <the boy>

(149) Le ballon$_{+R\ +NP\ inan}$ que le garçon$_{+NP\ anim}$ lance <le ballon$_{+R\ +NP\ inan}$>.

the ball that the boy is throwing <the ball>

(150) Le garçon$_{+R\ +NP\ anim}$ que le bruit$_{+NP\ inan}$ réveille <le garçon$_{+R\ +NP\ anim}$>.

the boy that the noise is waking up <the boy>

(151) La poussette$_{+R\ +NP\ inan}$ que la tempête$_{+NP\ inan}$ mouille <la poussette$_{+R\ +NP\ inan}$>.

the stroller that the storm is wetting <the stroller>

Interestingly, the results from production showed a weak and unselective effect of animacy mismatch on production of correct relative clauses; that is, children produced slightly more correct relative clauses in the elicited production of relative clauses with animacy mismatch than in that of those with animacy match. Such an effect of animacy mismatch cannot be related to fRM, as it

shows up in both the production of structures with intervention (object relatives) and structures without intervention (subject relatives), as well as in both the production of structures with an intervention configuration of inclusion to modulate (object relatives with two lexical arguments) and structures already containing an intervention configuration of disjunction (object relatives with a pronominal subject); see Sections 3.4.1.4 and 3.4.2.4 for detailed results. Furthermore, in French, the effect of animacy mismatch on the production of object relatives appears much smaller than the effect of lexical restriction mismatch, which is relevant to intervention locality according to fRM (see Section 2.4.2.4, Ch. 2). Lexical restriction mismatch between moved object and intervening subject helps children produce considerably more target object relatives than does lexical restriction match, whereas animacy mismatch makes children produce only a few more object relatives than does animacy match. Such a weak and structure unselective effect of animacy mismatch can be attributed to the facilitating effect that dissimilarity between arguments has on the computation of complex sentences such as relative clauses. Villata (2017) distinguished between the effect of features relevant for sentence processing and the effect of features relevant for intervention locality. While mismatch in the former helps memory encoding and retrieval of elements in a sentence, facilitating sentence processing in general, mismatch in the latter modulates intervention and significantly affects the computation of sentences involving intervention. In her study on adult French, the effect that animacy mismatch in the configuration inanimate object-animate subject had on acceptability judgments of that-clause sentences and wh-islands was much reduced, compared to the effect of lexical restriction mismatch. Similarly, she reported a weak effect of semantic reversibility on acceptability judgments of wh-islands in adult French. Results from Belletti et al. (2012) point in the same direction; gender mismatch has a major effect on the computation of object relatives in Hebrew, where gender is relevant to intervention, but a weak effect on the computation of subject relatives in Hebrew and on the computation of both subject relatives and object relatives in Italian, where gender is not relevant to fRM.

This weak unselective effect of animacy mismatch was not found in the results from repetition and comprehension (Experiments 6-7). We trace the absence of such an effect back to the nature of these experiments. The repetition task in Experiment 6 tested relative clauses in isolation (see Section 3.4.3.2) rather than complete sentences, differing from Kidd et al.'s (2007) study on relative clause repetition in English and German. This led to high percentages of correct repetitions in all age groups already in the match conditions, and might have prevented observation of a

facilitating effect of mismatch in the mismatch conditions. In Experiment 7 on comprehension, the presence of non-classifiable responses in the results due to the picture pair type used (see Section 3.4.4.2) may have caused an absence of clear asymmetries in the performance between the different experimental conditions. Interestingly, in both experiments the strong effect of structure still clearly emerges, with subject relatives proving easier to compute than object relatives across conditions.

3.6. CONCLUSIONS

The experimental work presented in this chapter was concerned with the role of the animacy feature for intervention locality. The results demonstrated that this feature does not affect the calculation of intervention in object relatives in production, repetition, or comprehension, neither in Italian nor in French, that is, in languages in which featural Relativized Minimality similarly predicts this feature to be irrelevant for intervention. In the languages we observed, children encounter difficulties in the computation of structures with two lexical arguments in an intervention configuration of inclusion, compared to those with two lexical arguments but no intervention, across modalities. Animacy mismatch between the two arguments does not help them compute structures involving such intervention, but only slightly and unselectively helps them compute all type of relative clauses.

Thus, in line with the predictions made by featural Relativized Minimality, the animacy feature does not enter into the calculation of intervention in languages such as Italian and French. While mismatches in features relevant to intervention have a significant selective impact on the computation of structures with intervention, and their impact is language specific (e.g. gender mismatch in Hebrew; see Belletti et al. 2012), mismatches in features irrelevant to intervention have a weak, unselective, and non-language specific, effect on the computation of complex structures in general (e.g. animacy mismatch in Italian and French). The grammatical featural Relativized Minimality approach captures these facts by considering the nature of movement dependencies and of morphosyntactic features across languages. Further research investigating the effect animacy has on intervention in those languages in which this feature seems, in the sense of fRM, to play a role in syntactic movement (e.g. Plains Cree and Georgian; see Section 3.2), would be extremely interesting.

Chapter 4: Passive object relatives

4.1. PASSIVE OBJECT RELATIVES AND INTERVENTION

As we saw in Chapters 2-3, previous studies on elicited production of relative clauses have revealed that, in languages like Italian and French, adults and children old enough to master passive tend to produce passive object relatives when active object relatives are elicited (1) (e.g. Guasti & Cardinaletti 2003, Delage 2008, Belletti & Contemori 2010, Contemori & Belletti 2014, and Belletti & Chesi 2014; but see also Adani et al. 2012, and Yatsushiro & Sauerland 2019 on German).

    (1) a. Elicited OR: … la bambina che l'amica spinge

                    '… the girl that the friend is pushing'

        b. Passive OR: …la bambina che è spinta dall'amica.

                    '… the girl that is pushed by the friend'

This also emerged in the results from our experiments on the elicited production of relative clauses in Italian and French (Experiments 1, 2, 4, and 5, discussed in Ch. 2 and 3). We report, in the tables below, the responses produced by participants in these experiments, in the elicitation of object relatives like (1a). We only focus here on the results from the OR with animate lexical relative head and intervening subject condition in the experiments, as those results are comparable across experiments and languages (see relevant sections in Ch. 2 and 3).[1] Note that the results from Experiment 1 on Italian are comparable with those from Experiment 2 on French, and the results from Experiment 4 on Italian are comparable with those from Experiment 5 on French, as the exact same methods were used across the two languages (see Sections 2.4.1 and 2.4.2 in Ch. 2, and

---

[1] In Tables 4.1-4.4 in the text, we report the total percentage of active object relatives produced by participants. For more details on the production of these structures see the relevant sections in Chapters 2 and 3.

Sections 3.4.1 and 3.4.2 in Ch. 3). For the purpose of discussion in this chapter, going forward we will refer to Experiments 1 and 2 as 'Study 1', and to Experiments 4 and 5 as 'Study 2'. As Tables 4.1-4.4 show, when object relatives were elicited, both adults and children produced active object relatives in very few cases; while younger children mostly produced incorrect subject relatives and other incorrect responses, older children and adults mostly produced correct passive object relatives.[2]

Table 4.1. Responses to elicitation of ORs produced by Italian-speaking participants in Study 1.
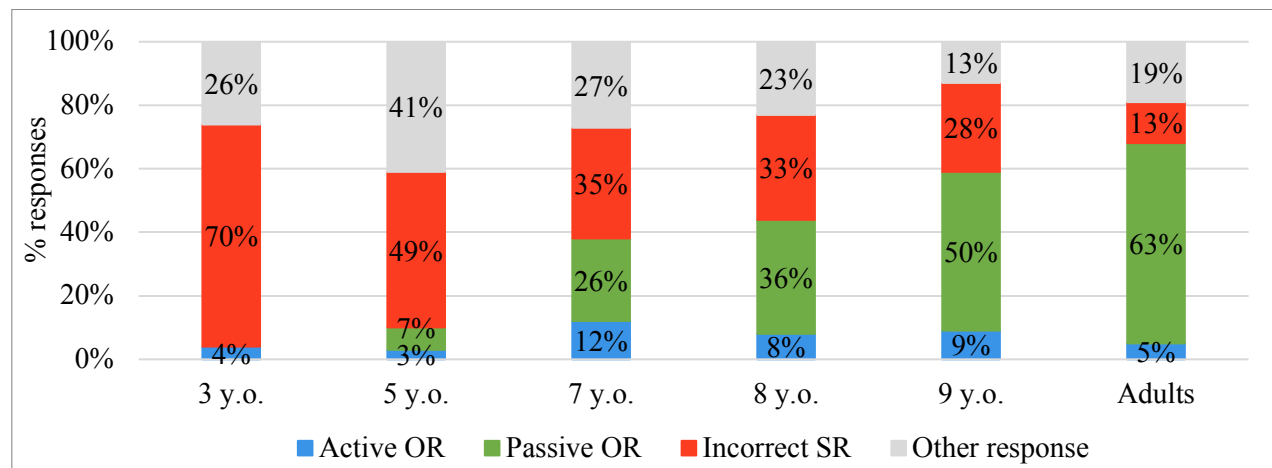
Table 4.2. Responses to elicitation of ORs produced by Italian-speaking participants in Study 2.

---
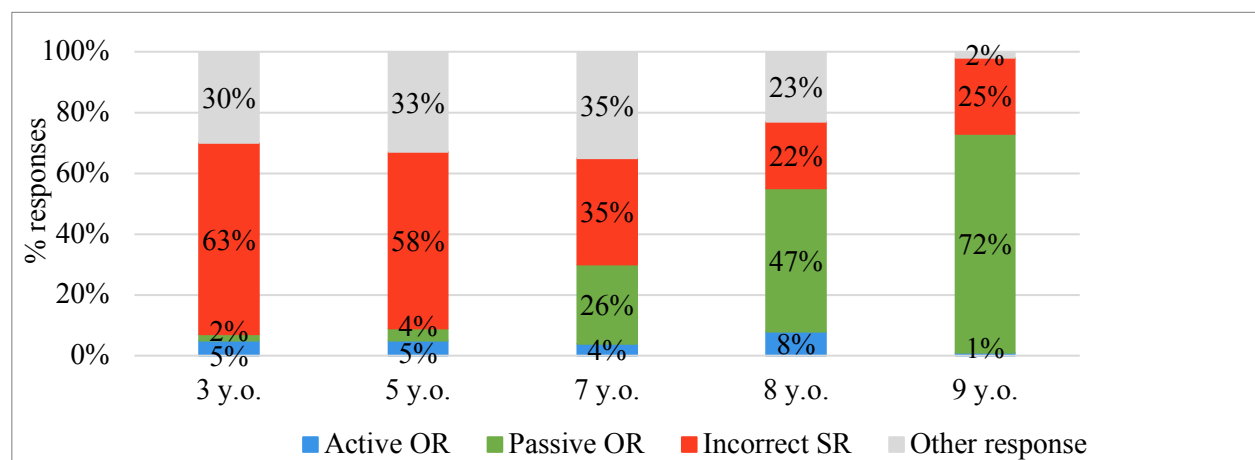
[2] We do not distinguish here between passive object relatives with a copular passive, passive object relatives with a causative passive, and reduced passive object relatives. See Section 4.2. on the different types of passive object relatives that participants produced.

Table 4.3. Responses to elicitation of ORs produced by French-speaking participants in Study 1.
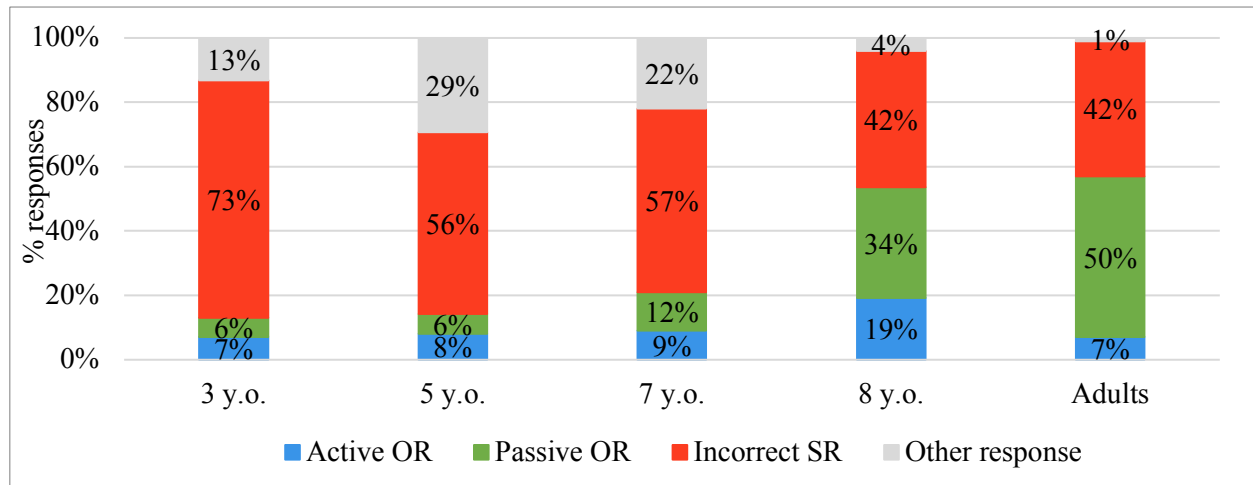
Table 4.4. Responses to elicitation of ORs produced by French-speaking participants in Study 2.
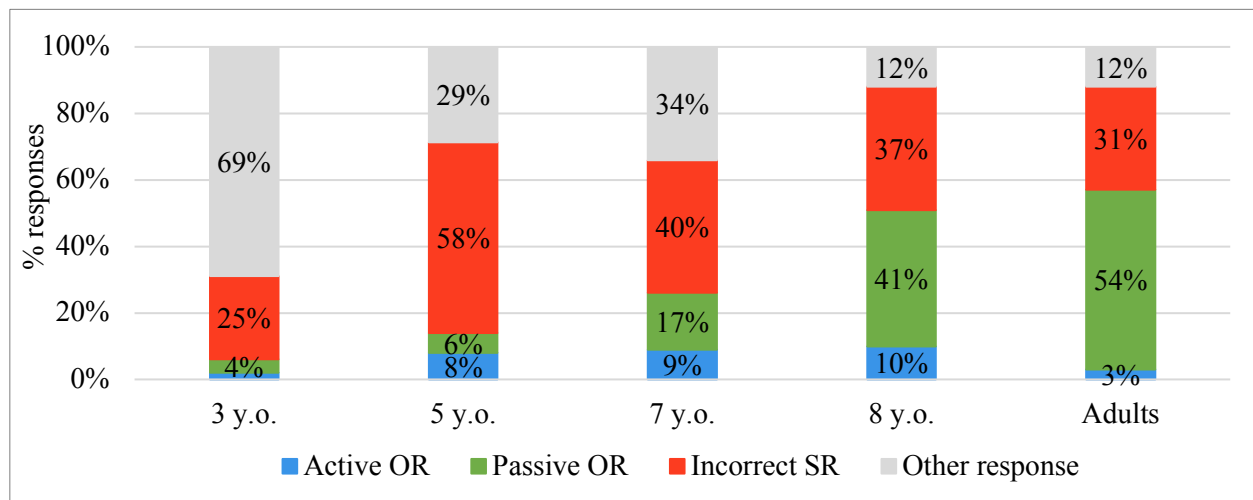
As presented in Chapter 2, following Belletti (2014) and related work, participants produce this type of structure when an object relative is elicited because it represents a fully correct answer to the elicitation that is easier to compute than the elicited structure. As the derivation repeated in (2) illustrates, in passive object relatives, the internal argument is smuggled over the external argument as part of a chunk of the verb phrase attracted by the passive voice; then it moves from the landing site of this chunk to the relative head position in the left periphery of the clause (Belletti 2014, based on the smuggling analysis of passive by Collins 2005; Belletti & Collins 2020 for a discussion of this type of derivation and other applications of smuggling; Bentea 2017 for results on object relatives involving smuggling from comprehension).

$$\downarrow \underline{\hspace{9cm}}|$$

(2) … la bambina$_{+R\ +NP}$ che [è [$_{vP}$ spinta <la bambina$_{+R\ +NP}$ >] da [$_{vP}$ l'amica$_{+NP}$ <VP>]]

$$\uparrow \underline{\hspace{10cm}}|$$

… the girl that [is [$_{vP}$ pushed <the girl>] by [$_{vP}$ the friend <VP>]]
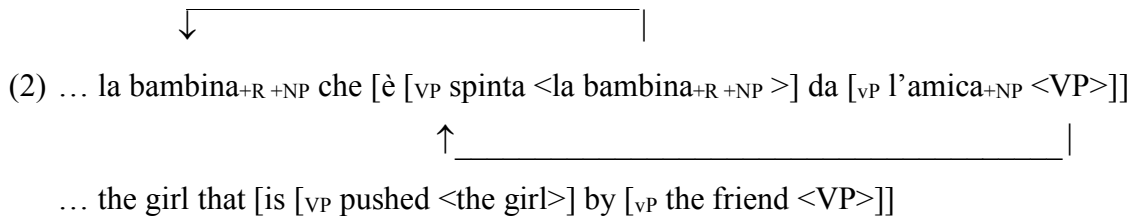
In this type of derivation, the subject does not represent an intervener in the movement of the chunk of the verb phrase triggered by the passive voice, and thus does not intervene in the movement of the object to the left periphery of the clause. The absence of intervention would make passive object relatives easier to produce than active object relatives involving intervention, like (3).

(3) … la bambina$_{+R\ +NP}$ che **l'amica**$_{+NP}$ spinge <la bambina$_{+R\ +NP}$>

$$\uparrow \underline{\hspace{9cm}}|$$

… the girl that the friend is pushing <the girl>
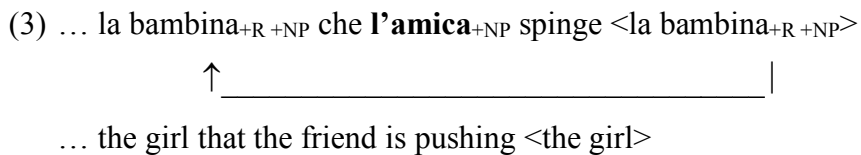
The absence of intervention would be the reason why passive object relatives also appear to be easier to compute than active object relatives in languages where this answer strategy is not productive, like English or Chinese. Both English-speaking adults and Chinese-speaking adults showed shorter reading times with passive object relatives than with active object relatives in Rohde and Gibson (2003), Lin and Bever (2006), Zukowski (2008), and Contemori and Marinis (2014).

Notice also that, from the results in Tables 4.1-4.4, Italian-speaking participants seem to resort to passive in response to the elicitation of object relatives to a greater extent than do French-speaking participants.

The tables above also show that use of passive in passive object relatives increases with age, and in particular grows drastically around the age of 8-9, in line with results from Contemori and Belletti (2014).[3] However, use of passive is already present at the age of 3, in line with recent

---

[3] Tables SA 39 – SA 42 below report the fixed effects for Models 1-4, which investigated the effect of age on the production of passive object relatives in these studies. Models 3 and 4 also revealed no difference in the production of passive object relatives between L1 and L2 French learner participants (see Sections 2.4.1.1 and 2.4.2.1 in Ch. 2).

o   Model 1 for Italian, Study 1: Passive ORs ~ age group + (1|participant) + (1|item)

o   Model 2 for Italian, Study 2: Passive ORs ~ age group + (1|participant) + (1|item)

evidence on passive showing that, even if full mastery is attained later, children are able to compute passive early in their development (Manetti & Belletti 2015, Volpato et al. 2016, and references therein).

These data on passive object relatives in Italian and French, coming from perfectly comparable experiments, also allowed us to look at similarities and differences in the use of passive between these languages. In the next section we will see what types of passive in passive object relatives

---

o   Model 3 for French, Study 1: Passive ORs ~ learner type + age group + (1|participant) + (1|item)
o   Model 4 for French, Study 2: Passive ORs ~ learner type + age group + (1|participant) + (1|item)

Table SA 39: Summary of fixed effects for Model 1, Passive ORs.

MODEL 1 for Italian, Study 1	Estimate	Std. error	Z value	P value
(Intercept)	-7.87	1.49	-5.27	<0.0001***
Age : 5 y.o.	0.91	1.72	0.53	0.596
Age : 7 y.o.	6.14	1.67	3.67	0.002**
Age : 8 y.o.	7.75	1.69	4.58	<0.0001***
Age : 9 y.o.	9.20	1.71	5.37	<0.0001***

Table SA 40: Summary of fixed effects for Model 2, Passive ORs.

MODEL 2 for Italian, Study 2	Estimate	Std. error	Z value	P value
(Intercept)	-6.18	1.21	-5.08	<0.0001***
Age : 5 y.o.	0.66	1.40	0.47	0.635
Age : 7 y.o.	3.83	1.28	2.97	0.002**
Age : 8 y.o.	5.40	1.30	4.13	<0.0001***
Age : 9 y.o.	6.90	1.33	5.16	<0.0001***

Table SA 41: Summary of fixed effects for Model 3, Passive ORs.

MODEL 3 for French, Study 1	Estimate	Std. error	Z value	P value
(Intercept)	-6.72	1.96	-3.42	0.0006***
FrenchL1	1.16	1.24	0.94	0.346
Age : 5 y.o.	-0.31	1.63	-0.19	0.844
Age : 7 y.o.	1.23	1.48	0.83	0.402
Age : 8 y.o.	4.36	1.70	2.56	0.001**

Table SA 42: Summary of fixed effects for Model 4, Passive ORs.

MODEL 4 for French, Study 2	Estimate	Std. error	Z value	P value
(Intercept)	-5.80	1.38	-4.19	<0.0001***
FrenchL2	-1.51	0.84	-1.79	0.073
Age : 5 y.o.	1.57	1.34	1.16	0.243
Age : 7 y.o.	3.39	1.34	2.51	0.011*
Age : 8 y.o.	5.84	1.55	3.76	0.0001***

are produced in Italian and French, across ages. Then, in Section 4.3, we will see that from very early on, children are able to compute both long and short passives, namely those with and without overt by-phrases, and use them in a felicitous manner with respect to the discourse context.

4.2. DIFFERENT TYPES OF PASSIVE OBJECT RELATIVES

Participants in Studies 1 and 2 produced different types of passive object relatives, all falling under the label 'passive object relatives' in the previous section. In addition to copular passive object relatives (with both *essere* and *venire* auxiliaries in Italian)[4] (4) and reduced passive object relatives (5), participants also produced causative passive object relatives (6).

(4) Copular Passive OR: … la fille qui est poussée par l'amie.

… la bambina che è/viene spinta dall'amica.

'… the girl that is pushed by the friend'

(5) Reduced Passive OR: … la fille poussée par l'amie.

… la bambina spinta dall'amica.

'… the girl pushed by the friend'

(6) Causative Passive OR: … la fille qui se fait pousser par l'amie.

… la bambina che si fa spingere dall'amica.

… the girl that si-makes comb by the friend

'… the girl that gets herself combed by the friend'

Following Manetti and Belletti (2015) and related work, in causative passive object relatives, the internal argument is moved as part of a chunk of the verb phrase (7), as in copular passive object relatives. However, in causative passive object relatives, such movement is attracted by the causative voice, unlike copular passive object relatives where that movement is attracted by the passive voice.

---

[4] Notice that both adult and child participants mostly produced copular passive object relatives with the *venire* (*'come'*) auxiliary, in line with the preference, observed in Italian, for *venire* (*'come'*) over *essere* (*'be'*), in the case of actional verbs in the present tense (Belletti & Guasti 2015).

(7) … la bambina che [si fa [$_{VP}$ spingere <la bambina >] da [$_{vP}$ l'amica <VP>]]

… the girl that [si-makes [$_{VP}$ push <the girl>] by [$_{vP}$ the friend <VP>]]
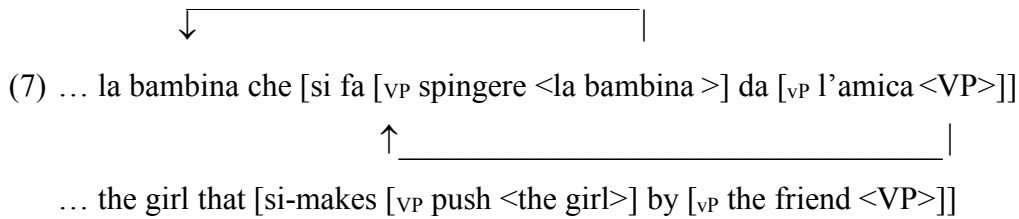
Causative passive is present in both Italian and French, but it would seem to differ in interpretation between the two languages. According to Labelle (2002), French causative passive does not convey any clear causative meaning; that is, Jean in (8) didn't cause the accident. In contrast, Italian causative passive does; Gianni in (9) was somehow involved in the cause of the accident (Belletti seminar class). Thus, causative passive would seem to convey the same meaning as copular passive in French, at least in certain contexts, but not in Italian.

(8) Jean s'est fait écraser par une voiture.
    John si-made hit by a car
(9) Gianni si è fatto investire da una macchina.
    John si-made hit by a car

[Belletti seminar class, quoting Labelle 2002 for French]

When we look at the types of passives produced by French- and Italian-speaking participants in our experiments on relative clauses, we observe that (i) causative passive is present in adult French, and it is the type of passive most frequently produced in child French; (ii) causative passive is not present in adult Italian, but it emerges in a small portion in child Italian; (iii) in both adult and child Italian, copular and reduced passives are present to almost the same extent, whereas in adult French copular passive is preferred over reduced passive, which in child French is nearly absent. This is shown in Tables 4.5-4.6, which report the percentages of the different types of passive object relatives produced in adult and child French and Italian, out of all the passive object relatives produced in the elicitation of ORs. Table 4.7 nicely shows the asymmetries between French and Italian, based on the results from Study 2 for children and Study 3 for adults. Notice that for the purpose of discussion in this section, we focus only on results from Study 2 since, as seen in Chapter 2, the experimental design of Study 1 led to a sort of automatism in answering the

elicitation with the same type of structure (see Section 2.4.1.5, Ch. 2).[5] Additionally, we report the results from Study 3, another study on the elicited production of object relatives with animate lexical head and subject, aiming precisely to explore passive object relatives in adult Italian and adult French.[6]

Table FN7. Types of Passive ORs produced in adult and child French in Study 1.

	Causative Passive ORs	Copular Passive ORs	Reduced Passive ORs
Adult French; Study 1	21%	69%	10%
Child French; Study 1	33%	64%	3%

Table FN8. Types of Passive ORs produced in adult and child Italian in Study 1.

	Causative Passive ORs	Copular Passive ORs	Reduced Passive ORs
Adult Italian; Study 1	0%	48%	52%
Child Italian; Study 1	2%	60%	38%

Table FN9. % of Passive ORs produced in child French across age groups in Study 1, out of all OR elicitations.

Child French (Study 1)	Causative Passive ORs	Copular Passive ORs	Reduced Passive ORs
3 y.o.	2%	5%	0%
5 y.o.	0%	6%	0%
7 y.o.	8%	1%	3%
8 y.o.	25%	9%	0%

Table FN10. % of Passive ORs produced in child Italian across age groups in Study 1, out of all OR elicitations.

| Child Italian (Study 1)	Causative Passive ORs	Copular Passive ORs	Reduced Passive ORs
3 y.o.	0%	0%	0%
5 y.o.	0%	4%	3%
7 y.o.	1%	14%	11%
8 y.o.	0%	24%	14%
9 y.o.	5%	27%	17%

Table 4.5. Types of Passive ORs produced in adult and child French.

	Causative Passive ORs	*Copular Passive ORs*	*Reduced Passive ORs*
Adult French (Study 2)	13%	67%	20%
Adult French (Study 3)	20%	53%	26%
Child French (Study 2)	64%	34%	2%

Table 4.6. Types of Passive ORs produced in adult and child Italian.[7]

	Causative Passive ORs	*Copular Passive ORs*	*Reduced Passive ORs*
Adult Italian (Study 3)	0%	50%	50%
Child Italian (Study 2)	7%	48%	45%

Table 4.7. Types of Passive ORs produced in adult and child French and Italian.
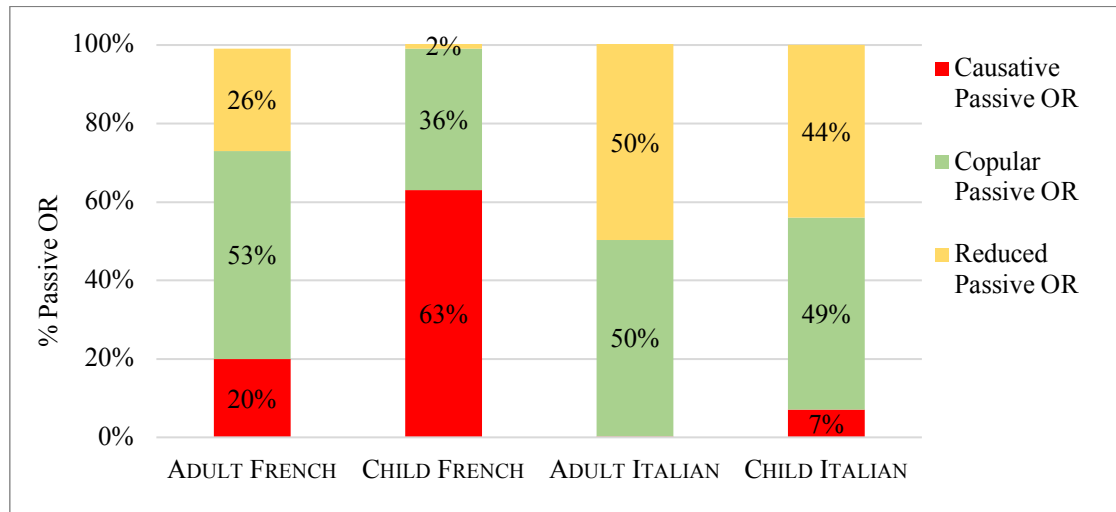
Note that the data from Studies 1, 2 and 3 involved very few occurrences of passive object relatives where the passive verb was ambiguous between a verbal passive and an adjectival passive reading, as in (I). Results were the same when these occurrences were coded as passive object relatives and when they were not.

(I) Le garcon (qui est) habillé.
    The boy (that is) dressed

[7] Note that Table 4.6 and Table FN 8 only report the results from the age-groups 3-8, in order to be comparable to Table 4.5 and Table FN 7 on French.

Finally, Tables 4.8-4.9 report the percentage of the different types of passive object relative produced in child French and Italian across ages, out of all responses to the elicitation of ORs. Importantly, in both languages, causatives are the only type of passive object relatives that emerges in younger children; see the 3-year-old groups in the tables below.

Table 4.8. % of Passive ORs produced in child French across age groups, out of all ORs elicitations.

Child French (Study 2)	Causative Passive ORs	Copular Passive ORs	Reduced Passive ORs
3 y.o.	4%	0%	0%
5 y.o.	2%	4%	0%
7 y.o.	13%	3%	1%
8 y.o.	24%	17%	0%

Table 4.9. % of Passive ORs produced in child Italian across age groups, out of all ORs elicitations.

Child Italian (Study 2)	Causative Passive ORs	Copular Passive ORs	Reduced Passive ORs
3 y.o.	2%	0%	0%
5 y.o.	0%	0%	3%
7 y.o.	3%	11%	11%
8 y.o.	1%	26%	19%
9 y.o.	3%	32%	33%

These findings on causative passive object relatives are in line with previous evidence on French and Italian, and with recent hypotheses on causative passive by Belletti and Manetti (2019) and related work (Manetti & Belletti 2015, Belletti 2017, and Belletti 2020). Use of causative passive as a preferred passivization strategy in passive object relatives in child French was also reported by Delage (2008). Except for the intuitions of adult French speakers about causative passive as a common passivization strategy (Delage 2008), no other evidence was available on adult French so far. Resorting to causative passive in passive object relatives in child Italian, but not in adult Italian, was also reported by Contemori and Belletti (2014), and Belletti and Chesi (2014).

Belletti and Guasti (2015) suggested that causative passive somehow has a special status for young children. Italian-speaking children resort to causative passive in production (see Contemori & Belletti 2014 on passive object relatives, but see also Manetti & Belletti 2015 on passive in a priming study, and Belletti & Manetti 2019 on passive in elicited production)[8], and find it easier to compute in comprehension (see Contemori & Belletti 2014 on comprehension of passive object relatives), compared to copular passive, even if this type of passive is nearly absent in their target language. In adult Italian, use of causative passive does not emerge in elicited production of passive object relatives (see Contemori & Belletti 2014, and Belletti & Chesi 2014), and is extremely rare in spontaneous production (see Belletti 2017). Remember that, unlike in adult French (examples (8-9) in this section), in adult Italian causative passive does not convey the same meaning as copular passive, and is felicitous only if associated to a causative meaning, which was not present in the experimental items of all these studies. According to the hypothesis by Belletti and Manetti (2019) and related work, causative passive could be preferred over copular passive in the first stages of development because it is easier to compute. In causative passive, the presence of an overt visible component of the causative voice (the verb *faire 'to do'*) could make the causative voice, which is responsible for the passive derivation in this construction, easier to identify. In contrast, in copular passive, the component *par 'by'* of the passive voice is not always overtly realized, possibly making the passive voice harder to recognize. The presence of the reflexive element *se* in causative passive could also help in accessing the relevant derivation, as a component of a derivation already mastered by children, reflexive passive. We refer the reader to Manetti and Belletti (2015) and Belletti (2020) for the details of these analyses. Regardless of the nature of the derivational components that would make causative passive easier to access for children than copular passive, such a hypothesis is able to capture the results from our studies. Following this hypothesis, in French, children would produce causative passive object relatives most of the time as those are easier to compute than copular passive object relatives, even if copular passive is preferred over causative passive in their target language (Tables 4.5 and 4.7). For the same reason, in Italian, children would firstly resort to causative passive in passive object relatives, even if such a passive

---

[8] Note that in the third experiment of Contemori and Belletti (2014), and in Belletti and Manetti (2019), use of causative passive by Italian-speaking children appears greater than in our study. This might be, at least in part, related to the Italian variety investigated, Tuscan in the case of Contemori and Belletti (2014) and Belletti and Manetti (2019), Romagnol in the case of our study. The type of task used across the studies (a picture description task in the third experiment of Contemori and Belletti (2014) and in Belletti and Manetti (2019), a preference task in our study), as well as differences in the experimental materials, might also have played a role.

is nearly absent in their target language (Tables 4.6 and 4.7). On this last point, see the interesting discussion in Belletti (2017) on children's grammatical creativity.

The results from the other experimental conditions in Study 2, which was designed to test the effect of animacy on relative clause production (see Sections 3.4.1 and 3.4.2 in Ch. 3), would seem to shed further light on the passive causative construction in these languages. Tables 4.10-4.12 report the percentage, in French and Italian, of the types of passive object relatives produced in the different animacy conditions of Study 2, out of all passive object relatives produced in response to the elicitation of object relatives. We observe that French-speaking children more frequently produce causative passive when the subject is animate, compared to when it is inanimate, although they produce causative passive in all animacy conditions (Table 4.10). French-speaking adults clearly prefer to use causative passive when the subject (and the by-phrase) is animate (Table 4.11), that is, when the construction can convey a causative meaning. When the subject of causative passive is inanimate, as in the causative passive object relatives in (10-11) produced by children, a causative interpretation is indeed not plausible; compare (10-11) to (12-13).

(10) Inanimate subject Animate by-phrase: La bague qui se fait prêter (par la fille).

                              The ring that se-makes lend (by the girl)

(11) Inanimate subject Inanimate by-phrase: Le drap qui se fait déchirer (par l'orage).

                               The blanket that se-makes tear (by the storm)

(12) Animate subject Animate by-phrase : La fille qui se fait accompagner (par l'amie).

                              The girl that se-makes guide (by the friend)

(13) Animate subject Inanimate by-phrase : La fille qui se fait chauffer (par la flemme).

                              The girl that se-makes warm (by the flame)

These further data would seem to suggest that, in adult French, causative passive is associated with a somewhat causative meaning, even if less pronounced than in adult Italian, as pointed out by Belletti (seminar class). Indeed, causative passive is not used as much as copular passive in adult French, as seen in Table 4.5 above. Thus, French-speaking children, in their path to mastery of passive, would resort to this structure in a larger range of contexts than would adults, as it is easier for them to access than copular passive. For the same reason, Italian-speaking children would also

resort to this structure, although in a much smaller proportion than do French-speaking children; see Table 4.12.

Table 4.10. Types of Passive ORs produced in child French across animacy conditions.

Child French	Causative Passive ORs	Copular Passive ORs	Reduced Passive ORs
(i) Animate subject Animate by-phrase	64%	34%	2%
(ii) Animate subject Inanimate by-phrase	67%	31%	2%
(iii) Inanimate subject Animate by-phrase	36%	59%	4%
(iv) Inanimate subject Inanimate by-phrase	55%	44%	%

Table 4.11. Types of Passive ORs produced in adult French across animacy conditions.

Adult French	Causative Passive ORs	Copular Passive ORs	Reduced Passive ORs
(i) Animate subject Animate by-phrase	15%	65%	20%
(ii) Animate subject Inanimate by-phrase	8%	84%	8%
(iii) Inanimate subject Animate by-phrase	0%	74%	26%
(iv) Inanimate subject Inanimate by-phrase	2%	85%	14%

Table 4.12. Types of Passive ORs produced in child Italian across animacy conditions.

Child Italian	Causative Passive ORs	Copular Passive ORs	Reduced Passive ORs
(i) Animate subject Animate by-phrase	7%	48%	45%
(ii) Animate subject Inanimate by-phrase	5%	45%	50%
(iii) Inanimate subject Animate by-phrase	3%	42%	55%
(iv) Inanimate subject Inanimate by-phrase	3%	40%	56%

These data on causative passive object relatives and animacy are in line with recent work by Belletti and Manetti (2020), showing that the subject of causative passive is typically animate in Italian; in the same type of elicited production task, Italian-speaking children resorted to causative passive when the subject was animate, whereas they did not when the subject was inanimate.

Further systematic investigation of use of causative passive in different contexts, in both children and adults, would be extremely interesting; such research would contribute to a better understanding of this construction and its role in acquisition in these languages.

In line with evidence from Contemori and Belletti (2014), the results from our studies also revealed that Italian-speaking adults use copular and reduced passives to a similar extent in producing passive object relatives; see Table 4.7 above in this section. As for Italian-speaking children, in our study, the 9-year-old group produced reduced passives with a by-phrase, that is, unambiguous verbal reduced passives, and resorted to reduced and copular passives in the same proportion, just like adults did; see Table 4.9. The younger groups, instead, produced reduced passives without a by-phrase. These latter also allow an adjectival passive reading.[9] It is thus difficult to determine to what extent children younger than 9 years resorted to reduced verbal passive in producing passive object relatives. Belletti (2017) suggested that reduced passive could imply some complexity; such complexity would be at the source of the very low production of reduced passives by Italian-speaking children in Belletti and Contemori (2010) and Contemori and Belletti (2014). The issue of the status of reduced passive in development remains thus unresolved for future research.

4.3.   SHORT AND LONG PASSIVES

In this section, we will present data on the passive object relatives produced by participants in Study 1, showing that from very early on, children are able to compute both short and long passives, namely passives without and with an overt by-phrase, and use them in a very felicitous way with respect to the discourse context.

Study 1, which was designed to explore the effect that the nature of the subject has on object relative production in Italian and French (see Sections 2.4.1 and 2.4.1, Ch. 2), included experimental conditions with both a given information agent and a new information agent. This allowed us to explore the use of passives in the passive object relatives produced in response to the elicitation of object relatives. Both short and long passives were appropriate in response to the elicitations of Study 1, such as (14), where the agent, and thus the by-phrase in passive object relatives, conveyed given information. In contrast, the short passive was infelicitous in response to such elicitations of Study 1 as (15), where the agent, and thus the by-phrase, represented new information. Indeed, elicitations like that in (14) introduced two different actions and only one possible agent in the

---

[9] The occurrences of reduced passive showed the passive form of the verbs *filmare* (to film), *rimproverare* (to scold), *salutare* (to greet), *consolare* (to console), *fotografare* (to photograph), and *punire* (to punish).

discourse context, whereas elicitations like that in (15) introduced one action and two possible agents in the discourse context.

(14) Due bambine cantano una canzone. Una signora ascolta una bambina, una signora applaude l'altra bambina. Tu quale bambina preferiresti essere?

Deux filles chantent une chanson. Une dame écoute une fille, une dame applaudie une fille. Quelle fille est-ce que tu préfèrerais être ?

'Two girls are singing a song. A lady is listening to a girl, a lady is applauding the other girl. Which girl would you rather be?'

Passive OR: La bambina che viene applaudita (dalla signora).

La fille qui est applaudie (par la dame).

'The girl that is applauded (by the lady)'

(15) Un papà vorrebbe accompagnare due bambini a scuola. Purtroppo però non ne ha proprio il tempo. Allora lui accompagna un bambino e qualcun'altro accompagna l'altro bambino. Tu quale bambino preferiresti essere?

Un papa aimerait conduire ses deux garçons à l'école, mais malheureusement il n'en a pas le temps. Alors il conduit un garçon et quelqu'un d'autre conduit l'autre garçon. Quel garçon tu préfèrerais être ?

'A dad would love to drive his two boys at school, but unfortunately, he has no time. So, he drives one boy, and someone else drives the other boy. Which boy would you rather be?'

Passive OR: Il bambino che viene accompagnato dal papà/da qualcun altro.

Le garçon qui est conduit par le papa/par quelqu'un d'autre.

'The boy that is drove by the dad/someone else'

A number of previous studies have reported an asymmetry in acquisition between short and long passives, according to which children encounter more difficulties with long passives compared to short passives (Horgan 1978, Fox & Grodzinsky 1998, Terzi & Wexler 2002, Hirsch & Wexler, 2006, and Rubin 2009). In contrast, several other studies have clearly showed that, when felicitous experimental conditions are used, 3- and 4-year-old children appear able to comprehend and produce short and long passives (Crain et al. 1987, Pinker et al. 1987, O'Brien et al. 2006, Bencini & Valian 2008, Messenger et al. 2009, 2012, Demuth et al. 2010, Manetti 2013, Volpato et al. 2016, and the review in Belletti & Guasti 2015 and Guasti 2016). Passives of non-actional verbs,

for instance, are known to be problematic for children, regardless of the presence of an overt by-phrase (Maratsos et al. 1985, Gordon & Chafetz 1990, Hirsh & Wexler 2006, and Volpato et al. 2016). Moreover, as seen above, the use of short and long passives interacts with discourse pragmatics; the short passive is felicitous when the by-phrase expresses given information, while the long passive is more likely to be used when the by-phrase expresses new information. Precise experimental conditions are thus needed in order to adequately explore the use of passives in acquisition. In Study 1, all verbs were actional and conditions with both given information and new information by-phrases were present. The results from this study can thus be interesting in this respect. We present the relevant results below.

Table 4.13 illustrates the types of passive that Italian- and French-speaking children produced in the given information by-phrase and new information by-phrase conditions. The table reports the percentage of short and long passives in passive object relatives, out of all passive object relatives produced. Tables 4.14-4.15 then report the percentage of short and long passives in passive object relatives, out of all OR elicitations, across age groups and by-phrase conditions.[10]

Table 4.13. Types of Passive ORs produced in child Italian and French, across by-phrase conditions.

---
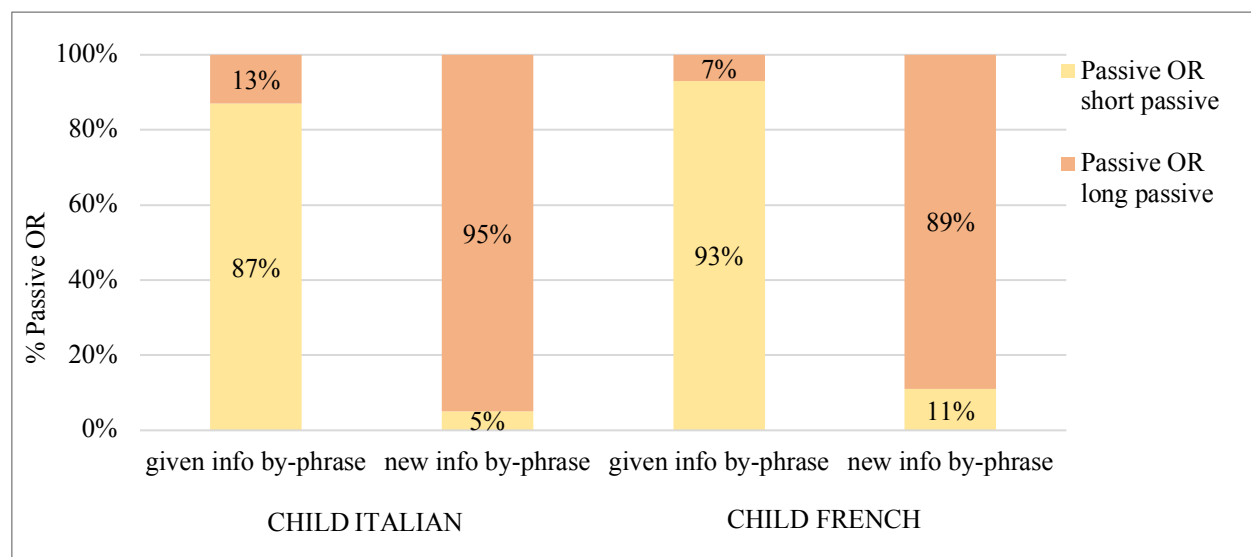
[10] For the purpose of discussion in this section, in what follows, we focus on the asymmetry between passive object relatives with short and long passives, without distinguishing between causative, copular or reduced passive object relatives; see Section 4.2.
In the Italian version of the experiment (see Section 2.4.1 in Ch. 2), the given information and new information by-phrase conditions included the same number of items, namely 8 each. In the French version (see Section 2.4.2 in Ch. 2), there were 8 items for the given information by-phrase condition and 4 for the new information by-phrase condition.

Table 4.14. % of Passive ORs produced in child Italian, out of all OR elicitations, across age-groups and by-phrase conditions.

CHILD ITALIAN		Passive OR short passive	Passive OR long passive
3 y.o.	given info by-phrase	2% (2/112)	0% (0/112)
	new info by-phrase	0% (0/112)	4% (5/112)
5 y.o.	given info by-phrase	6% (8/136)	1% (1/136)
	new info by-phrase	1% (1/136)	8% (11/136)
7 y.o.	given info by-phrase	28% (40/144)	5% (7/144)
	new info by-phrase	3% (4/144)	40% (57/144)
9 y.o.	given info by-phrase	48% (80/168)	9% (15/168)
	new info by-phrase	2% (3/168)	75% (126/168)
TOTAL	given info by-phrase	26% (185/704)	4% (28/704)
	new info by-phrase	2% (14/704)	40% (280/704)

Table 4.15. % of Passive ORs produced in child French, out of all OR elicitations, across age-groups and by-phrase conditions.[11]

CHILD FRENCH		Passive OR short passive	Passive OR long passive
3 y.o.	given info by-phrase	7% (9/120)	0% (0/120)
	new info by-phrase	0% (0/60)	13% (8/60)
5 y.o.	given info by-phrase	9% (13/144)	0% (0/144)
	new info by-phrase	6% (4/70)	0% (0/70)
7 y.o.	given info by-phrase	16% (32/200)	1% (2/200)
	new info by-phrase	2% (2/98)	20% (20/98)
8 y.o.	given info by-phrase	35% (45/128)	4% (5/128)
	new info by-phrase	0% (0/62)	34% (21/62)
TOTAL	given info by-phrase	17% (99/592)	1% (7/592)
	new info by-phrase	2% (6/290)	17% (49/290)

[11] In the new information by-phrase condition, 6 productions were excluded from the data set, as they were passive object relatives involving ambiguity between a verbal passive reading and an adjectival passive reading.

Notice that the focus of Tables 4.14-4.15 is not the amount of passive object relatives produced across conditions. In both Italian and French, children produced more active object relatives, and fewer passive object relatives, in the new information agent condition for reasons related to intervention locality (see relevant results and discussions in Sections 2.4.1 and 2.4.2 in Ch. 2). Instead, the significant point is the distribution of short and long passives in passive object relatives produced, with respect to the nature of by-phrases.

Finally, Table 4.16 illustrates the types of passive that Italian- and French-speaking adult control group produced in those conditions. The table reports the percentage of short and long passive in passive object relatives, out of all passive object relatives produced, across by-phrase conditions.

Table 4.16. Types of Passive ORs produced in adult Italian and French across by-phrase conditions.
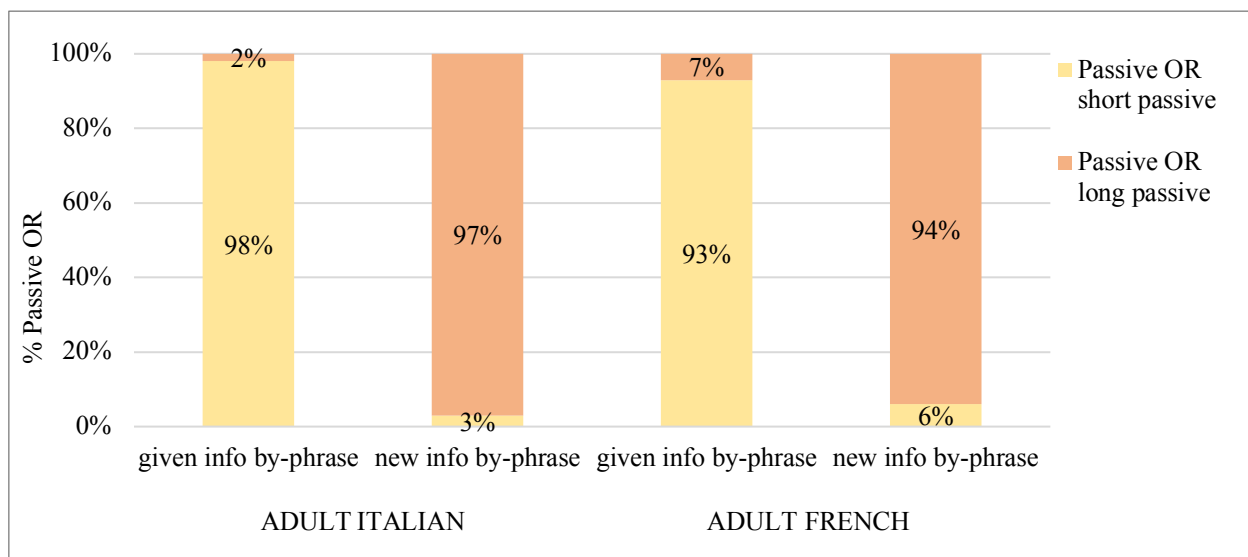
The tables above clearly show that, in both Italian and French, children almost always produced short passives when the by-phrase carried information already given in the discourse context set by the experimental condition, and almost always produced long passives when the by-phrase held new information, just like adults did. Such a distribution of short and long passives was consistent across age groups. Furthermore, both short and long passives were present in the 3-year-old group.

These results reveal that children, from very early on, master the syntax of both short and long passives, and use them in a felicitous way with respect to the discourse context.[12] By-phrases in passive constructions can indeed be omitted when they represent given information in the discourse, but must be overtly realized when they convey new information. These findings fall in line with recent evidence on Italian from Manetti (2013) and Volpato et al. (2016), and with an approach to passive along the lines of Collins (2005); see Section 4.1 surrounding (2). According to Collins's (2005) analysis of passive, short and long passives involve the same derivation; the external argument, merged as complement of by-phrase, is always present and active in the syntactic structure: it is left unpronounced in short passives (16), but it is overtly realized in long passives (17). Thus, the acquisition of short and long passives, all things being equal, is not expected to take place at different developmental stages.

(16) La bambina che è [$_{VP}$ applaudita <la bambina>] *da* [$_{vP}$ la signora <VP>]

    The girl that is [$_{VP}$ applauded <the girl>] *by* [$_{vP}$ the lady <VP>]

(17) La bambina che è [$_{VP}$ applaudita <la bambina>] *0* [$_{vP}$ PRO <VP>]

    The girl that is [$_{VP}$ applauded <the girl>] *0* [$_{vP}$ PRO <VP>]

To sum up, results from Study 1, which explored elicited production of relative clauses in Italian- and French-speaking children and adults, provided us with indirect evidence on use of short and long passives. Such an evidence revealed that, in both Italian and French, short passives are preferred when the by-phrase carries information already given in the discourse context, and long passives are preferred when the by-phrase carries new information. Children appear to have no particular difficulty with long passives; in fact, they appropriately use them in production already from the age of 3. These findings fall in line with recent evidence on acquisition and use of passive.

---

[12] Notice that results from Study 1 also showed that from very early on, Italian-speaking children also use pre- and post-verbal subjects in a manner felicitous to the discourse conditions. They produce pre-verbal subjects in object relatives when subjects express given information, and post-verbal subjects when subjects convey new information, in compliance with the syntax and discourse properties of Italian subjects. See Martini (2017) and references therein.

4.4. CONCLUSIONS

This chapter presented evidence on passive in Italian and French, from the passive object relatives produced in response to the elicitation of object relatives, in the production experiments of this dissertation. In both Italian and French, adults and older children produce passive object relatives when active object relatives are elicited. Under Belletti (2014) and the analysis of passive by Collins (2005), the absence of intervention in passive object relatives makes these structures easier to compute, compared to the elicited object relatives involving intervention. Use of this answer strategy in object relative elicitation in both Italian and French allowed us to observe passive in these languages in a comparative perspective.

The data we presented revealed a preference, in both Italian- and French-speaking children, for causative passive over copular passive in the early stages of development, which is not adult-like. These findings fall in line with recent evidence on causative passive in Italian, and with hypotheses by Belletti and Manetti (2019) for the privileged status that causative passive seems to hold in young children. Further research on use of this passive, in children and adults, will be extremely beneficial to a better understanding of this construction and its status in acquisition.

The evidence from passive object relatives also revealed that from very early on, in both Italian and French, children are able to compute short and long passives, and use them in a felicitous way with respect to the discourse context. Appropriate use of long passives in production is already present at the age of 3, in line with recent evidence on the acquisition of passive, showing that, even if full mastery of passive is attained later, children can compute passive early in development.

Chapter 5: Conclusions

The syntax of natural languages appears governed by fundamental locality principles: syntactic operations take place in limited portions of structure. According to the locality principle of featural Relativized Minimality (Rizzi 1990, 2004, 2013, Starke 2001), a local syntactic relation between two elements in the structure does not allow the intervention of an element representing a potential candidate in that relation. A number of studies have shown that young children experience difficulties in the comprehension and production of sentences involving intervention configurations. Difficulties with this type of sentence have also been observed in speakers suffering language pathologies and even in healthy adults, if in a smaller extent. The purpose of this thesis was twofold. It aimed to contribute to the understanding of a crucial aspect of syntactic complexity by empirically exploring child performance with the production and comprehension of structures including intervention, and structures apparently used as alternatives to intervention configurations in elicited production. It also aimed to contribute to understanding the nature of intervention effects, particularly understanding which features specifying the two elements in a local relation are relevant to the intervention locality principle. Empirical investigation of these phenomena was conducted in a cross-linguistic perspective, comparing two languages, French and Italian. The next section will summarize the major empirical findings and conclusions of this work.

5.1 SUMMARY OF THE MOST RELEVANT FINDINGS AND CONCLUSIONS

The main goal of this thesis was to empirically study aspects of syntactic locality, and of intervention locality in particular, in typical acquisition. The empirical investigation of these phenomena in acquisition was based on refined theoretical hypotheses and predictions from the featural Relativized Minimality approach to intervention. In a comparative perspective, two similar systems were observed, French and Italian. On one hand, these languages were expected to behave the same with respect to our main research questions, on the other, differences between the morphosyntactic properties of these languages allowed for interesting comparisons. Our

investigation focused on relative clauses, particularly on object relatives involving movement of the object across an intervening subject. Structures that are used in elicited production to avoid object relatives involving intervention, namely passive object relatives, were discussed as well, and the types of passive used in these structures were examined.

Chapters 2 and 3 focused on analysis of the role that two features, lexical restriction and animacy, held for intervention in movement dependencies. Results from a number of studies have strongly suggested that the presence of lexical restriction on moved element and intervening element in a dependency affects computation of that dependency, as reviewed in Section 2.3. These results are in line with fRM, which predicts that lexical restriction is relevant to the calculation of intervention between moved element and intervener, because is relevant to the construction of the dependency between moved element and its original position, as we saw in Section 2.2. However, a systematic analysis of the impact of lexical restriction in production was missing. Based on a grammatical approach such as fRM, the effect of features relevant to the intervention locality principle are expected to appear in both comprehension and production. Experiments 1 and 2 thus tested production of subject and object relative clauses, with the aim of exploring whether it is the presence of two lexical noun phrases in an intervention configuration that makes object relatives difficult to produce. Experiment 1 took advantage of the Italian post-verbal subject, and looked at Italian children's elicited production of headed subject relatives with a lexical object, headed object relatives with a lexical intervening preverbal subject, and headed object relatives with a lexical post-verbal non-intervening subject.[1] Experiment 2 exploited the French pronominal, and thus non-lexical, intervening preverbal subject, as well as the new information lexical intervening preverbal subject. It thus looked at French children's elicited production of headed subject relatives with a lexical object, headed object relatives with an intervening preverbal lexical subject, headed object relatives with an intervening preverbal pronominal subject, and headed object relatives with an intervening preverbal lexical subject that also expressed focal new information. In both experiments, the same conditions were also observed in adults. The results revealed that children only encounter special difficulties with sentences involving two lexical noun phrases when such noun phrases are in an intervention configuration; 3- to 9-year-old Italian-speaking children experience no difficulty in the production of subject relatives with lexical head and object (no

---

[1] Experiment 1 also tested headed object relatives with a null pronominal intervening subject, but limitations in the materials used led to unreliable results with respect to intervention locality; see Section 5.2 below.

intervention involved), and perform better with object relatives involving a lexical head and post-verbal subject (no intervention under smuggling) than with those involving a lexical head and preverbal subject (intervention). Moreover, object relatives are particularly challenging for children when the two lexical noun phrases are in an intervention configuration of inclusion. 3- to 8-year-old French-speaking children perform better in the production of object relatives with mismatch in the new information focus feature between lexical object and preverbal subject (a configuration of intersection) than in the production of those whose lexical object and preverbal subject express given information (a configuration of inclusion). Crucially, when the intervening subject is a non-lexical element, such as a pronoun, child and adult performance in the production of headed object relatives also improves; both French children and adults perform better in the production of headed object relatives with a pronominal preverbal subject (a configuration of disjunction) than in that of headed object relatives with a lexical preverbal subject (a configuration of inclusion). These results showed that difficulties in the production of certain object relatives stem from the presence of an intervening subject sharing the lexical feature with the target of the object dependency. This is also shown by the fact that elicitation of object relatives with two lexical arguments in an intervention configuration of inclusion led to more errors than the other elicitations, for both children and adults and in both languages. Results from Experiment 3, exploring French children's comprehension of the same structures, corroborated this conclusion. 3- to 9-year-old French-speaking children perform better in the comprehension of headed subject relatives with a lexical object and headed object relatives with an intervening pronominal subject, than they do in that of headed object relatives with an intervening lexical subject. All these findings confirm the hypothesis from fRM on the relevance of the lexical restriction feature for intervention, and previous evidence from comprehension and other languages (e.g. Friedmann et al. 2009). In both French and Italian, lexical restriction does enter the calculation of intervention in object relatives. These findings also reaffirm the potential of a theory such as fRM, which is able to capture the gradation present in intervention effects, originating from the possibility of different configurations between the featural specifications of target and intervener.

The goal of Chapter 3 was to analyse the effect that animacy has on the computation of sentences involving intervention. A number of studies have shown that animacy of the arguments affects the comprehension of sentences with intervention. Object relatives with inanimate object and animate subject have appeared easier for children to comprehend and for adults to process,

compared to object relatives with an animate object and subject, as we reviewed in Section 3.3. However, a structured investigation of the impact of this feature on intervention was missing. First, we lacked structured evidence for the effect of this feature in production. We saw that the grammatical effect of features relevant for the intervention locality principle is expected to emerge in both comprehension and production. Second, we lacked clear evidence for the facilitating effect of mismatch in animacy, as opposed to match in animacy. Speakers' performance with sentences including intervention is expected to improve in the presence of a featural mismatch, between target and intervener, relevant for intervention. While there were data on the improving effect of the configuration inanimate object-animate subject (vs animate object-animate subject), the improving effect of the mismatch configuration animate object-inanimate subject was not clear. Thus, in Experiments 4-7 we systematically examined the effect of mismatch in animacy on the computation of object relatives with intervention. Crucially, we looked at two languages, French and Italian, for which featural Relativized Minimality makes the same predictions with respect to animacy and intervention. In both languages, animacy seems to be irrelevant to movement in the sense of fRM, and is thus predicted to be irrelevant to the calculation of intervention in movement dependencies, as discussed in Section 3.2. Experiments 4 and 5 analysed the effect of mismatch in animacy on relative clause production in child Italian and French. These experiments tested both object and subject relatives, manipulating the animacy feature of subject and object in the four configurations possible. In animacy match: animate object-animate subject and inanimate object-inanimate subject; in animacy mismatch: inanimate object-animate subject and animate object-inanimate subject. In both subject and object relatives the two noun phrases were lexical. Subject relatives included no intervention, whereas object relatives involved intervention of a preverbal subject. The results revealed that in both Italian and French, for 3- to 9-year-old children, the production of subject relatives (no intervention) is easier than that of object relatives (intervention), and that mismatch in animacy does not modulate the intervention configuration involved in object relatives in production. In contrast, mismatch in animacy between the two arguments unselectively and mildly helps child production of relative clauses in general, both of subject relatives (no intervention) and object relatives (intervention), as well as of object relatives with and without a lexical preverbal subject (that is, with and without an intervention configuration of inclusion). Using the same materials, Experiment 5 tested French-speaking adults, and revealed no effect of animacy on their performance, in line with previous evidence from elicited production on adult

Italian. Experiments 6 and 7 analysed French children's performance with the same structures in repetition and comprehension. The aim of these last two experiments was to explore the effect of mismatch in animacy on sentence computation in different modalities, in order to discriminate between a grammatical type of effect and other types of effects. In line with the evidence from production, the results from repetition and comprehension showed no improvement of children's performance in the animacy mismatch conditions, compared to the animacy match conditions. The data obtained from Experiments 6-7 only showed the asymmetry between performance with subject relatives and that with object relatives. Taken together, the results from Experiments 4-7 indicate that French operates similarly to Italian with respect to the status of the animacy feature for intervention. In both languages, animacy does not enter the calculation of intervention in object relatives, in line with predictions from fRM. Mismatch in animacy does not, in comprehension or production, significantly modulate the intervention configuration of inclusion involved in object relatives with a lexical head and a lexical preverbal subject, which speakers find challenging. Such a mismatch between the two noun phrases can, however, help in the computation of complex structures like relative clauses in general. These results substantiate the potential of the fRM approach to intervention, which appears able to distinguish between the intervention- and language-specific major effect of features relevant to the grammatical locality principle (e.g. lexical restriction) and the non-intervention-specific, non-language-specific mild effect of features irrelevant to that principle (as previously shown by Belletti et al. 2012 and Villata 2017).

French and Italian also provided suitable languages for the observation of passive object relatives, that is, relative clauses in the passive that speakers produce in response to the elicitation of active object relatives instead of the target structures. Passive object relatives were the focus of Chapter 4. As discussed in Section 4.1, use of these structures in the elicitation of object relatives is attested in languages like Italian, French, or German, and traced back to the fact that such structures represent an appropriate answer to the elicitation, which, contrary to the elicited construction, does not involve intervention. In line with previous studies, and in both Italian and French, older children and adults resorted to passive object relatives in the elicitation of object relatives in Experiments 1, 2, 4, and 5 on production. This was the case both in the elicitation of object relatives involving inclusion between object and subject, and in that of object relatives involving intersection or disjunction, proving that both children and adults prefer structures that do not involve intervention over structures that do. Resorting to passive object relatives offered us the

possibility to look at passives in these two languages, once again from a comparative perspective. Particular attention was devoted to the causative passive. Previous studies from Belletti and Manetti (2019 and related work) have indicated that Italian-speaking children, in the early stages of development, have a preference for causative passive over copular passive, which is not adult-like. In adult Italian causative passive is in fact not used in elicited production in the same discourse conditions, and is extremely rare in spontaneous production. Those studies have suggested that causative passive might be preferred in acquisition, as is easier to compute compared to copular passive. The results from Experiments 4 confirmed this in Italian; Italian children did use causative passive in passive object relatives, whereas Italian-speaking adults in the same conditions did not. Crucially, causative passive was the first type of passive to emerge in children's productions. The results from Experiments 5 provided new evidence on French. Those results showed that French children prefer causative passive over copular passive in passive object relatives, and resort to it much more frequently than do Italian children; in adult French, while use of causative passive is present, unlike in adult Italian, copular passive is still preferred in the same conditions. These findings support the hypothesis that causative passive has a special status in acquisition, and bring to light differences between Italian and French with respect to the use of this construction.

In Chapter 4, by comparing results from experimental conditions in which the agent was new information in the discourse context and those in which the agent was given information (Experiments 1-2), we also observed that, in line with recent evidence on the acquisition of passives, children master syntax and prosodic properties of both short and long passives from the age of 3, even if productive mastery is attained later. Indeed, in both Italian and French, they produce short passives when the by-phrase conveys given information, but they produce long passives when the by-phrase conveys salient information, just as adults do.

5.2. FURTHER THOUGHTS

The data on passives we obtained from the production of passive object relatives, in object relative elicitation, open the way to new research questions.

As far as Italian is concerned, we mentioned that use of causative passive in Italian young children appears greater in other studies (Belletti & Manetti 2019, Contemori & Belletti 2014) than it does in ours. We suggested that this could be, at least in part, related to the Italian variety investigated

across the studies; Tuscan in the case of those authors, Romagnol in our case. The type of task used across studies could also have played a role; Contemori and Belletti (2014) in their third experiment and Belletti and Manetti (2019) used a picture description task, whereas we used a preference task. This latter provides the participants with more defined discourse context, leaving less room for interpretation of the scene, e.g. a causative interpretation of the verb. Differences in the experimental items, more or less allowing a causative interpretation, could also be the source of such asymmetry between these studies. Exploring the use and properties of causative passive across Italian variates, and the effect of certain experimental materials, would shed light on our understanding of this construction and its role in acquisition.

As far as French is concerned, it would be interesting to corroborate the evidence from production data on the privileged status of causative passive in acquisition (reviewed above) with evidence from comprehension. Causative passive has appeared easier to comprehend for Italian-speaking children than copular passive (Contemori & Belletti 2014). Analysis of comprehension would be worthwhile in French as well. Also, it would be important to corroborate the findings on French summarized above with observations of causative passive in simple passive sentences, rather than in passive object relatives, as was done for Italian (Manetti & Belletti 2015, Belletti & Manetti 2019).

The causative meaning of the causative passive construction in French also remains to be clarified. Labelle (2002) claimed that French causative passive does not convey a clear causative meaning; at least in certain contexts, it seems to express the same meaning as copular passive. Our results showed that, in contexts with no causative interpretation, French speaking adults sometimes use causative passive, unlike Italian-speaking adults, but prefer copular passive. This might suggest that French causative and copular passives do not have the same interpretative properties. A systematic analysis of the interpretative properties characterizing the causative passive structure in French and Italian is needed, both in children and adults. Such analysis would cast light on the use of this structure in these adult and child systems.

Finally, based on passive object relative production in our studies, Italian-speaking children and adults seem to resort to passive object relatives, in general, to a greater extent than do French-speaking children and adults. Further targeted investigation could confirm or rebut the existence of a difference between Italian and French in resorting to this strategy in object relative elicitation tasks.

Let us now turn to the experiments exploring lexical restriction. The elicitation, in child Italian, of headed object relatives with a null pronominal, and thus non-lexical, preverbal subject showed the same results as that of headed object relatives with a lexical preverbal subject; this was surprising under fRM. We suggested that the lack of an ameliorating effect caused by the pronominal nature of the intervening subject in this experiment was due to limitations in the elicitation we used. In this elicitation, a null pronominal subject was used to refer to the subject of the previous sentence. Such use of the null pronominal subject might be not fully appropriate. In the French experiment, use of an overt weak pronominal preverbal subject in the same discourse conditions helped children produce headed object relatives more than did a lexical preverbal subject, even if this difference was less overwhelming than expected. This asymmetry between Italian and French results, with respect to elicited production of object relatives with a pronominal subject, seems to open a question on the discourse properties of null pronominal subjects and overt weak pronominal subjects in these languages. In order to assess such properties, a new acceptability judgement experiment could test the appropriateness of null and overt weak pronominal subjects in different discourse conditions, with Italian- and French-speaking adults respectively.

Once the discourse conditions of Italian null pronominal subject were defined, it could be worthwhile to explore children's comprehension of headed object relatives with a null pronominal subject. Analysis of children's comprehension of headed object relatives with an overt weak pronominal subject in French provided clear evidence for the facilitating effect of the pronominal (rather than lexical) nature of the intervening subject on computation of object relatives with a lexical head.

Production results from French showed that mismatch in the new information focus feature between subject and object improves children's computation of object relatives with a lexical object and intervening preverbal subject. The same effect did not emerge in comprehension. While children produced object relatives with a new information focal preverbal subject in elicited production, showing better performance with these structures than they did with object relatives containing a given information preverbal subject, they found them just as hard to comprehend. We hypothesized that this could be due to the nature of the experimental items used in the comprehension experiment. It could be that the new information focal subject used in the comprehension experiment did not show the appropriate prosody. This would explain why the ameliorating effect of mismatch in the new information feature between lexical target and

intervener did not emerge in comprehension, but did in production, where the participants themselves produced those structures. The prosodic properties of French new information preverbal subjects still need to be clarified. A prosodic analysis of these subjects, in comparison with aboutness subjects, would be an interesting topic for a new study, also in a comparative perspective with languages where new information preverbal subjects are clearly associated with a special stress, e.g. English.

Once the prosody of French new information preverbal subjects was clarified, children's comprehension of headed object relatives with new information lexical preverbal subject (vs that of headed object relatives with a given information lexical preverbal subject) should be retested. In order to confirm the production results indicating the relevance of the new information focal feature to intervention, it would also be very interesting to study the effect of this feature on the computation of object relatives with intervention in other languages, like English, where such feature specifies the preverbal intervening subject. To the best of our knowledge, our experiment was the first to explore the impact of the new information focus feature on intervention. Further investigation of the role of this feature for intervention locality in other languages, and other object dependencies, would thus be important for confirming the evidence we presented.

This dissertation presented experimental work on the animacy feature, clearly showing that, in Italian and French, this feature does not enter the calculation of intervention in movement dependencies, as predicted by fRM, based on the status this feature holds for syntactic movement in such languages. Nonetheless, the animacy feature could have a different status in other systems. In Plains Cree or Georgian, for instance, animacy has shown to be relevant for subject-verb agreement. Based on evidence showing that features relevant in movement to the subject position are also relevant for intervention, all things being equal, fRM would predict the animacy feature to be relevant for intervention locality in such languages. It would be fundamental to investigate the role animacy plays for intervention in languages for which fRM makes different predictions, so as to verify what exactly defines an intervener in a given language. The results from Belletti et al. (2012) on the different status of the gender feature in Italian and Hebrew has indeed shown the fruitfulness of studying the same feature cross-linguistically. Also, the effect of mismatch in animacy should be tested, in the same language, across different structures involving intervention. Recent work by Belletti and Manetti (2020) on animacy and Italian object clitic left dislocations represents a step in this direction.

Last but not least, this thesis stressed the importance of exploring these structures, and the impact of featural mismatches on their computation, in production as well as in comprehension. Grammar-based approaches indeed predict that grammatical effects emerge in both modalities. So far, few studies have systematically investigated production with respect to the effect of certain features on the computation of sentences with intervention (Biran & Ruigendijk 2015, and Arnon 2010 on gender in Hebrew; Yatsushiro & Sauerland 2017 on number in German). This line of research seems very promising for distinguishing effects due to grammatical principles from other types of effects.

References

Adani, F. Re-thinking the acquisition of relative clauses in Italian: A new comprehension study with Italian children. In *Poster Proceedings of the 27th West Coast Conference on Formal Linguistics*, Kevin, R., Ed. UCLA Working Papers, **2008**; pp 1-9.

Adani, F. Some notes on the acquisition of relative clauses: New data and open questions. In *Enjoy linguistics!*, Bianchi, V.; Chesi, C., Eds. CISCL Press: Siena, Italy, **2012**; pp 6-13.

Adani, F.; Sehm, M.; Zukowski, A. How do German children and adults deal with their relatives. In *Advances in language acquisition*, Stavrakaki, S.; Lalioti, M.; Konstantinopoulou, M., Eds. Cambridge Scholars Publishing: Cambridge, MA, USA, **2012**; pp 14-22.

Adani, F.; van der Lely, H.K.J.; Forgiarini, M.; Guasti, M.T. Grammatical feature dissimilarities make relative clauses easier: A comprehension study with Italian children. *Lingua* **2010**, *120*, 2148-2166.

Aissen, J. On the syntax of obviation. *Language* **1997**, *73*, 705-750.

Angelopoulos, N.; Terzi, A. Syntactic locality and intervention in the acquisition of Greek relative clauses. Paper presented at *GALA 13*, Palma de Mallorca, Spain, **2017**.

Arnon, I. Relative clause acquisition in Hebrew: Towards a processing-oriented account. In *Proceedings of the 29th BUCLD*, Brugos, A.M.; R., C.-C.M.; Ha, S., Eds. Cascadilla Press, **2005**; pp 37-48.

Arnon, I. Rethinking child difficulty: The effect of NP type on children's processing of relative clauses in Hebrew. *Journal of Child Language* **2010**, *37*, 27-57.

Arosio, F.; Adani, F.; Guasti, M.T. Grammatical features in the comprehension of Italian relative clauses by children. In *Merging features: Computation, interpretation and acquisition*, Brucart, J.M.; Gavarrò, A.; Solà, J., Eds. Oxford University Press: Oxford, UK, **2009**.

Arosio, F.; Guasti, M.T.; Stucchi, N. Disambiguating information and memory resources in children's processing of Italian relative clauses. *Journal of Psycholinguistic Research* **2011**, *40*, 137-154.

Avrutin, S. Comprehension of Wh-questions by children and Broca's aphasics. In *Language and the brain: Representation and processing*, Grodzinsky, Y.; Shapiro, L.P.; Swinney, D., Eds. Academic Press: San Diego, CA, USA, **2000**; pp 295-312.

Bader, M. Syntaktische Prozesse beim Sprachverstehen: Theoretische Uberlegungen und experimentelle Untersuchungen, Unpublished Master Dissertation, University of Freiburg, Switzerland **1990**.

Bayer, J.; Brandner, E. On Wh-head-movement and the doubly filled Comp filter. Paper presented at *26th West Coast Conference on Formal Linguistics (WCCFL)* **2017**, Berkeley, CA.

Bates, E.; MacWhinney, B. Functionalism and the competition model. *The crosslinguistic study of sentence processing* **1989**, *3*, 73-112.

Baudiffier, V.; Caplan, D.; Gaonac'h, D.; Chesnet, D. The effect of noun animacy on the processing of unambiguous sentences: Evidence from French relative clauses. *The Quarterly Journal of Experimental Psychology* **2011**, *64*, 1896-1905.

Belletti, A. The case of unaccusatives. *Linguistic Inquiry* **1988**, *19*, 1-34.

Belletti, A. Aspects of the low IP area. In *The structure of CP and IP*, Rizzi, L., Ed. Oxford University Press: New York, NY, USA, **2004**; Vol. 2, pp 16-51.

Belletti, A. Extended doubling and the VP periphery. *Probus* **2005**, *17*, 1-35.

Belletti, A. Answering strategies. A view from acquisition. In *Romance languages and linguistic theory*, S. Baauw; F. Drijkoningen; M. Pinto, Eds. Benjamins Publications, Amsterdam/Philadelphia, **2005**.

Belletti, A. Answering strategies: new information subjects and the nature of clefts. *Structures and Strategies*. Routledge: London/NewYork, **2009.**

Belletti, A. *Structures and strategies*. Routledge: London/NewYork, **2009**.

Belletti, A. Notes on passive object relatives. In *Functional structure from top to toe*, Svenonius, P., Ed. Oxford University Press: Oxford, UK, **2014**; pp 97-114.

Belletti, A. Labeling (romance) causatives. In *Elements of comparative syntax: Theory and description*, Aboh, E.; Haeberli, E.; Puskás, G.; Schönenberger, M., Eds. De Gruyter Mouton: **2017**; Vol. 127.

Belletti, A. On the acquisition of complex derivations with related considerations on poverty of the stimulus and frequency. In *Syntactic complexity from acquisition*, Di Domenico, E., Ed. Cambridge Scholars Publishing: Newcastle upon Tyne, UK, **2017**.

Belletti, A. Internal Grammar and Children's Grammatical Creativity against Poor Inputs. *Frontiers in Psychology* **2017**, *8*, 2074.

Belletti, A. Revisiting the cartography of (Italian) postverbal subjects from different angles with reference to canonicality. Considerations. *Italian Journal of Linguistics* **2018**, *30*, 37-58.

Belletti, A. Si as a route to passive in Italian. In *Linguistic Variation: structure and interpretation*, Franco, L., Lorusso, P., Eds. Mouton de Gruyter: Berlin, **2020**.

Belletti, A.; V. Bianchi. Definitness Effect and Unaccusative Subjects: An Overview and some New Thoughts. In *Definitness effects: Bilingual, typological and diachronic variation*, S. Fischer, T. Kupisch; E. Rinke, Eds. Cambridge Scholars Publishing, Newcastle ipon Tyne, UK, **2016,** pp. 14-65.

Belletti, A.; Chesi, C. A syntactic approach toward the interpretation of some distributional frequencies: Comparing relative clauses in Italian corpora and in elicited production. *Rivista di Grammatica Generativa* **2014**, 1-29.

Belletti, A.; Collins, C. Introduction: Smuggling in Syntax. In *Smuggling in Syntax*. Oxford University Press, **2020**.

Belletti, A.; Contemori, C. Intervention and attraction. On the production of subject and object relatives by Italian (young) children and adults. In *Proceedings of Gala 2009*, Costa, J.; Castro, A.; Lobo, M.; Pratas, F., Eds. Cambridge Scholars Publishing: **2010**; pp 39-52.

Belletti, A.; Contemori, C. Subjects in children's object relatives in Italian. *Revue Roumaine de Linguistique* **2012**, *57*, 117-142.

Belletti, A.; Guasti, M.T. *The acquisition of Italian. Morphosyntax and its interfaces in different modes of acquisition*. John Benjamins Publishing Company: Amsterdam/Philadelphia, **2015**.

Belletti, A.; Friedmann, N.; Brunato, D.; Rizzi, L. Does gender make a difference? Comparing the effect of gender on children's comprehension of relative clauses in Hebrew and Italian. *Lingua* **2012**, *122*, 1053-1069.

Belletti, A.; Manetti, C. Topics and passives in Italian-speaking children and adults. *Language acquisition* **2019**, 26, 153-182.

Belletti, A.; Manetti, C. (a-)Topics and animacy. Submitted **2020**.

Belletti, A.; Rizzi, L. Intervention in grammar and processing. In *From grammar to meaning*, Cecchetto, C.; Caponigro, I., Eds. Cambridge University Press: Cambridge, MA, USA, **2013**; pp 294-311.

Bencini, G. M. L.; Valian, V. V. Abstract sentence representation in 3-year-olds: Evidence from language production and comprehension. *Journal of Memory and Language* **2008**, *59*, 97-113.

Bentea, A. Intervention effects in language acquisition: The comprehension of A-bar dependencies in French and Romanian. Doctoral dissertation, University of Geneva, Geneva, Switzerland, **2017**.

Bentea, A.; Durrleman, S. Children Don't Like Restrictions: Evidence from the Acquisition of Object A'-dependencies in French. BUCLD online proceedings, **2014.**

Berndt, S.; Caramazza, A. A redefinition of the syndrome of Broca's aphasia: Implications for a neuropsychological model of language. *Applied Psycholinguistics* **1980**, *1*, 225-278.

Bianchi, V. The raising analysis of relative clauses: A reply to Borsley. *Linguistic Inquiry* **2000**, *31*, 123-140.

Bianchi, V. On the syntax of personal arguments. *Lingua* **2006**, *116*, 2023-2067.

Biran, M.; Ruigendijk, E. Do case and gender information assist sentence comprehension and repetition for German-and Hebrew-speaking children? *Lingua* **2015**, *164*, 215–238.

Bocci, G. *On Syntax and Prosody in Italian*. Doctoral dissertation, University of Siena, Siena, **2009**.

Borer, H.; Wexler, K. The maturation of syntax. In *Parameter setting*, Roeper, T.; Williams, E., Eds. Springer Dordrecht, Netherlands, **1987**; Vol. 4, pp 123-172.

Botteri, D. Aspects of the Italian interrogative system. Doctoral Dissertation, University of Siena, Italy, **2018**.

Brandt, S.; Kidd, E.; Lieven, E.; Tomasello, M. The discourse bases of relativization: An investigation of young German and English-speaking children's comprehension of relative clauses. *Cognitive Linguistics* **2009**, *20*.

Brown, R. *First language*. HUP: Cambridge, MA, USA, **1972**.

Caloi, I. The comprehension of relative clauses in patients with Alzheimer's disease. In *Stil - studies in linguistics*, Servidio, E., Ed. CISCL Press: **2013**; Vol. 5, pp 5-22.

Caramazza, A.; Zurif, E.B. Dissociation of algorithmic and heuristic processes in language comprehension: Evidence from aphasia. *Brain and Language* **1976**, *3*, 572-582.

Cardinaletti, A.; Volpato, F. On the comprehension and production of passive sentences and relative clauses by Italian university students with dyslexia. In *Linguistik aktuell/linguistics today*, Di Domenico, E.; Hamann, C.; Matteini, S., Eds. John Benjamins Publishing Company: Amsterdam, **2015**; Vol. 223, pp 279-302.

Cecchetto, C. Doubling structures and reconstruction. *Probus* **2000**, *1*, 93-126.

Chiat, S.; Roy, P. Early phonological and sociocognitive skills as predictors of later language and social communication outcomes. *Journal of Child Psychology and Psychiatry* **2008**, *49*, 635-645.

Chiat, S.; Armon-Lotem, S.; Marinis, T.; Polisenska, K.; Roy, P.; Seeff-Gabriel, B. The potential of sentence imitation tasks for assessment of language abilities in sequential bilingual children. In *Issues in the Assessment of Bilinguals* Mueller-Gathercole, V., Ed. Mulitlingual Matters: UK, 2013; pp. 56-89.

Chomsky, N. *The minimalist program*. MIT Press: Cambridge, MA, USA, **1995**.

Cinque, G. *Types of A' Dependencies*. MIT Press: Cambridge, Mass, **1990**.

Cinque, G. *Adverbs and functional heads: A cross-linguistic perspective*. Oxford University Press: New York, NY, USA, **1999**.

Cinque, G. *Functional structure in DP and IP*. Oxford University Press: New York, NY, USA, **2002**; Vol. 1.

Cinque, G. On double-headed relative clauses. *Revista de Estudos Linguísticos da Univerdade do Porto* **2011**, *1*, 67-91.

Collins, C. A smuggling approach to the passive in English. *Syntax* **2005**, *8*, 81-120.

Contemori, C. The comprehension and production of clitics in Italian adults with down syndrome: A pilot study. In *Stil - studies in linguistics*, Moscati, V.; Servidio, E., Eds. MIT Working Papers in Linguistics: **2011**; Vol. 4, pp 25-47.

Contemori, C.; Belletti, A. Relatives and passive object relatives in Italian-speaking children and adults: Intervention in production and comprehension. *Applied Psycholinguistics* **2014**, *35*, 1021-1053.

Contemori, C.; Garraffa, M. Comparison of modalities in SLI syntax: A study on the comprehension and production of non-canonical sentences. *Lingua* **2010**, *120*, 1940-1955.

Contemori, C.; Marinis, T. The impact of number mismatch and passives on the real-time processing of relative clauses. *Journal of Child Language* **2014**, *41*, 658-689.

Conti-Ramsden, G.; Botting, N.; Faragher, B. Psycholinguistic markers for specific language impairment. *Journal of Child Psychology and Psychiatry* **2001**, *42*, 741-748.

Correa, L.M. Strategies in the acquisition of relative clauses. *Working Papers of the London Psycholinguistic Research Group* **1982**, *4*, 37-49.

Corrêa, L.M.S. An alternative assessment of children's comprehension of relative clauses. *Journal of Psycholinguistic Research* **1995**, *24*, 183-203.

Costa, J.; Friedmann, N.; Silva, C.; Yachini, M. The boy that the chef cooked: Acquisition of PP relatives in European Portuguese and Hebrew. *Lingua* **2014**, *150*, 386-409.

Costa, J.; Grillo, N.; Lobo, M. Minimality beyond lexical restrictions: Processing and acquisition of free wh-dependencies in European Portuguese. *Revue Roumaine de Linguistique* **2012**, *57*.

Costa, J.; Lobo, M.; Silva, C. Subject–object asymmetries in the acquisition of Portuguese relative clauses: Adults vs. Children. *Lingua* **2011**, *121*, 1083-1100.

Crain, S., Thornton, R.; K. Murasugi. Capturing the evasive passive. Paper presented at the 12th BUCLD, Boston, Mass, **1987**.

Creissels, D. Impersonal pronouns and coreference: the case of French on. In *Passives and Impersonals in European Languages*, Manninen, S.; K. Hietaam; E. Keiser; V. Vihman, Eds. Amsterdam: John Benjamins, **2005**.

Cronel-Ohayon, S. Etude longitudinal d'une population d'enfants francophones présentant un trouble spécifique du développement du langage: aspects syntaxiques. Doctoral dissertation, University of Geneva, **2004**.

Dahl, Ö. Animacy and egophoricity: Grammar, ontology and phylogeny. *Lingua* **2008**, *118*, 141-150.

Del Puppo, G.; M. Pivi. Un compito di produzione elicitata per la valutazione dell'italiano parlato: le frasi passive e le frasi attive con pronome clitico. *Studi italiani di linguistica teorica e applicata* **2015,** XLIV: 3, 437-448.

De Vincenzi, M. Syntactic analysis in sentence comprehension: Effects of dependency types and grammatical constraints. *Journal of Psycholinguistic Research* **1996**, *25*, 117-133.

De Vincenzi, M.; Arduino, L.; Ciccarelli, L.; Job, R. Parsing strategies in children comprehension of interrogative sentences. In *Proceedings of the European Conference on Cognitive Science*, Bagnara, S., Ed. CNR, **1999**, pp 301-308.

Devescovi, A.; Caselli, M.C. Sentence repetition as a measure of early grammatical development in Italian. *International Journal of Language and Communication Disorders* **2007**, *42*.

Delage, H. Évolution de l'hétérogénéité linguistique chez les enfants sourds moyens et légers. Doctoral dissertation, Université de Tours, France, **2008**.

Demuth, K., F. Moloi; M. Machobane. 3-year-olds' comprehension, production, and generalization of Sesotho passives. *Cognition* **2010***, 115,* 238-251.

Diessel, H.; Tomasello, M. A new look at the acquisition of relative clauses. *Language* **2005**, *81*, 1-25.

Durrleman, S.; Marinis, T.; Franck, J. Syntactic complexity in the comprehension of wh-questions and relative clauses in typical language development and autism. *Applied Psycholinguistics* **2016**, *37*, 1501-1527.

Ferreiro, E., Othenin Girard, C., Chipman, H.; Sinclair, H. How do children handle relative clauses? *Archives de Fsychologie* **1976***, 44*, 229–266.

Fodor, J. A., Bever, T. G.; Garrett, M. F. The psychology of language. An introduction to psycholinguistics and generative grammar, New York: McGraw-Hill, **1974.**

Ford, M. A method for obtaining measures of local parsing complexity throughout sentences. *Journal of Verbal Learning and Verbal Behavior* **1983**, *22*, 203-218.

Fox, D.; Grodzinsky, Y. Children's passive: A view from the *by* -phrase. *Linguistic Inquiry* **1998**, *29*, 311-332.

Franciotti, P. The acquisition of passive in L2 Italian: Evidence from comprehension and production. *Rivista di Grammatica Generativa* **2016**, *38*, 95-104.

Franck, J.; Lassi, G.; Frauenfelder, U. H.; Rizzi, L. Agreement and movement: A syntactic analysis of attraction. *Cognition* **2006**, *101*, 173-216.

Franck, J.; Frauenfelder, U. H.; Rizzi, L. A syntactic analysis of interference in subject-verb agreement. In *The state of the art in speech error research*, C. Schutze; V. Ferreira, Eds. MIT working papers in linguistics*, **2007**, 173–190.

Frascarelli, M. Subjects, topics and the interpretation of referential *pro*. An interface approach to the linking of (null) pronouns. *Natural Language and Linguistic Theory* **2007**, *25*, 691-734

Frauenfelder, U.; Segui, J.; Mehler, J. Monitoring around the relative clause. *Journal of Verbal Learning and Verbal Behavior* **1980**, *19*, 328-337.

Friedmann, N. Syntactic movement in orally trained children with hearing impairment. *Journal of Deaf Studies and Deaf Education* **2005**, *11*, 56-75.

Friedmann, N.; Belletti, A.; Rizzi, L. Relativized relatives: Types of intervention in the acquisition of a-bar dependencies. *Lingua* **2009**, *119*, 67-88.

Friedmann, N.; Grodzinsky, Y. Tense and agreement in agrammatic production: Pruning the syntactic tree. *Brain and Language* **1997**, *56*, 397-425.

Friedmann, N.; Lavi, H. On the order of acquisition of A-movement, Wh-movement and V-C movement. In *Language acquisition and development*, Belletti, A.; Bennati, E.; Chesi, C.; Di Domenico, E.; Ferrari, I., Eds. Cambridge Scholars Press: Cambridge, UK, **2006**.

Friedmann, N.; Novogrodsky, R. The acquisition of relative clause comprehension in Hebrew: A study of SLI and normal development. *Journal of Child Language* **2004**, *31*, 661-681.

Friedmann, N.; Novogrodsky, R. Subtypes of SLI: SySLI, PhoSLI, LeSLI, and PraSLI. In *Language acquisition and development*, A. Gavarrò; F. M. João, Eds. Cambridge Scholars Press: Newcastle, **2008,** 205-217.

Friedmann, N.; Rizzi, L.; Belletti, A. No case for case in locality: Case does not help interpretation when intervention blocks a-bar chains. *Glossa: a journal of general linguistics* **2017**, *2*, 33.

Friedmann, N.; Szterman, R.; Haddad-Hanna, M. The comprehension of relative clauses and wh questions in Hebrew and Palestinian Arabic hearing impairment. In *Proceedings of GALA 2009*, Castro, A.; Costa, J.; Lobo, M.; Pratas, F., Eds. Cambridge Scholars Publishing, **2010**, 157-169.

Friedmann, N.; Yachini, M.; Szterman, R. Relatively easy relatives: Children with syntactic SLI avoid intervention. In *Linguistik aktuell/linguistics today*, Di Domenico, E.; Hamann, C.; Matteini, S., Eds. John Benjamins Publishing Company: Amsterdam, Netherlands, **2015**; Vol. 223, pp 303-320.

Garraffa, M.; Grillo, N. Canonicity effects as grammatical phenomena. *Journal of Neurolinguistics* **2008**, *21*, 177-197.

Gordon, P.; J. Chafetz. Verb-based versus class-based accounts of actionality effects in children's comprehension of passives. *Cognition* **1990***, 36*, 227-254.

Gordon, P.C.; Hendrick, R.; Johnson, M. Memory interference during language processing. *Journal of Experimental Psychology: Learning, Memory, and Cognition* **2001**, *27*, 1411-1423.

Gordon, P.C.; Hendrick, R.; Johnson, M. Effects of noun phrase type on sentence complexity. *Journal of Memory and Language* **2004**, *51*, 97-114.

Grillo, N. Generalized minimality: Syntactic underspecification in Broca's aphasia. Doctoral dissertation, University of Utrecht, N., **2008**.

Grossman, M.; Kalmanson, J.; Bernhardt, N.; Morris, J.; Stern, M.B.; Hurtig, H.I. Cognitive resource limitations during sentence comprehension in Parkinson's disease. *Brain and Language* **2000**, *73*, 1-16.

Guasti, M.T. Causative and perception verbs: A comparative study. In *Ed. Italiana*, Rosenberg; Sellier; Eds. Torino, Italy, **1993**.

Guasti, M.T. Voice alternations (active, passive, middle). In *Oxford Handbook of Developmental Linguistics*, J. Lidz, W. Snyder, & J. Pater, Eds. Oxford University Press, **2016.**

Guasti, M.T.; Branchini, C.; Arosio, F.; Vernice, M. A developmental study of subject and object relatives in Italian. *Revue Roumaine de Linguistique* **2012**, 105-116.

Guasti, M.T.; Branchini, C.; Arosio, F. Interference in the production of Italian subject and object wh-questions. *Applied Psycholinguistics* **2012**, *33*, 185–223.

Guasti, M.T.; Branchini, C.; Vernice, M.; Barbieri, L.; Arosio, F. Language disorders in children with developmental dyslexia. In *Language acquisition and language disorders*, Stavrakaki, S., Ed. John Benjamins Publishing Company: Amsterdam, Netherlands, **2015**; Vol. 58, pp 35-56.

Guasti, M.T.; Cardinaletti, A. Relative clause formation in romance child's production. *Probus* **2003**, *15*, 47-89.

Guasti, M.T.; Stavrakaki, S.; Arosio, F. Number and case in the comprehension of relative clauses: Evidence from italian and Greek. In *Proceedings of GALA 2007*, Gavarrò, A.; Freitas, M., Eds. Cambridge Scholars Publishing: **2008**; pp 102-119.

Hakes, D.T.; Evans, J.S.; Brannon, L.L. Understanding sentences with relative clauses. *Memory & Cognition* **1976**, *4*, 283-290.

Hamann, C. The production of wh-questions by French children with SLI-movement is difficult. In *Presentation at the 10th International Congress for the Study of Child Language*, Freie Universität of Berlin, Germany, **2005**.

Hamann, C.; Rizzi, L.; Frauenfelder, U. The Acquisition of subject and object clitics in French. In *Generative Perspectives on Language Acquisition*, Clahsen, H., Ed. John Benjamins: Amsterdam, Philadelphia, **1996**, 309-334.

Hamann, C.; Tuller, L. Intervention effects in the spontaneous production of relative clauses in (a)typical language development of French children and adolescents. In *Linguistik aktuell/linguistics today*, Di Domenico, E.; Hamann, C.; Matteini, S., Eds. John Benjamins Publishing Company: Amsterdam, Netherlands, **2015**, Vol. 223, pp 321-342.

Harris, A. C. *Georgian syntax. A study in relational grammar*. Cambridge University Press: Cambridge, UK, **1981**.

Hickok, G.; Avrutin, S. Comprehension of wh-questions in two Broca's aphasics. *Brain and Language* **1996**, *52*, 314-327.

Hirsch, C.; Wexler, K. In *Children's passives and their resulting interpretation*, The Proceedings of the Inaugural Conference on GALANA–North America, Deen, K.U.; Nomura, J.; Schulz, B.; Schwartz, B.D., Eds. UCONN Working Papers in Linguistics: **2006**; pp 125-136.

Holmes, V.M.; O'Regan, J.K. Eye fixation patterns during the reading of relative-clause sentences. *Journal of Verbal Learning and Verbal Behavior* **1981**, *20*, 417-430.

Horgan, D. The development of the full passive, *Journal of Child Language* **1978***, 5*, 65-80.

Huang, J., Logical relations in Chinese and the theory of grammar. Doctoral Dissertation, MIT, Cambridge, Mass, **1982**.

Jakubowicz, C.; Gutierrez, J. Elicited production and comprehension of root wh questions in French and Basque. Paper presented at the COST Meeting Cross linguistically robust stage of children's linguistic performance, Berlin, Germany, **2007**.

Kayne, R. *The antisymmetry of syntax*. MIT Press: Cambridge, MA, USA, **1994**.

Kidd, E.; Brandt, S.; Lieven, E.; Tomasello, M. Object relatives made easy: A cross-linguistic comparison of the constraints influencing young children's processing of relative clauses. *Language and Cognitive Processes* **2007**, *22*, 860-897.

King, J.; Just, M.A. Individual differences in syntactic processing: The role of working memory. *Journal of Memory and Language* **1991**, *30*, 580-602.

Kuhn, K. Syntaktische prozesse beim sprachverstehen: Eine empirische studie zur verarbeitung lokal ambiger relativsiitze im deutschen. Master dissertation, Free University of Berlin, **1993**.

Labelle, M. Predication, Wh-movement and the Development of Relative Clauses. *Language Acquisition* **1990**, *1,* 95-119.

Labelle, M. The French non-canonical passive in se-faire. In *Proceedings of Linguistics and Phonetics*, Haraguchi, S.; Bohumil, P.; Osamu, F., Eds. Charles University Press/Meikai University, **2002**.

Lewis, R. L.; Vasishth, S.; Van Dyke, J. A. Computational principles of working memory in sentence comprehension. *Trends in cognitive sciences* **2006**, *10*, 447-454.

Lin, C.-J.C.; Bever, T. Chinese is no exception: Universal subject preference of relative clause processing. In *Proceedings of the 25th West Coast Conference on Formal Linguistics 2006*, Baumer, D.; Montero, D.; Scanlon, M., Eds. Cascadilla Proceedings Project, **2006**; pp 254-260.

Lorusso, P. L'acquisizione dei verbi inaccusativi: Studio sull'acquisizione spontanea dei parlanti. Master dissertation, Università degli Studi di Siena, Italy, **2003**.

Lorusso, P.; Caprin, C.; Guasti, M.T. Overt subject distribution in early Italian children. 29th BUCLD online proceedings supplement, **2005**.

Lowder, M.W.; Gordon, P.C. The pistol that injured the cowboy: Difficulty with inanimate subject–verb integration is reduced by structural separation. *Journal of Memory and Language* **2012**, *66*, 819-832.

Lowder, M.W.; Gordon, P.C. Effects of animacy and noun-phrase relatedness on the processing of complex sentences. *Memory & Cognition* **2014**, *42*, 794-805.

Mak, W.M.; Vonk, W.; Schriefers, H. The influence of animacy on relative clause processing. *Journal of Memory and Language* **2002**, *47*, 50-68.

Mak, W.; Vonk, W.; Schriefers, H. Animacy in processing relative clauses: The hikers that rocks crush. *Journal of Memory and Language* **2006**, *54*, 466-490.

Malchukov, A.L. Animacy and asymmetries in differential case marking. *Lingua* **2008**, *118*, 203-221.

Manetti, C. On the production of passives in Italian: Evidence from an elicited production task and a syntactic priming study with preschool children. In *Proceedings of the 37th BUCLD,* Baiz, S.; Goldman, N.; Hawkes, R., Eds. Cascadilla Press: **2013**; pp 1-16.

Manetti, C. Changing the topic in question-answer pairs: A production study on the use of subject, topicalization and passive in Italian. *Working Papers in Linguistics and Oriental Studies* **2017**, *3*, 117-134.

Manetti, C.; Belletti, A. Causatives and the acquisition of the Italian passive. In *Proceedings of GALA 2013*, Hamann, C.; Ruigendijk, E., Eds. Cambridge Scholars Publishing, **2015**; pp 282-298.

Manetti, C.; Belletti, A. The production of clitic left dislocations by Italian-speaking children and the role of intervention. In *Proceedings of the 41st BUCLD*, LaMendola, M.; Scott, J., Eds. Cascadilla Press: **2017**; pp 443-451.

Manetti, C.; Vincenzo, M.; Rizzi, L.; Belletti, A. The role of number and gender features in the comprehension of Italian clitic left dislocations. In *Proceedings of the 40th BUCLD*, Scott, J.; Waughtal, D., Eds. Cascadilla Press, **2016**; pp 229-240.

Maratsos, M.; Fox, D.E.C.; Becker, J.A.; Chalkley, M.A. Semantic restrictions on children's passives. *Cognition* **1985**, *19*, 167-191.

Marinis, T.; Chiat, S.; Armon-Lotem, S.; Gibbons, D.; Gipps, E. *School-age sentence imitation test (SASIT)*. University of Reading, Reading, UK, **2010**.

Marinis, T.; Saddy, D. Parsing the passive: Comparing children with specific language impairment to sequential bilingual children. *Language Acquisition* **2013**, *20*, 155-179.

Martini, K. On subjects and by-phrases in Italian-speaking children: Evidence from an elicited production study of object relatives. *Generative Grammar in Geneva* **2017**, 10

Martini, K.; Belletti, A.; Centorrino, S.; Garraffa, M. Syntactic complexity in the presence of an intervener: the case of an Italian speaker with anomia. *Aphasiology* **2019**, Special Issue "Aphasia and Linguistic theory: what we have captured so far".

McDaniel, D., McKee, C.; J. Bernstein. How Children's relatives solve a problem for minimalism. *Language* **1998***, 74*, 308-334.

Mckee, C.; McDaniel, D.; Snedeker, J. Relative children say, journal of psycholinguistic research. *Journal of Psycholinguistic Research* **1998**, *27*, 573–596.

Messenger, K., Branigan, H., McLean, J.; A. Sorace. Semantic factors in young children's comprehension and production of passives. In J. Chandlee, M. Franchini, S. Lord; G. M. Rheiner, Eds. *Proceedings of the 33rd BUCLD*, Cascadilla Press, Somerville, Mass, **2009.**

Messenger, K., Branigan, H., McLean, J.; A. Sorace. Is young children's passive syntax semantically constrained? Evidence from syntactic priming. *Journal of Memory and Language* **2012***, 66*, 568-587.

Molympaki, E.; Nerantzini, M.; Fyndanis, V.; Papageorgioud, S.; Varlokosta, S. Comprehension abilities in Greek-speaking individuals with probable Alzheimer's disease. Evidence from wh-questions and relative clauses. *Procedia - Social and Behavioral Sciences* **2013**, *94*, 131-132.

Munaro, N. *Sintagmi interrogativi nei dialetti italiani settentrionali*. Unipress: Padova, Italy, **1999**.

Munnich, E.; Flynn, S.; Marthohardjono, G. Elicited imitation and grammaticality judgment tasks: What they measure and how they relate to each other. In *Research Methodology in Second-language Acquisition*, E. Tarone; S. Gass; A. Cohen, Eds. New Jersey: Lawrence Erlbaum, **1994**, 227-45.

Novogrodsky, R.; Friedmann, N. The production of relative clauses in syntactic SLI: A window to the nature of the impairment. *Advances in Speech Language Pathology* **2006**, *8*, 364-375.

O'Brien, K., Grolla, E.; D. Lillo-Martin. Long passives are understood by young children. In *Proceedings of the 30th BUCLD*, D. Bamman; T. Magnitskaia; C. Zaller, Eds*, Cascadilla Press, Somerville, Mass, **2006.**

Pérez-Leroux, A.T. Resumptives in the acquisition of relative clauses. *Language Acquisition* **1995**, *4*, 105-138.

Pesetsky, D. Wh in situ: Movement and unselective binding. In *The representation of (in)definiteness*, E. Reuland; A. Ter Meulen, Eds. MIT Press: Cambridge, Mass, **1987**.

Pinker, S., Lebeaux, D.; L. A. Frost. Productivity and constraints in the acquisition of the passive. *Cognition* **1987***, 26,* 195-267.

Pollock, J.Y. Verb movement, UG and the structure of IP. *Linguistic Inquiry* **1989**, *20*, 365-424.

Rizzi, L. *Issues in Italian syntax*, Foris Publications, Dordrecht, Holland, **1982.**

Rizzi, L. *Relativized minimality*. MIT Press: Cambridge, MA, USA, **1990**.

Rizzi, L. Residual verb second and the wh-criterion. In *Parameters and functional heads*, Belletti, A.; Rizzi, L., Eds. Oxford University Press: Oxford, UK, **1996**.

Rizzi, L. The fine structure of the left periphery. In *Elements of grammar*, Haegeman, L., Ed. Springer Dordrecht, Netherlands, **1997**, 281-337.

Rizzi, L. Extraction from weak islands, reconstruction, and agreement. In *Semantic Interfaces*, Chierchia; Guasti; Cecchetto, Eds. CSLI Publications, Stanford, CA, **2001**, 145-176.

Rizzi, L. On the position of Int(errogative) in the Left Periphery of the Clause. In *Current Studies in Italian Syntax*, G. Cinque; G. Salvi, Eds. Elsevier, Amsterdam, **2001,** 287-296.

Rizzi, L. Locality and the left periphery. In *Structures and beyond*, Belletti, A., Ed. Oxford University Press: New York, NY, USA, **2004**, 223-251.

Rizzi, L. *The structure of CP and IP*. Oxford University Press: Oxford/New York, **2004**.

Rizzi, L. On some properties of subjects and topics. In *Proceedings of the XXX Incontro di Grammatica Generativa*, Brugé, L.; Giusti, G.; Munaro, N.; Schweikert, W.; Turano, G., Eds. Cafoscarina: **2005**, 203-224.

Rizzi, L. Minimality. In *The oxford handbook of linguistic minimalism*, Boeckx, C., Ed. Oxford University Press: New York, NY, USA, **2011**, 220-238.

Rizzi, L. Locality. *Lingua* **2013**, *130*, 169-186.

Rizzi, L. Subjects, topics and the interpretation of pro. In *Beyond the veil of maya. From sounds to structures*, Petrosino, R.; Cerrone, P.C.; van der Hulst, H., Eds. Mouton de Gruyter: Berlin, Germany, **2018**.

Rizzi, L. Intervention effects in grammar and language acquisition. *Probus* **2018**, *30*, 339-367.

Rizzi, L.; Shlonsky, U. Strategies of subject extraction. In *Interfaces + recursion = language? Chomsky's minimalism and the view from syntax-semantics*. H.-M. Gärtner; U. Sauerland, Eds. Berlin, Mouton de Gruyter, **2007**, 117–160.

Rohde, D.; Gibson, E. The on-line processing of active and passive structures in English. Paper presented at *CUNY Conference* **2003**.

Roland, D.; Frederic, D.; Elman, E. Frequency of Basic English Grammatical Structures: A Corpus Analysis. *Journal of Memory and Language* **2007**, *57*, 348-379.

Rubin, M. The passive in 3-and 4-year-olds. *Journal of Psycholinguistic Research* **2009***, 38,* 435-446.

Salis, C.; Douglas Saddy, J. Comprehension of wh-questions in a case of mixed dementia. *Journal of Neurolinguistics* **2011**, *24*, 156-162.

Sanfelici, E.; Poletto, C. On demonstratives in relative clauses. In *Lingue e contesti. Studi in onore di Alberto M. Mioni*, Busà, M.G.; Gesuato, S., Eds. CLEUP: Padova, IT, **2015**, 561-571.

Schlesewsky, M.; Fanselow, G.; Kliegl, R.; Krems, J. The subject preference in the processing of locally ambiguous wh-questions in German. In *German sentence processing*, Hemforth, B.; Konieczny, L., Eds. Springer: Netherlands, **2000**, *24*, 65-93.

Seef-Gabriel, B.; Chiat, S.; Dodd, B. Sentence imitation as a tool in identifying expressive morphosyntactic difficulties in children with severe speech difficulties. *International Journal of Language and Communication Disorders* **2010**, *45*, 1-12.

Sheldon, A. The role of parallel function in the acquisition of relative clauses in English. *Journal of Verbal Learning and Verbal Behavior* **1974**, *13*, 272-281.

Sheppard, S.M.; Walenski, M.; Love, T.; Shapiro, L.P. The auditory comprehension of wh-questions in aphasia: Support for the intervener hypothesis. *Journal of Speech Language and Hearing Research* **2015**, *58*, 781.

Schriefers, H.; Friederici, A.D.; Kuhn, K. The processing of locally ambiguous relative clauses in German. *Journal of Memory and Language* **1995**, *34*, 499-520.

Schwartz, M.F.; Saffran, E.M.; Marin, O.S.M. The word order problem in agrammatism. *Brain and Language* **1980**, *10*, 249-262.

Serratrice, L. The role of discourse pragmatics in the acquisition of subjects in Italian. *Applied Psycholinguistics* **2005**, *26*.

Serratrice, L. In *Null and overt subjects at the syntax-discourse interface: Evidence from monolingual and bilingual acquisition*, Selected papers from the Romance Turn II, Baauw, S.; van Kampen, J.; Pinto, M., Eds. LOT, Netherlands Graduate School of Linguistics: **2008**, 181-200.

Sheldon, A. The role of parallel function in the acquisition of relative clauses in English. *Journal of Verbal Learning and Verbal Behavior* **1974**, *13*, 272-281.

Soare, G. The syntax-information structure interface: A comparative view from Romanian. Doctoral dissertation, University of Geneva, Switzerland, **2009**.

Starke, M. Move dissolves into merge. Doctoral dissertation, University of Geneva, Geneva, Switzerland, **2001**.

Stavrakaki, S. Developmental perspectives on specific language impairment: Evidence from the production of wh-questions by Greek SLI children over time. *Advances in Speech Language Pathology* **2006**, *8*, 384-396.

Sturner, R.A.; Funk, S.G.; Green, J.A. Preschool speech and language screening: Further validation of the sentence repetition screening test. *Journal of Developmental and Behavioural Paediatrics* **1996**, *17*, 405-413.

Tavakolian, S. The conjoined-clause analysis of relative clauses. In *Language acquisition and linguistic theory*, Tavakolian, S., Ed. MIT Press: Cambridge, MA, USA, **1981**, 167–187.

Terzi, A.; Marinis, T.; Kotsopoulou, A.; Francis, K. Grammatical abilities of Greek-speaking children with autism. *Language Acquisition* **2014**, *21*, 4-44.

Terzi, A.; Nanausi, V. Intervention effects in the relative clauses of agrammatics: The role of gender and case. *Glossa* **2018**, 3, 17.

Terzi, A.; K. Wexler. A-chains and S-homophones in children's grammar: Evidence from Greek passives. In *Proceedings of NELS 32,* M. Hirotani, Ed. GLSA Publications, Amherst, Mass, **2002.**

Traxler, M.J.; Morris, R.K.; Seely, R.E. Processing subject and object relative clauses: Evidence from eye movements. *Journal of Memory and Language* **2002**, *47*, 69-90.

Utzeri, I. The production and acquisition of subject and object relative clauses in Italian. *Nanzan Linguistics* **2007**, *3*, 283-314.

Van Dyke, J. A.; McElree, B. Retrieval interference in sentence comprehension. *Journal of Memory and Language* **2006**, 55, 157-166.

Varlokosta, S.; Nerantzini, M; Papadopoulou, D. Comprehension asymmetries in language acquisition: A test for Relativized Minimality. *Journal of Child Language* **2014.**

Vender, C.; Zardini, D.; Borgia, R.; Cumer Bruno, S.; Freo, P.; Cardini, G. Un test di ripetizione di frasi *Neuropsichiatria infantile* **1981**, 819-831.

Vergnaud, J.R. French relative clauses. Doctoral dissertation, Massachusetts Institute of Technology, **1974**.

Villata, S. Intervention effects in sentence processing. Doctoral dissertation, University of Geneva, Geneva, Switzerland, **2017**.

Villata, S.; Rizzi, L.; Franck, J. Intervention effects and relativized minimality: New experimental evidence from graded judgments. *Lingua* **2016**, *179*, 76-96.

Volpato, F.; Adani, F. The subject/object relative clause asymmetry in hearing-impaired children: Evidence from a comprehension task. In *Stil - studies in linguistics*, Moscati, V.; Servidio, E., Eds. MIT Working Papers in Linguistics: **2009**, 3.

Volpato, F.; Verin, L.; Cardinaletti, A. The acquisition of passives in Italian: Auxiliaries and answering strategies in an experiment of elicited production Paper presented at The Romance Turn V, Universidade Nova de Lisboa, Spain, **2012**.

Volpato, F., Verin, L.; A. Cardinaletti. The comprehension and production of verbal passives by Italian preschool-age children. *Applied Psycholinguistics* **2016***, 37*, 901-931.

Volpato, F., Verin, L., Tagliaferro, L.; A. Cardinaletti. The comprehension of (eventive) verbal passives by Italian preschool age children. In *Proceedings of GALA 2011,* S. Stavrakaki, M. Lalioti; P. Konstantinopoulou, Eds. Cambridge Scholars Publishing, Newcastle Upon Tyne, **2013**, 243-250.

Volpato, F.; Vernice, M. The production of relative clauses by Italian cochlear-implanted and hearing children. *Lingua* **2014**, *139*, 39-67.

Warren, T.; Gibson, E. The influence of referential processing on sentence complexity. *Cognition* **2002**, *85*, 79-112.

Warren, T.; Gibson, E. Effects of NP type in reading cleft sentences in English. *Language and Cognitive Processes* **2005**, *20*, 751-767.

Yatsushiro, K.; Sauerland, U. Relative clause production in German. Paper presented at GALA 13, Palma de Mallorca, Spain, **2017**.

Yatsushiro, K.; Sauerland, U. How to be brief: children's and adults' application of Grice's brevity maxim in production. *Languages* **2019**, 4, 18.

Yoshinaga, N. Wh-questions: A comparative study of their form and acquisition in English and Japanese. University of Hawai, M., Ed. **1996**.

Zukowski, A. Elicited production of relative clauses in children with Williams syndrome. *Language and Cognitive Processes* **2009**, *24*, 1-43.

List of elicitations and items in Experiment 1: Manipulating the nature and the position of the subject in the elicited production of object relatives in Italian.

Version for female participants.

Elicitation	Item	Condition
Due bambine sono al parco. Una bambina osserva una ragazza, l'altra bambina indica una ragazza. Tu quale bambina preferiresti essere? 'Two girls are at the park. One girl is looking at a lady, the other girl is pointing to a lady. Which girl would you rather be?'	La bambina che osserva/indica la ragazza. 'The girl that is looking at/pointing to the lady'	SR
Due bambine giocano agli indiani. Una bambina lega un'amica, l'altra bambina benda un'amica. Tu quale bambina preferiresti essere? 'Two girls are playing cowboys. One girl is tying a friend, the other girl is blindfolding a friend. Which girl would you rather be?'	La bambina che lega/benda un'amica. 'The girl that is tying/blindfolding the friend'	SR
Due bambine sono ad uno spettacolo. Una bambina fotografa una ballerina, l'altra bambina guarda una ballerina. Tu quale bambina preferiresti essere? 'Two girls are at a show. One girl is photographing a dancer, the other girl is looking at a dancer. Which girl would you rather be?'	La bambina che fotografa/guarda la ballerina. 'The girl that is photographing/looking at the dancer'	SR
Due bambine fanno le dispettose. Una bambina pizzica un'amica, l'altra bambina bagna un'amica. Tu quale bambina preferiresti essere? 'Two girls are being spiteful. One girl is pinching a friend, the other girl is wetting a friend. Which girl would you rather be?'	La bambina che pizzica/bagna l'amica. 'The girl that is pinching/wetting the friend'	SR
Due bambine sono a letto. Una mamma addormenta una bambina, una mamma sveglia l'altra bambina. Tu quale bambina preferiresti essere? 'Two girls are in bed. A mom is putting to sleep one girl, a mom is waking up the other girl. Which girl would you rather be?'	La bambina che la mamma addormenta/sveglia. 'The girl that the mom is putting to sleep/waking up'	OR preverbal lexical subj
Due bambine escono di casa per il loro primo giorno di scuola. Un'amica saluta una bambina, un'amica conforta l'altra bambina. Tu quale bambina preferiresti essere?	La bambina che l'amica saluta/conforta.	OR preverbal lexical subj

'Two girls are going out for their first day at school. A friend is saying goodbye to one girl, a friend is reassuring the other girl. Which girl would you rather be?'	'The girl that the friend is saying goodbye to/reassuring'	
Due bambine cantano una canzone. Una donna ascolta una bambina, una donna applaude l'altra bambina. Tu quale bambina preferiresti essere? 'Two girls are singing a song. A lady is listening to one girl, a lady is applauding the other girl. Which girl would you rather be?'	La bambina che la donna ascolta/applaude. 'The girl that the lady is listening to/applauding'	OR preverbal lexical subj
Due bambine si sono nascoste. Un'amica cerca una bambina, un'amica trova l'altra bambina. Tu quale bambina preferiresti essere? 'Two girls are hiding. A friend is looking for one girl, a friend is finding the other girl. Which girl would you rather be?'	La bambina che l'amica cerca/trova. 'The girl that the friend is looking for/finding'	OR preverbal lexical subj
Una mamma fa i dispetti a due bambine. Solletica una bambina, morde l'altra bambina. Tu quale bambina preferiresti essere? 'A mom is teasing two girls. (She) is tickling one girl, (she) is biting the other girl. Which girl would you rather be?'	La bambina che solletica/morde. 'The girl that (she) is tickling/biting'	OR null pronominal subj
Un'amica aiuta due bambine a fare l'altalena. Spinge una bambina, tira l'altra bambina. Tu quale bambina preferiresti essere? 'A friend is helping two girls swinging. (She) is pushing a girl, (she) is pulling the other girl. Which girl would you rather be?'	La bambina che spinge/tira. 'The girl that (she) is pushing/pulling'	OR null pronominal subj
Una mamma tiene sulle ginocchia due bambine. Accarezza una bambina, bacia l'altra bambina. Tu quale bambina preferiresti essere? 'A mom has two girls on her knees. (She) is caressing one girl, (she) is kissing the other girl. Which girl would you rather be?'	La bambina che accarezza/bacia. 'The girl that (she) is caressing/kissing'	OR null pronominal subj
Una maestra rivede i compiti con due bambine. Corregge una bambina, rimprovera l'altra bambina. Tu quale bambina preferiresti essere? 'A teacher is revising the homework with two girls. (She) is correcting one girl, (she) is reproaching the other girl. Which girl would you rather be?'	La bambina che corregge/rimprovera. 'The girl that (she) is correcting/reproaching'	OR null pronominal subj
Due bambine sono a scuola e fanno confusione. Una maestra sgrida una bambina, una bidella sgrida l'altra bambina. Tu quale bambina preferiresti essere?	La bambina che sgrida la maestra/la bidella. the girl that (pro) is scolding the teacher/janitor	OR postverbal lexical subj

'Two girls are at school and they are making noise. A teacher is scolding one girl, a janitor is scolding the other girl. Which girl would you rather be?'	'The girl that the teacher/janitor is scolding'	
Due bambine devono fare i compiti. Un'amica aiuta una bambina, una baby-sitter aiuta l'altra bambina. Tu quale bambina preferiresti essere? 'Two girls have to do their homework. A friend is helping one girl, a babysitter is helping the other girl. Which girl would you rather be?'	La bambina che aiuta l'amica/la babysitter. the girl that (pro) is helping the friend/babysitter 'The girl that the friend/babysitter is helping'	OR postverbal lexical subj
Due bambine devono andare ad una festa. Una mamma pettina una bambina, un'amica pettina l'altra bambina. Tu quale bambina preferiresti essere? 'Two girls have to go to a party. A mom is combing one girl, a friend is combing the other girl. Which girl would you rather be?'	La bambina che pettina la mamma/l'amica. the girl that is combing the mom/friend 'The girl that the mom/friend is combing'	OR postverbal lexical subj
Due bambine giocano in giardino. Una mamma rincorre una bambina, un'amica rincorre l'altra bambina. Tu quale bambina preferiresti essere? 'Two girls are playing in the garden. A mom is chasing one girl, a mom is chasing the other girl. Which girl would you rather be?'	La bambina che rincorre la mamma/l'amica. the girl is chasing the mom/friend 'The girl that the mom/friend is chasing'	OR postverbal lexical subj
Una mamma vorrebbe vestire due bambine per uno spettacolo. Purtroppo però non ne ha proprio il tempo. Allora lei veste una bambina e qualcun'altro veste l'altra bambina. Tu quale bambina vorresti essere? 'A mom would love to dress two girls for a show. But unfortunately, she has no time. So, she dresses one girl and someone else dresses the other girl. Which girl would you rather be?'	La bambina che veste la mamma/qualcun altro. the girl that (pro) is dressing the mom/someone else 'The girl that the mom/someone else is dressing'	OR postverbal lexical subj
Una mamma vorrebbe accompagnare due bambine all'asilo. Purtroppo però non ne ha proprio il tempo. Allora lei accompagna una bambina e qualcun'altro accompagna l'altra bambina. Tu quale bambina preferiresti essere? 'A mom would love to drive two girls at the daycare. But unfortunately, she has no time. So, she drives one girl, and someone else drives the other girl. Which girl would you rather be?'	La bambina che accompagna la mamma/qualcun altro. the girl that (pro) is driving the mom/someone else 'The girl that the mom/someone else is driving'	OR postverbal lexical subj
Una donna vorrebbe acchiappare due bambine. Le due bambine pero scappano in due direzioni diverse e la donna non può inseguire entrambe. Allora lei acchiappa una bambina e qualcun'altro acchiappa	La bambina che acchiappa la donna/qualcun altro. the girl that (pro) is catching the lady/someone else	OR postverbal lexical subj

l'altra bambina. Tu quale bambina preferiresti essere? 'A lady would love to catch two girls. But the two girls are running away in two different directions, and the lady cannot chase both of them. So, she catches a girl and someone else catches the other girl. Which girl would you rather be?'	'The girl that the lady/someone else is catching'	
Un'amica vorrebbe filmare due bambine durante una recita. Le due bambine però sono in due parti diverse del palco e l'amica non riesce a filmare entrambe. Allora lei filma una bambina e qualcun'altro filma l'altra bambina. Tu quale bambina preferiresti essere? 'A friend would love to film two girls during a show. But the two girls are in two different part of the stage and the friend cannot film both of them. So, she films a girl and someone else films the other girl. Which girl would you rather be?'	La bambina che filma l'amica/qualcun altro. the girl that (pro) is filming the friend/someone else 'The girl that the friend/someone else is filming'	OR postverbal lexical subj

Version for male participants.

Elicitation	Item	Condition
Due bambini sono al parco. Un bambino osserva un ragazzo, l'altro bambino indica un ragazzo. Tu quale bambino preferiresti essere? 'Two boys are at the park. One boy is looking at a man, the other boy is pointing to a man. Which boy would you rather be?'	Il bambino che osserva/indica il ragazzo. 'The boy that is looking at/pointing to the man'	SR
Due bambini giocano agli indiani. Un bambino lega un amico, l'altro bambino benda un amico. Tu quale bambino preferiresti essere? 'Two boys are playing cowboys. One boy is tying a friend, the other boy is blindfolding a friend. Which boy would you rather be?'	Il bambino che lega/benda l'amico. 'The boy that is tying/blindfolding the friend'	SR
Due bambini sono ad una partita di calcio. Un bambino fotografa un giocatore, l'altro bambino guarda un giocatore. Tu quale bambino preferiresti essere? 'Two boys are at a football match. One boy is photographing a player, the other boy is looking at a player. Which boy would you rather be?'	Il bambino che fotografa/guarda il giocatore. 'The boy that is photographing/looking at the player'	SR

Due bambini fanno i dispettosi. Un bambino pizzica un amico, l'altro bambino bagna un amico. Tu quale bambino preferiresti essere? 'Two boys are being spiteful. One boy is pinching a friend, the other boy is wetting a friend. Which boy would you rather be?'	Il bambino che pizzica/bagna l'amico. 'The boy that is pinching/wetting the friend'	SR
Due bambini sono a letto. Un papà addormenta un bambino, un papà sveglia l'altro bambino. Tu quale bambino preferiresti essere? 'Two boys are in bed. A dad is putting to sleep one boy, a dad is waking up the other boy. Which boy would you rather be?'	Il bambino che il papà addormenta/sveglia. 'The boy that the dad is putting to sleep/waking up'	OR preverbal lexical subj
Due bambini escono di casa per il loro primo giorno di scuola. Un amico saluta un bambino, un amico conforta l'altro bambino. Tu quale bambino preferiresti essere? 'Two boys are going out for their first day at school. A friend is saying goodbye to one boy, a friend is reassuring the other boy. Which boy would you rather be?'	Il bambino che l'amico saluta/conforta. 'The boy that the friend is saying goodbye to/reassuring'	OR preverbal lexical subj
Due bambini cantano una canzone. Un signore ascolta un bambino, un signore applaude l'altro bambino. Tu quale bambino preferiresti essere? 'Two boys are singing a song. A man is listening to one boy, a man is applauding the other boy. Which boy would you rather be?'	Il bambino che il signore ascolta/applaude. 'The boy that the man is listening to/applauding'	OR preverbal lexical subj
Due bambini si sono nascosti. Un amico cerca un bambino, un amico trova l'altro bambino. Tu quale bambino preferiresti essere? 'Two boys are hiding. A friend is looking for one boy, a friend is finding the other boy. Which boy would you rather be?'	Il bambino che l'amico cerca/trova. 'The boy that the friend is looking for/finding'	OR preverbal lexical subj
Un papà fa i dispetti a due bambini. Solletica un bambino, morde l'altro bambino. Tu quale bambino preferiresti essere? 'A dad is teasing two boys. (He) is tickling one boy, (he) is biting the other boy. Which boy would you rather be?'	Il bambino che solletica/morde. 'The boy that (he) is tickling/biting'	OR null pronominal subj
Un amico aiuta due bambini a fare l'altalena. Spinge un bambino, ribalta l'altro bambino. Tu quale bambino preferiresti essere? 'A friend is helping two boys swinging. (He) is pushing a boy, (he) is pulling the other boy. Which boy would you rather be?'	Il bambino che spinge/ribalta. 'The boy that (he) is pushing/pulling'	OR null pronominal subj

Un papà tiene sulle ginocchia due bambini. Accarezza un bambino, abbraccia l'altro bambino. Tu quale bambino preferiresti essere? 'A dad has two boys on his knees. (He) is caressing one boy, (he) is hugging the other boy. Which boy would you rather be?'	Il bambino che accarezza/abbraccia. 'The boy that (he) is caressing/hugging'	OR null pronominal subj
Un maestro rivede i compiti con due bambini. Corregge un bambino, rimprovera l'altro bambino. Tu quale bambino preferiresti essere? 'A teacher is revising the homework with two boys. (He) is correcting one boy, (he) is reproaching the other boy. Which boy would you rather be?'	Il bambino che corregge/rimprovera. 'The boy that (he) is correcting/ reproaching'	OR null pronominal subj
Due bambini sono a scuola e fanno confusione. Un maestro sgrida un bambino, un bidello sgrida l'altro bambino. Tu quale bambino preferiresti essere? 'Two boys are at school and they are making noise. A teacher is scolding one boy, a janitor is scolding the other boy. Which boy would you rather be?'	Il bambino che sgrida il maestro/il bidello. 'The boy that the teacher/janitor is scolding'	OR postverbal lexical subj
Due bambini devono fare i compiti. Un amico aiuta un bambino, un signore aiuta l'altro bambino. Tu quale bambino preferiresti essere? 'Two boys have to do their homework. A friend is helping one boy, a man is helping the other boy. Which boy would you rather be?'	Il bambino che aiuta l'amico/il signore. The boy that the friend/man is helping'	OR postverbal lexical subj
Due bambini devono andare ad una festa in maschera. Un papà veste un bambino, un amico veste l'altro bambino. Tu quale bambino preferiresti essere? 'Two boys have to go to a costume party. A dad is dressing one boy, a friend is dressing the other boy. Which boy would you rather be?'	Il bambino che veste il papà/l'amico. 'The boy that the dad/friend is dressing'	OR postverbal lexical subj
Due bambini giocano in giardino. Un papà rincorre un bambino, un amico rincorre l'altro bambino. Tu quale bambino preferiresti essere? 'Two boys are playing in the garden. A dad is chasing one boy, a dad is chasing the other boy. Which boy would you rather be?'	Il bambino che rincorre il papà/l'amico. the boy is chasing the dad/friend 'The boy that the dad/friend is chasing'	OR postverbal lexical subj
Un papà vorrebbe pettinare due bambini per una festa. Purtroppo però non ne ha proprio il tempo. Allora lui pettina un bambino e qualcun'altro pettina l'altro bambino. Tu quale bambino vorresti essere? 'A dad would love to comb two boys for a show. But unfortunately, he has no time. So, he combs one boy and someone else combs the other boy. Which boy would you rather be?'	Il bambino che pettina il papà/qualcun altro. the boy that (pro) is combing the dad/someone else 'The boy that the dad/someone else is combing'	OR postverbal lexical subj

Un papà vorrebbe accompagnare due bambini all'asilo. Purtroppo però non ne ha proprio il tempo. Allora lui accompagna un bambino e qualcun'altro accompagna l'altro bambino. Tu quale bambino preferiresti essere? 'A dad would love to drive two boys at the daycare. But unfortunately, he has no time. So, he drives one boy, and someone else drives the other boy. Which boy would you rather be?'	Il bambino che accompagna il papà/qualcun altro. the boy that (pro) is driving the dad/someone else 'The boy that the dad/someone else is driving'	OR postverbal lexical subj
Un signore vorrebbe acchiappare due bambini. I due bambini pero scappano in due direzioni diverse e il signore non può inseguire entrambi. Allora lui acchiappa un bambino e qualcun'altro acchiappa l'altro bambino. Tu quale bambino preferiresti essere? 'A man would love to catch two boys. But the two boys are running away in two different directions, and the man cannot chase both of them. So, he catches a boy and someone else catches the other boy. Which boy would you rather be?'	Il bambino che acchiappa il signore/qualcun altro. the boy that (pro) is catching the man/someone else 'The boy that the man/someone else is catching'	OR postverbal lexical subj
Un amico vorrebbe filmare due bambini durante una recita. I due bambini però sono in due parti diverse del palco e l'amico non riesce a filmare entrambi. Allora lui filma un bambino e qualcun'altro filma l'altro bambino. Tu quale bambino preferiresti essere? 'A friend would love to film two boys during a show. But the two boys are in two different part of the stage and the friend cannot film both of them. So, he films a boy and someone else films the other boy. Which boy would you rather be?'	Il bambino che filma l'amico/qualcun altro. the boy that (pro) is filming the friend/someone else 'The boy that the friend/someone else is filming'	OR postverbal lexical subj

List of elicitations and items in Experiment 2: Manipulating the nature of the subject in the elicited production of object relatives in French.

Version for female participants.

Elicitation	Item	Condition
Deux filles sont au parc. Une fille regarde une dame, une fille indique une dame. Quelle fille est-ce que tu préfères être? 'Two girls are at the park. A girl is looking at a lady, a girl is pointing to a lady. Which girl would you rather be?'	La fille qui regarde/indique une dame. 'The girl that is looking at/pointing to the lady'	SR
Deux filles jouent aux indiens avec leur maman. Une fille emprisonne la maman, une fille bande la maman. Quelle fille est-ce que tu préfères être? 'Two girls are playing cowboys with their mom. A girl is tying the mom, a girl is blindfolding the mom. Which girl would you rather be?'	La fille qui emprisonne/ bande la maman. 'The girl that is tying/ blindfolding the mom'	SR
Deux filles sont à un spectacle. Une fille prend en photo une danseuse, une fille regarde une danseuse. Quelle fille est-ce que tu préfères être? 'Two girls are at a show. A girl is photographing a dancer, a girl is looking at a dancer. Which girl would you rather be?'	La fille qui prend en photo/regarde la danseuse. 'The girl that is photographing/looking at the dancer'	SR
Deux filles font les malines. Une fille pince une amie, une fille mouille une amie. Quelle fille est-ce que tu préfères être? 'Two girls are being spiteful. A girl is pinching a friend, a girl is wetting a friend. Which girl would you rather be?'	La fille qui pince/mouille l'amie. 'The girl that is pinching/wetting the friend'	SR
Deux filles sont au lit. Une femme endort une fille, une femme réveille une fille. Quelle fille tu préfères être? 'Two girls are in bed. A mom is putting to sleep a girl, a mom is waking up a girl. Which girl would you rather be?'	La fille que la maman endort/réveille. 'The girl that the mom is putting to sleep/waking up'	OR lexical subj
Deux filles sortent de chez elles pour leur premier jour d'école. Une maman salue une fille, une maman console une fille. Quelle fille est-ce que tu préfères être? 'Two girls are going out for their first day at school. A mom is saying goodbye to a girl, a mom is reassuring a girl. Which girl would you rather be?'	La fille que la maman salue/console. 'The girl that the mom is saying goodbye to/ reassuring'	OR lexical subj

Deux filles chantent une chanson. Une dame écoute une fille, une dame applaudie une fille. Quelle fille est-ce que tu préfères être? 'Two girls are singing a song. A lady is listening to a girl, a lady is applauding a girl. Which girl would you rather be?'	La fille que la dame écoute/applaudie. 'The girl that the lady is listening to/applauding'	OR lexical subj
Deux filles se sont cachées. Une amie cherche une fille, une amie trouve une fille. Quelle fille est-ce que tu préfères être? 'Two girls are hiding. A friend is looking for a girl, a friend is finding a girl. Which girl would you rather be?'	La fille que l'amie cherche/trouve. 'The girl that the friend is looking for/finding'	OR lexical subj
Une maman taquine deux filles. Elle chatouille une fille, elle pince une fille. Quelle fille est-ce que tu préfères être? 'A mom is teasing two girls. She is tickling a girl, she is pinching a girl. Which girl would you rather be?'	La fille qu'elle chatouille/pince. 'The girl that she is tickling/pinching'	OR pronominal subj
Une dame aide deux filles à aller sur la balançoire. Elle pousse une fille, elle tire une fille. Quelle fille est-ce que tu préfères être? 'A lady is helping two girls swinging. She is pushing a girl, she is pulling a girl. Which girl would you rather be?'	La fille qu'elle pousse/tire. 'The girl that she is pushing/pulling'	OR pronominal subj
Une maman a deux filles sur ses genoux. Elle caresse une fille, elle embrasse une fille. Quelle fille est-ce que tu préfères être? 'A mom has two girls on her knees. She is caressing a girl, she is kissing a girl. Which girl would you rather be?'	La fille qu'elle caresse/ embrasse. 'The girl that she is caressing/kissing'	OR pronominal subj
Une maitresse revoit les devoirs avec deux filles. Elle aide une fille, elle gronde une fille. Quelle fille est-ce que tu préfères être? 'A teacher is revising the homework with two girls. She is helping a girl, she is scolding a girl. Which girl would you rather be?'	La fille qu'elle aide/gronde. 'The girl that she is helping/scolding'	OR pronominal subj
Une maman aimerait coiffer ses deux filles pour une fête. Mais malheureusement elle n'en a pas le temps. Alors elle coiffe une fille et quelqu'un d'autre coiffe l'autre fille. Quelle fille est-ce que tu préfères être? 'A mom would love to dress her two girls for a party. But unfortunately, she has no time. So, she combs a girl and someone else combes the other girl. Which girl would you rather be?'	La fille que la maman/ quelqu'un d'autre coiffe. 'The girl that the mom/ someone else is combing'	OR new info lexical subj
Une maman aimerait conduire ses deux filles à l'école. Mais malheureusement elle n'en a pas le temps. Alors elle conduit une fille et quelqu'un d'autre conduit l'autre fille. Quelle fille est-ce que tu préfères être?	La fille que la maman/ quelqu'un d'autre conduit. 'The girl that the mom/ someone else is driving'	OR new info lexical subj

'A mom would love to drive two girls at school. But unfortunately, she has no time. So, she drives a girl, and someone else drives the other girl. Which girl would you rather be?'		
Une maman aimerait capturer ses deux filles. Mais les deux filles fuient dans deux directions différentes et elle ne peut pas capturer les deux. Alors elle capture une fille et quelqu'un d'autre capture l'autre fille. Quelle fille est-ce que tu préfères être? 'A mom would love to catch her two girls. But the two girls are running away in two different directions, and she cannot chase both of them. So, she catches a girl and someone else catches the other girl. Which girl would you rather be?'	La fille que la maman/ quelqu'un d'autre capture. 'The girl that the lady/ someone else is catching'	OR new info lexical subj
Une dame aimerait filmer deux filles lors d'un spectacle. Mais les deux filles dansent dans deux parties différentes de la scène et elle ne peut pas filmer les deux. Alors elle filme une fille et quelqu'un d'autre filme l'autre fille. Quelle fille est-ce que tu préfères être? 'A lady would love to film two girls during a show. But the two girls are in two different part of the stage and she cannot film both of them. So, she films a girl and someone else films a girl. Which girl would you rather be?'	La fille que la dame/ quelqu'un d'autre film. 'The girl that the friend/ someone else is filming'	OR new info lexical subj

Version for male participants.

Elicitation	Item	Condition
Deux garçons sont au parc. Un garçon regarde un homme, un garçon indique un homme. Quel garçon est-ce que tu préfères être? 'Two boys are at the park. A boy is looking at a man, a boy is pointing to a man. Which boy would you rather be?'	Le garçon qui regarde/ indique l'homme. 'The boy that is looking at/pointing to the man'	SR
Deux garçons jouent aux indiens avec leur papa. Un garçon emprisonne le papa, un garçon bande le papa. Quel garçon est-ce que tu préfères être? 'Two boys are playing cowboys with their dad. A boy is tying the dad, a boy is blindfolding the dad. Which boy would you rather be?'	Le garçon qui emprisonne/ bande le papa. 'The boy that is tying/ blindfolding the dad'	SR
Deux garçons sont à un spectacle. Un garçon photographie un danseur, un garçon regarde un danseur. Quel garçon est-ce que tu préfères être?	Le garçon qui photographie/ regarde un danseur.	SR

'Two boys are at a show. A boy is photographing a dancer, a boy is looking at a dancer. Which boy would you rather be?'	'The boy that is photographing/looking at the dancer'	
Deux garçons font les malins. Un garçon pince un ami, un garçon mouille un ami. Quel garçon tu préfères être? 'Two boys are being spiteful. A boy is pinching a friend, a boy is wetting a friend. Which boy would you rather be?'	Le garçon qui pince/ mouille l'ami. 'The boy that is pinching /wetting the friend'	SR
Deux garçons sont au lit. Un homme endort un garçon, un homme réveille un garçon. Quel garçon est-ce que tu préfères être? 'Two boys are in bed. A dad is putting to sleep a boy, a dad is waking up a boy. Which boy would you rather be?'	Le garçon que le papa endort/réveille. 'The boy that the dad is putting to sleep/waking up'	OR lexical subj
Deux garçons sortent de chez eux pour leur premier jour d'école. Un papa salue un garçon, un papa console un garçon. Quel garçon est-ce que tu préfères être? 'Two boys are going out for their first day at school. A dad is saying goodbye to a boy, a dad is reassuring a boy. Which boy would you rather be?'	Le garçon que le papa salue/console. 'The boy that the dad is saying goodbye to/ reassuring'	OR lexical subj
Deux garçons chantent une chanson. Un homme écoute un garçon, un homme applaudie un garçon. Quel garçon est-ce que tu préfères être? 'Two boys are singing a song. A man is listening to a boy, a man is applauding a boy. Which boy would you rather be?'	Le garçon que l'homme écoute/applaudie. 'The boy that the man is listening to/applauding'	OR lexical subj
Deux garçons se sont cachés. Un ami cherche un garçon, un ami trouve un garçon. Quel garçon est-ce que tu préfères être? 'Two boys are hiding. A friend is looking for a boy, a friend is finding a boy. Which boy would you rather be?'	Le garçon que l'amie cherche/trouve. 'The boy that the friend is looking for/finding'	OR lexical subj
Un papa taquine deux garçons. Il chatouille un garçon, il pince un garçon. Quel garçon est-ce que tu préfères être? 'A dad is teasing two boys. He is tickling a boy, he is pinching a boy. Which boy would you rather be?'	Le garçon qu'il chatouille/pince. 'The boy that he is tickling/pinching'	OR pronominal subj
Un homme aide deux garçons à aller sur la balançoire. Il pousse un garçon, il renverse un garçon. Quel garçon est-ce que tu préfères être? 'A man is helping two boys swinging. He is pushing a boy, he is pulling a boy. Which boy would you rather be?'	Le garçon qu'il pousse/tire. 'The boy that he is pushing/ pulling'	OR pronominal subj
Un papa a deux garçons sur ses genoux. Il caresse un garçon, il embrasse un garçon. Quel garçon est-ce que tu préfères être? 'A dad has two boys on his knees. He is caressing a boy, he is hugging a boy. Which boy would you rather be?'	Le garçon qu'il caresse/embrasse. 'The boy that she is caressing/hugging'	OR pronominal subj

Un maitre revoit les devoirs avec deux garçons. Il aide un garçon, il gronde un garçon. Quel garçon est-ce que tu préfères être? 'A teacher is revising the homework with two boys. He is helping a boy, he is scolding a boy. Which boy would you rather be?'	Le garçon qu'il aide/gronde. 'The boy that he is helping/scolding'	OR pronominal subj
Un papa aimerait habiller ses deux garçons pour une fête costumée. Mais malheureusement il n'en a pas le temps. Alors il habille un garçon et quelqu'un d'autre habille l'autre garçon. Quel garçon est-ce que tu préfères être? 'A dad would love to dress his two boys for a costume party. But unfortunately, he has no time. So, he dresses a boy and someone else dresses the other boy. Which boy would you rather be?'	Le garçon que le papa/ quelqu'un d'autre habille. 'The boy that the dad/ someone else is dressing'	OR new info lexical subj
Un papa aimerait conduire ses deux garçons à l'école. Mais malheureusement il n'en a pas le temps. Alors il conduit un garçon et quelqu'un d'autre conduit l'autre garçon. Quel garçon est-ce que tu préfères être? 'A dad would love to drive his two boys at school. But unfortunately, he has no time. So, he drives a boy, and someone else drives the other boy. Which boy would you rather be?'	Le garçon que le papa/ quelqu'un d'autre conduit. 'The boy that the dad/ someone else is driving'	OR new info lexical subj
Un papa aimerait capturer ses deux garçons. Mais les deux garçons fuient dans deux directions différentes et il ne peut pas capturer les deux. Alors il capture un garçon et quelqu'un d'autre capture l'autre garçon. Quel garçon est-ce que tu préfères être? 'A dad would love to catch his two boys. But the two boys are running away in two different directions, and he cannot chase both of them. So, he catches a boy and someone else catches the other boy. Which boy would you rather be?'	Le garçon que le papa/ quelqu'un d'autre capture. 'The boy that the dad/ someone else is catching'	OR new info lexical subj
Un homme aimerait filmer deux garçons lors d'un spectacle. Mais les deux garçons dansent dans deux parties différentes de la scène et il ne peut pas filmer les deux. Alors il filme un garçon et quelqu'un d'autre filme l'autre garçon. Quel garçon est-ce que tu préfères être? 'A man would love to film two boys during a show. But the two boys are in two different part of the stage and he cannot film both of them. So, he films a boy and someone else films a boy. Which boy would you rather be?'	Le garçon que l'homme/ quelqu'un d'autre filme. 'The boy that the man/ someone else is filming'	OR new info lexical subj

List of introductions and items in Experiment 3: Manipulating the nature of the subject in the comprehension of object relatives in French.

Introduction	Item	Condition
Ici il y a une dame et deux filles. Montre-moi 'Here there are a lady and two girls. Show me	La fille qui indique la dame. The girl that is pointing to the lady'	SR
Ici il y a un monsieur et deux garçons. Montre-moi 'Here there are a man and two boys. Show me	Le garçon qui regarde le monsieur. The boy that is looking at the man'	SR
Ici il y a une dame et deux filles. Montre-moi 'Here there are a lady and two girls. Show me	La fille qui suit la dame. The girl that is following the lady'	SR
Ici il y a un grand-père et deux enfants. Montre-moi 'Here there are a grandpa and two kids. Show me	L'enfant qui pince le grand-père. The kid that is pinching the grandpa'	SR
Ici il y a un monsieur et deux garçons. Montre-moi 'Here there are a man and two boys. Show me	Le garçon que le monsieur écoute. The boy that the man is listening to'	OR lexical subj
Ici il y une dame et deux filles. Montre-moi 'Here there are a lady and two girls. Show me	La fille que la dame salue. The girl that the lady is greeting'	OR lexical subj
Ici il y a une maman et deux filles. Montre-moi 'Here there are a mom and two girls. Show me	La fille que la maman embrasse. The girl that the mom is kissing'	OR lexical subj
Ici il y a une dame et deux filles. Montre-moi 'Here there are a lady and two girls. Show me	La fille que la dame aide. The girl that the lady is helping'	OR lexical subj
Ici il y a une dame, un monsieur et deux garçons. Montre-moi 'Here there are a lady, a man, and two boys. Show me	Le garçon que le monsieur touche. The boy that the man is touching'	OR new info lexical subj
Ici il y a une dame, un monsieur et deux garçons. Montre-moi 'Here there are a lady, a man, and two boys. Show me	Le garçon que le monsieur coiffe. The boy that the man is combing'	OR new info lexical subj
Ici il y a un papa, une maman et deux filles. Montre-moi 'Here there are a dad, a mom, and two girls. Show me	La fille que la maman accompagne à l'école. The girl that the mom is driving at school'	OR new info lexical subj
Ici il y a un papa, une maman et deux garçons sur la balançoire. Montre-moi 'Here there are a dad, a mom, and two boys on a swing. Show me	Le garçon que le monsieur pousse. The boy that the man is pushing'	OR new info lexical subj

Ici il y a un papa. Montre-moi 'Here there is a dad. Show me	Le garçon qu'il chatouille. The boy that he is tickling'	OR referential pron subj
Ici il y a une dame. Montre-moi 'Here there is a lady. Show me	La fille qu'elle lave. The girl that she is washing'	OR referential pron subj
Ici il y a une maman. Montre-moi 'Here there is a mom. Show me	La fille qu'elle porte. The girl that she is holding'	OR referential pron subj
Ici il y a une dame. Montre-moi 'Here there is a lady. Show me	La fille qu'elle gronde. The girl that she is scolding'	OR referential pron subj
Ici il y a deux danseuses. Montre-moi 'Here there are two dancers. Show me	La danseuse qu'on applaudit. The dancer that someone is applauding'	OR generic pron subj
Ici il y a deux garçons cachés sous la table. Montre-moi 'Here there are two boys hiding under the table. Show me	L'enfant qu'on trouve. The boy that someone is finding'	OR generic pron subj
Ici il y a deux chanteuses. Montre-moi 'Here there are two singers. Show me	La chanteuse qu'on filme. The singer that someone is filming'	OR generic pron subj
Ici il y a deux filles à l'école. Montre-moi 'Here there are two girls at school. Show me	La fille qu'on aide. The girl that someone is helping'	OR generic pron subj

List of elicitations and items in Experiment 4: Elicited production of relative clauses with an animacy mis/match in Italian.

Version for female participants.

Elicitation	Item	Condition
Due ragazze sono ad uno spettacolo. Una ragazza filma una bambina, l'altra ragazza fotografa una bambina. Quale ragazza preferiresti essere? 'Two ladies are at a show. One lady is filming a girl, the other lady is photographing a girl. Which lady would you rather be?'	La ragazza che fotografa/filma la bambina. 'The lady that is photographing/ filming the girl'	SR +An +An
Due donne assistono ad una recita. Una donna ascolta una bambina, l'altra donna applaude una bambina. Tu quale donna preferiresti? 'Two women are at a play. One woman is listening to a girl, the other woman is applauding a girl. Which woman would you prefer?'	La donna che ascolta/applaude la bambina. 'The woman that is listening/ applauding the girl'	SR +An +An
Due amiche vedono due bambine fare i capricci. Un'amica rimprovera una bambina, l'altra amica consola una bambina. Tu quale amica preferiresti? 'Two friends saw two girls throwing a tantrum. One friend is reproaching a girl, the other friend is comforting a girl. Which friend would you prefer?'	L'amica che rimprovera/consola la bambina. 'The friend that is reproaching/comforting the girl'	SR +An +An
Ci sono due donne. Una donna sveglia una bambina, l'altra donna addormenta una bambina. Tu quale donna preferiresti? 'There are two ladies. One lady is waking up a girl, the other lady is putting to sleep a girl. Which lady would you prefer?'	La donna che sveglia/addormenta la bambina. 'The lady that is waking up/putting to sleep the girl'	SR +An +An
Due ragazze sono al parco. Una ragazza saluta una bambina, l'altra ragazza indica una bambina. Tu quale ragazza preferiresti? 'Two ladies are at the park. One lady is greeting a girl, the other lady is pointing to a girl. Which lady would you prefer?'	La ragazza che saluta/indica la bambina. 'The lady that is greeting/pointing to the girl'	SR +An +An

Due donne giocano a nascondino. Una donna cerca una bambina, l'altra donna trova una bambina. Tu quale donna preferiresti? 'Two women are playing hide and seek. One woman is looking for a girl, the other woman is finding a girl. Which woman would you prefer?'	La donna che cerca/trova la bambina. 'The woman that is looking/finding the girl'	SR +An +An
Ci sono due maestre. Una maestra sgrida una bambina, l'altra maestra punisce una bambina. Tu quale maestra preferiresti? 'There are two teachers. One teacher is scolding a girl, the other teacher is grounding a girl. Which teacher would you prefer?'	La maestra che sgrida/punisce la bambina. 'The teacher that is scolding/ grounding the girl'	SR +An +An
Ci sono due mamme. Una mamma abbraccia una bambina, l'altra mamma bacia una bambina. Tu quale mamma preferiresti? 'There are two moms. One mom is hugging a girl, the other mom is kissing a girl. Which mom would you prefer?'	La mamma che abbraccia/bacia la bambina. 'The mom that is hugging/kissing the girl'	SR +An +An
Due bambine fanno uno spettacolo. Una ragazza filma una bambina, una ragazza fotografa l'altra bambina. Quale bambina preferiresti essere? 'Two girls are playing in a show. A lady is filming one girl, a lady is photographing the other girl. Which girl would you prefer to be?'	La bambina che la ragazza filma/ fotografa. 'The girl that the lady is filming/photographing'	OR +An +An
Due bambine recitano una poesia. Una donna ascolta una bambina, una donna applaude l'altra bambina. Tu quale bambina preferiresti essere? 'Two girls are reciting a poem. A woman is listening to one girl, a woman is applauding the other girl. Which girl would you prefer to be?'	La bambina che la donna ascolta/ applaude 'The girl that the woman is listening to/applauding'	OR +An +An
Due bambine fanno i capricci. Un'amica rimprovera una bambina, un'amica consola l'altra bambina. Tu quale bambina preferiresti essere? 'Two girls are throwing a tantrum. A friend is reproaching one girl, a friend is comforting the other girl. Which girl would you prefer to be?'	La bambina che l'amica rimprovera/ consola. 'The girl that the friend is reproaching/comforting'	OR +An +An
Due bambine sono a letto. Una donna sveglia una bambina, una donna addormenta l'altra bambina. Tu quale bambina preferiresti essere? 'Two girls are in bed. A mom is waking up one girl, a mom is putting to sleep the other girl. Which girl would you prefer to be?'	La bambina che la mamma sveglia/ addormenta. 'The girl that the mom is waking up/putting to sleep'	OR +An +An

Due bambine sono al parco. Una ragazza saluta una bambina, una ragazza indica l'altra bambina. Tu quale bambina preferiresti essere? 'Two girls are at the park. A lady is greeting one girl, a lady is pointing to the other girl. Which girl would you prefer to be?'	La bambina che la ragazza saluta/ indica. 'The girl that the lady is greeting/pointing to'	OR +An +An
Due bambine giocano a nascondino. Una donna cerca una bambina, una donna trova l'altra bambina. Tu quale bambina preferiresti essere? 'Two girls are playing hide and seek. A woman is looking for one girl, a woman is finding the other girl. Which girl would you prefer to be?'	La bambina che la donna cerca/trova. 'The girl that the woman is looking for/finding'	OR +An +An
Ci sono due bambine. Una maestra sgrida una bambina, una maestra punisce l'altra bambina. Tu quale bambina preferiresti essere? 'There are two girls. A teacher is scolding one girl, a teacher is grounding the other girl. Which girl would you prefer to be?'	La bambina che la maestra sgrida/ punisce. 'The girl that the teacher is scolding/ grounding'	OR +An +An
Ci sono due bambine. Una mamma abbraccia una bambina, una mamma bacia l'altra bambina. Tu quale bambina preferiresti essere? 'There are two girls. A mom is hugging a girl, a mom is kissing the other girl. Which girl would you prefer to be?'	La bambina che la mamma abbraccia/ bacia. 'The girl that the mom is hugging/ kissing'	OR +An +An
Ci sono due bambine. Una bambina perde una collana, l'altra bambina presta una collana. Tu quale bambina preferiresti essere? 'There are two girls. One girl is losing a necklace, the other girl is loaning a necklace. Which girl would you prefer to be?'	La bambina che perde/presta la collana. 'The girl that is losing/loaning the necklace'	SR −An +An
Ci sono due bambine. Una bambina rompe una penna, l'altra bambina aggiusta una penna. Tu quale bambina preferiresti essere? 'There are two girls. One girl is breaking a pen, the other girl is repairing a pen. Which girl would you prefer to be?'	La bambina che rompe/aggiusta la penna. 'The girl that is breaking/repairing the pen'	SR −An +An
Ci sono due bambine. Una bambina raccoglie una margherita, l'altra bambina strappa una margherita. Tu quale bambina preferiresti essere? 'There are two girls. One girl is picking a marguerite, the other girl is tearing a marguerite. Which girl would you prefer to be?'	La bambina che raccoglie/strappa la margherita. 'The girl that is picking/ tearing the marguerite'	SR −An +An

Ci sono due bambine. Una bambina dipinge una scatola, l'altra bambina prepara una scatola. Tu quale bambina preferiresti essere? 'There are two girls. One girl is painting a box, the other girl is preparing a box. Which girl would you prefer to be?'	La bambina che dipinge/prepara la scatola. 'The girl that is painting/preparing the box'	SR −An +An
Ci sono due bambine. Una bambina tira una palla, l'altra bambina buca una palla. Tu quale bambina preferiresti essere? 'There are two girls. One girl is throwing a ball, the other girl is piercing a ball. Which girl would you prefer to be?'	La bambina che tira/buca la palla. 'The girl that is throwing/piercing the ball'	SR −An +An
Ci sono due bambine. Una bambina cucina una torta, l'altra bambina compra una torta. Tu quale bambina preferiresti essere? 'There are two girls. One girl is making a cake, the other girl is buying a cake. Which girl would you prefer to be?'	La bambina che cucina/compra la torta. 'The girl that is making/buying the cake'	SR −An +An
Ci sono due bambine. Una bambina regala una bambola, l'altra bambina vende una bambola. Tu quale bambina preferiresti essere? 'There are two girls. One girl is offering a doll, the other girl is selling a doll. Which girl would you prefer to be?'	La bambina che regala/vende la bambola. 'The girl that is offering/selling the doll'	SR −An +An
Ci sono due bambine. Una bambina lava una macchina, l'altra bambina vernicia una macchina. Tu quale bambina preferiresti essere? 'There are two girls. One girl is washing one car, the other girl is painting a car. Which girl would you prefer to be?'	La bambina che lava/vernicia la macchina. 'The girl that is washing/painting the car'	SR −An +An
Ci sono due penne. Una bambina rompe una penna, una bambina aggiusta l'altra penna. Tu quale penna preferiresti usare? 'There are two pens. A girl is breaking one pen, a girl is repairing the other pen. Which pen would you prefer to use?'	La penna che la bambina rompe/ aggiusta. 'The pen that the girl is breaking/ repairing'	OR −An +An
Ci sono due collane. Una bambina perde una collana, una bambina presta l'altra collana. Tu quale collana preferiresti? 'There are two necklaces. A girl is losing one necklace, a girl is loaning the other necklace. Which necklace would you prefer?'	La collana che la bambina perde/ presta. 'The necklace that the girl is losing/loaning'	OR −An +An

Ci sono due margherite. Una bambina raccoglie una margherita, una bambina strappa l'altra margherita. Tu quale margherita preferiresti? 'There are two marguerites. A girl is picking one marguerite, a girl is tearing the other marguerite. Which marguerite would you prefer?'	La margherita che la bambina raccoglie/strappa. 'The marguerite that the girl is picking/tearing.	OR −An +An
Ci sono due scatole. Una bambina dipinge una scatola, una bambina prepara l'altra scatola. Tu quale scatola preferiresti? 'There are two boxes. A girl is painting one box, a girl is preparing the other box. Which box would you prefer?'	La scatola che la bambina dipinge/ prepara. 'The box that the girl is painting/ preparing'	OR −An +An
Ci sono due palle. Una bambina tira una palla, una bambina buca l'altra palla. Tu quale palla preferiresti usare? 'There are two balls. A girl is throwing one ball, a girl is piercing the other ball. Which ball would you prefer?'	La palla che la bambina tira/buca. 'The ball that the girl is throwing/ piercing'	OR −An +An
Ci sono due torte. Una bambina cucina una torta, una bambina compra una torta. Tu quale torta preferiresti mangiare? 'There are two cakes. A girl is making one cake, a girl is buying the other cake. Which cake would you prefer to eat?'	La torta che la bambina cucina/ compra. 'The cake that the girl is making/ buying'	OR −An +An
Ci sono due bambole. Una bambina regala una bambola, una bambina vende l'altra bambola. Tu quale bambola preferiresti? 'There are two dolls. A girl is offering one doll, a girl is selling the other doll. Which doll would you prefer?'	La bambola che la bambina regala/ vende. 'The doll that the girl is offering/ selling'	OR −An +An
Ci sono due macchine. Una bambina lava una macchina, una bambina vernicia l'altra macchina. Tu quale macchina preferiresti? 'There are two cars. A girl is washing one car, a girl is painting the other car. Which car would you prefer?'	La macchina che la bambina lava/ vernicia. 'The car that the girl is washing/ painting'	OR −An +An
Ci sono due fiamme. Una fiamma scalda una bambina, l'altra fiamma scotta una bambina. Tu quale fiamma preferiresti? 'There are two flames. One flame is warming a girl, the other flame is burning a girl. Which flame would you prefer?'	La fiamma che scalda/scotta la bambina. 'The flame that is warming/ burning the girl'	SR +An −An

Ci sono due storie. Una storia spaventa una bambina, l'altra storia incuriosisce una bambina. Tu quale storia preferiresti ascoltare? 'There are two stories. One story is scaring a girl, the other story is intriguing a girl. Which story would you prefer to listen to?'	La storia che spaventa/incuriosisce la bambina. 'The story that is scaring/intriguing the girl'	SR +An −An
Ci sono due recite. Una recita annoia una bambina, l'altra recita diverte una bambina. Tu quale recita preferiresti? 'There are two plays. One play is boring a girl, the other play is entertaining a girl. Which play would you prefer?'	La recita che annoia/diverte la bambina. 'The play that is boring/entertaining the girl'	SR +An −An
Ci sono due borse. Una borsa appesantisce una bambina, l'altra borsa fa cadere una bambina. Tu quale borsa preferiresti usare? 'There are two bags. One bag is weighting a girl, the other bag is making a girl fall. Which bag would you prefer to use?'	La borsa che appesantisce/fa cadere la bambina. 'The bag that is weighting the girl/ making the girl fall'	SR +An −An
Ci sono due corde. Una corda graffia una bambina, l'altra corda taglia una bambina. Tu quale corda preferiresti usare? 'There are two cords. One cord is scratching a girl, the other cord is cutting a girl. Which cord would you prefer to use?'	La corda che graffia/taglia la bambina. 'The cord that is scratching/cutting the girl'	SR +An −An
Ci sono due spille. Una spilla punge una bambina, l'altra spilla solletica una bambina. Tu quale spilla preferiresti usare? 'There are two brooches. One brooch is stinging a girl, the other brooch is tickling a girl. Which brooch would you prefer to use?'	La spilla che punge/solletica la bambina. 'The brooch that is stinging/tickling the girl'	SR +An −An
Ci sono due musiche. Una musica disturba una bambina, l'altra musica sveglia una bambina. Tu quale musica preferiresti? 'There are two melodies. One melody is bothering a girl, the other melody is waking up a girl. Which melody would you prefer?'	La musica che disturba/sveglia la bambina. 'The melody that is bothering/waking up the girl'	SR +An −An
Ci sono due spugne. Una spugna pulisce una bambina, l'altra spugna sporca una bambina. Tu quale spugna preferiresti usare? 'There are two sponges. One sponge is cleaning a girl, the other sponge is dirtying a girl. Which sponge would you prefer to use?'	La spugna che pulisce/sporca la bambina. 'The sponge that is cleaning/dirtying the girl'	SR +An −An

Ci sono due bambine. Una fiamma scalda una bambina, una fiamma scotta l'altra bambina. Tu quale bambina preferiresti essere? 'There are two girls. A flame is warming one girl, a flame is burning the other girl. Which girl would you prefer to be?'	La bambina che la fiamma scalda/ scotta. 'The girl that the flame is warming/ burning'	OR +An −An
Ci sono due bambine. Una storia spaventa una bambina, una storia incuriosisce l'altra bambina. Tu quale bambina preferiresti essere? 'There are two girls. A story is scaring one girl, a story is intriguing the other girl. Which girl would you prefer to be?'	La bambina che la storia spaventa/ incuriosisce. 'The girl that the story is scaring/ intriguing'	OR +An −An
Ci sono due bambine. Una recita annoia una bambina, una recita diverte l'altra bambina. Tu quale bambina preferiresti essere? 'There are two girls. A play is boring one girl, a play is entertaining the other girl. Which girl would you prefer to be?'	La bambina che la recita annoia/ diverte. 'The girl that the play is boring/ entertaining'	OR +An −An
Ci sono due bambine. Una borsa appesantisce una bambina, una borsa fa cadere l'altra bambina. Tu quale bambina preferiresti essere? 'There are two girls. A bag is weighting one girl, a bag is making the other girl fall. Which girl would you prefer to be?'	La bambina che la borsa appesantisce/ fa cadere. 'The girl that the bag is weighting /making fall'	OR +An −An
Ci sono due bambine. Una corda graffia una bambina, una corda taglia l'altra bambina. Tu quale bambina preferiresti essere? 'There are two girls. A cord is scratching one girl, a cord is cutting the other girl. Which girl would you prefer to be?'	La bambina che la corda graffia/taglia. 'The girl that the cord is scratching/ cutting'	OR +An −An
Ci sono due bambine. Una spilla punge una bambina, una spilla solletica l'altra bambina. Tu quale bambina preferiresti essere? 'There are two girls. A brooch is stinging one girl, a brooch is tickling the other girl. Which girl would you prefer to be?'	La bambina che la spilla punge/ solletica. 'The girl that the brooch is stinging/ tickling'	OR +An −An
Ci sono due bambine. Una musica disturba una bambina, una musica sveglia l'altra bambina. Tu quale bambina preferiresti essere? 'There are two girls. A melody is bothering one girl, a melody is waking up the other girl. Which girl would you prefer to be?'	La bambina che la musica disturba/ sveglia. 'The girl that the melody is bothering/ waking up'	OR +An −An

Ci sono due bambine. Una spugna pulisce una bambina, una spugna sporca l'altra bambina. Tu quale bambina preferiresti essere? 'There are two girls. A sponge is cleaning one girl, a sponge is dirtying the other girl. Which girl would you prefer to be?'	La bambina che la spugna pulisce/ sporca. 'The girl that the sponge is cleaning/ dirtying'	OR +An −An
Ci sono due acquazzoni. Un acquazzone bagna un passeggino, l'altro acquazzone arrugginisce un passeggino. Tu quale acquazzone preferiresti? 'There are two downpours. One downpour is wetting a stroller, the other downpour is rusting a stroller. Which downpour would you prefer?'	L'acquazzone che bagna/arrugginisce il passeggino. 'The downpour that is wetting/rusting the stroller'	SR −An −An
Ci sono due stufe. Una stufa riscalda una stanza, l'altra stufa incendia una stanza. Tu quale stufa preferiresti usare? 'There are two stoves. One stove is warming a room, the other stove is burning a room. Which stove would you prefer to use?'	La stufa che riscalda/incendia la stanza. 'The stove that is warming/burning the room'	SR −An −An
Ci sono due ferri da stiro. Un ferro da stiro stira un pigiama, l'altro ferro da stiro brucia un pigiama. Tu quale ferro da stiro preferiresti usare? 'There are two irons. One iron is ironing the pyjama, the other iron is burning the pyjama. Which iron would you prefer to use?'	Il ferro da stiro che stira/brucia il pigiama. 'The iron that is ironing/burning the pyjama'	SR −An −An
Ci sono due temporali. Un temporale distrugge un ombrello, l'altro temporale rovina un ombrello. Tu quale temporale preferiresti? 'There are two storms. One storm is breaking an umbrella, the other storm is ruining an umbrella. Which storm would you prefer?'	Il temporale che distrugge/rovina l'ombrello. 'The storm that is breaking/ruining the umbrella'	SR −An −An
Ci sono due folate di vento. Una folata di vento rovescia una pianta, l'altra folata di vento spacca una pianta. Tu quale folata di vento preferiresti? 'There are two gusts of wind. One gust of wind is overturning a potted plant, the other gust of wind is crushing a potted plant. Which gust of wind would you prefer?'	La folata di vento che rovescia/spacca la pianta. 'The gust of wind that is overturning/ crushing the potted plant'	SR −An −An
Ci sono due scritte. Una scritta abbellisce una pagina, l'altra scritta imbruttisce una pagina. Tu quale scritta preferiresti? 'There are two writings. One writing is decorating a page, the other writing is uglying up a page. Which writing would you prefer?'	La scritta che abbellisce/imbruttisce la pagina. 'The writing that is decorating/uglying up the page'	SR −An −An

Ci sono due nastri. Un nastro nasconde un buco, l'altro nastro tappa un buco. Tu quale nastro preferiresti? 'There are two tapes. One tape is hiding a hole, the other tape is plugging a hole. Which tape would you prefer?'	Il nastro che nasconde/tappa il buco. 'The tape that is hiding/plugging the hole'	SR −An −An
Ci sono due temporali. Un temporale inzuppa un lenzuolo, l'altro temporale strappa un lenzuolo. Tu quale temporale preferiresti? 'There are two thunderstorms. One thunderstorm is soaking a blanket, the other thunderstorm is tearing a blanket. Which thunderstorm would you prefer?'	Il temporale che inzuppa/strappa il lenzuolo. 'The thunderstorm that is soaking/ tearing the blanket'	SR −An −An
Ci sono due passeggini. Un acquazzone bagna un passeggino, un acquazzone arrugginisce l'altro passeggino. Tu quale passeggino preferiresti? 'There are two strollers. A shower is wetting one stroller, a shower is rusting the other stroller. Which stroller would you prefer?'	Il passeggino che l'acquazzone bagna/ arrugginisce. 'The stroller that the shower is wetting/rusting'	OR −An −An
Ci sono due stanze. Una stufa riscalda una stanza, una stufa incendia l'altra stanza. Tu quale stanza preferiresti? 'There are two rooms. A stove is warming one room, a stove is burning the other room. Which room would you prefer?'	La stanza che la stufa riscalda/ incendia. 'The room that the stove is warming/ burning'	OR −An −An
Ci sono due pigiami. Un ferro da stiro stira un pigiama, un ferro da stiro brucia l'altro pigiama. Tu quale pigiama preferiresti? 'There are two pyjamas. An iron is ironing one pyjama, an iron is burning the other pyjama. Which pyjama would you prefer?'	Il pigiama che il ferro da stiro stira/ brucia. 'The pyjama that the iron is ironing/ burning'	OR −An −An
Ci sono due ombrelli. Un temporale distrugge un ombrello, un temporale rovina l'altro ombrello. Tu quale ombrello preferiresti usare? 'There are two umbrellas. A storm is breaking one umbrella, a storm is ruining the other umbrella. Which umbrella would you prefer to use?'	L'ombrello che il temporale rovina/ distrugge. 'The umbrella that the storm is ruining/breaking.	OR −An −An
Ci sono due piante. Una folata di vento rovescia una pianta, una folata di vento spacca l'altra pianta. Tu quale pianta preferiresti? 'There are two plotted plants. A gust of wind is overturning one plant, a gust of wind is crushing the other plant. Which plant would you prefer?'	La pianta che la folata di vento rovescia/spacca. 'The plant that the gust of wind is overturning/crushing'	OR −An −An

Ci sono due pagine. Una scritta abbellisce una pagina, una scritta imbruttisce l'altra pagina. Tu quale pagina preferiresti? 'There are two pages. A writing is decorating one page, a writing is uglying up the other page. Which page would you prefer?'	La pagina che la scritta abbellisce/ imbruttisce. 'The page that the writing is decorating/uglying up'	OR −An −An
Ci sono due buchi. Un nastro nasconde un buco, un nastro tappa l'altro buco. Tu quale buco preferiresti? 'There are two holes. A tape is hiding one hole, a tape is plugging the other hole. Which hole would you prefer?'	Il buco che il nastro tappa/nasconde. 'The hole that the tape is plugging/ hiding'	OR −An −An
Ci sono due lenzuoli. Un temporale inzuppa un lenzuolo, un temporale strappa l'altro lenzuolo. Tu quale lenzuolo preferiresti? 'There are two blankets. A thunderstorm is soaking one blanket, a thunderstorm is tearing the other blanket. Which blanket would you prefer?'	Il lenzuolo che il temporale strappa/ inzuppa. 'The blanker that the thunderstorm is tearing/soaking'	OR −An −An

Version for male participants.

Elicitation	Item	Condition
Due ragazzi sono ad uno spettacolo. Un ragazzo filma un bambino, l'altro ragazzo fotografa un bambino. Quale ragazzo preferiresti? 'Two men are at a show. One man is filming a boy, the other man is photographing a boy. Which man would you rather be? '	Il ragazzo che fotografa/filma il bambino. 'The man that is photographing/ filming the boy'	SR +An +An
Due signori assistono ad uno spettacolo. Un signore ascolta un bambino, l'altro signore applaude un bambino. Tu quale signore preferiresti? 'Two men are at a play. One man is listening to a boy, the other man is applauding a boy. Which man would you prefer?'	Il signore che ascolta/applaude il bambino. 'The man that is listening/ applauding the boy'	SR +An +An
Due amici vedono due bambini fare i capricci. Un amico rimprovera un bambino, l'altro amico consola un bambino. Tu quale amico preferiresti? 'Two friends saw two boys throwing a tantrum. One friend is reproaching a boy, the other friend is comforting a boy. Which friend would you prefer?'	L'amico che rimprovera/consola il bambino. 'The friend that is reproaching/comforting the boy'	SR +An +An

Ci sono due papà. Un papà sveglia un bambino, l'altro papà addormenta un bambino. Tu quale papà preferiresti? 'There are two daddies. One dad is waking up a boy, the other dad is putting to sleep a boy. Which dad would you prefer?'	Il papà che sveglia/addormenta il bambino. 'The dad that is waking up/putting to sleep the boy'	SR +An +An
Due ragazzi sono al parco. Un ragazzo saluta un bambino, l'altro ragazzo indica un bambino. Tu quale ragazzo preferiresti? 'Two men are at the park. One man is greeting a boy, the other man is pointing to a boy. Which man would you prefer?'	Il ragazzo che saluta/indica il bambino. 'The man that is greeting/pointing to the boy'	SR +An +An
Due signori giocano a nascondino. Un signore cerca un bambino, l'altro signore trova un bambino. Tu quale signore preferiresti? 'Two men are playing hide and seek. One man is looking for a boy, the other man is finding a boy. Which man would you prefer?'	Il signore che cerca/trova il bambino. 'The man that is looking/finding the boy'	SR +An +An
Ci sono due maestri. Un maestro sgrida un bambino, l'altro maestro punisce on bambino. Tu quale maestro preferiresti? 'There are two teachers. One teacher is scolding a boy, the other teacher is grounding a boy. Which teacher would you prefer?'	Il maestro che sgrida/punisce il bambino. 'The teacher that is scolding/ grounding the boy'	SR +An +An
Ci sono due papà. Un papà abbraccia Un bambino, l'altro papà bacia un bambino. Tu quale papà preferiresti? 'There are two daddies. One dad is hugging a boy, the other dad is kissing a boy. Which dad would you prefer?'	Il papà che abbraccia/bacia il bambino. 'The dad that is hugging/kissing the boy'	SR +An +An
Due bambini fanno uno spettacolo. Un ragazzo filma un bambino, un ragazzo fotografa l'altro bambino. Quale bambino preferiresti essere? 'Two boys are playing in a show. A man is filming one boy, a man is photographing the other boy. Which boy would you prefer to be?'	Il bambino che il ragazzo filma/ fotografa. 'The boy that the man is filming/photographing'	OR +An +An
Due bambini recitano una poesia. Un signore ascolta un bambino, un signore applaude l'altro bambino. Tu quale bambino preferiresti essere? 'Two boys are reciting a poem. A man is listening to one boy, a man is applauding the other boy. Which boy would you prefer to be?'	Il bambino che il signore ascolta/ applaude. 'The boy that the man is listening to/applauding'	OR +An +An

Due bambini fanno i capricci. Un amico rimprovera un bambino, un amico consola l'altro bambino. Tu quale bambino preferiresti essere? 'Two boys are throwing a tantrum. A friend is reproaching one boy, a friend is comforting the other boy. Which boy would you prefer to be?'	Il bambino che l'amico rimprovera/ consola. 'The boy that the friend is reproaching/comforting'	OR +An +An
Due bambini sono a letto. Un papà sveglia un bambino, un papà addormenta l'altro bambino. Tu quale bambino preferiresti essere? 'Two boys are in bed. A dad is waking up one boy, a dad is putting to sleep the other boy. Which boy would you prefer to be?'	Il bambino che il papà sveglia/ addormenta. 'The boy that the dad is waking up/putting to sleep'	OR +An +An
Due bambini sono al parco. Un ragazzo saluta un bambino, un ragazzo indica l'altro bambino. Tu quale bambino preferiresti essere? 'Two boys are at the park. A man is greeting one boy, a man is pointing to the other boy. Which boy would you prefer to be?'	Il bambino che il ragazzo saluta/ indica. 'The boy that the man is greeting/pointing to'	OR +An +An
Due bambini giocano a nascondino. Un signore cerca un bambino, un signore trova l'altro bambino. Tu quale bambino preferiresti essere? 'Two boys are playing hide and seek. A man is looking for one boy, a man is finding the other boy. Which boy would you prefer to be?'	Il bambino che il signore cerca/trova. 'The boy that the man is looking for/finding'	OR +An +An
Ci sono due bambini. Un maestro sgrida un bambino, un maestro punisce l'altro bambino. Tu quale bambino preferiresti essere? 'There are two boys. A teacher is scolding one boy, a teacher is grounding the other boy. Which boy would you prefer to be?'	Il bambino che il maestro sgrida/ punisce. 'The boy that the teacher is scolding/ grounding'	OR +An +An
Ci sono due bambini. Un papà abbraccia un bambino, un papà bacia l'altro bambino. Tu quale bambino preferiresti essere? 'There are two boys. A dad is hugging a boy, a dad is kissing the other boy. Which boy would you prefer to be?'	Il bambino che il papà abbraccia/ bacia. 'The boy that the dad is hugging/ kissing'	OR +An +An
Ci sono due bambini. Un bambino perde un trattore, l'altro bambino presta un trattore. Tu quale bambino preferiresti essere? 'There are two boys. One boy is losing a tractor, the other boy is loaning a tractor. Which boy would you prefer to be?'	Il bambino che perde/presta il trattore. 'The boy that is losing/loaning the tractor'	SR −An +An

Ci sono due bambini. Un bambino rompe un cestello, l'altro bambino aggiusta un cestello. Tu quale bambino preferiresti essere? 'There are two boys. One boy is breaking a basket, the other boy is repairing a basket. Which boy would you prefer to be?'	Il bambino che rompe/aggiusta il cestello. 'The boy that is breaking/repairing the basket'	SR −An +An
Ci sono due bambini. Un bambino raccoglie un fiore, l'altro bambino strappa un fiore. Tu quale bambino preferiresti essere? 'There are two boys. One boy is picking a flower, the other boy is tearing a flower. Which boy would you prefer to be?'	Il bambino che raccoglie/strappa il fiore. 'The boy that is picking/ tearing the flower'	SR −An +An
Ci sono due bambini. Un bambino colora un quaderno, l'altro bambino taglia un quaderno. Tu quale bambino preferiresti essere? 'There are two boys. One boy is painting a book, the other boy is preparing a book. Which boy would you prefer to be?'	Il bambino che colora/taglia il quaderno. 'The boy that is painting/preparing the book'	SR −An +An
Ci sono due bambini. Un bambino tira un pallone, l'altro bambino buca un pallone. Tu quale bambino preferiresti essere? 'There are two boys. One boy is throwing a ball, the other boy is piercing a ball. Which boy would you prefer to be?'	Il bambino che tira/buca il pallone. 'The boy that is throwing/piercing the ball'	SR −An +An
Ci sono due bambini. Un bambino cucina un dolce, l'altro bambino compra un dolce. Tu quale bambino preferiresti essere? 'There are two boys. One boy is making a dessert, the other boy is buying a dessert. Which boy would you prefer to be?'	Il bambino che cucina/compra il dolce. 'The boy that is making/buying the dessert'	SR −An +An
Ci sono due bambini. Un bambino regala un giocattolo, l'altro bambino vende un giocattolo. Tu quale bambino preferiresti essere? 'There are two boys. One boy is offering a toy, the other boy is selling a toy. Which boy would you prefer to be?'	Il bambino che regala/vende il giocattolo. 'The boy that is offering/selling the toy'	SR −An +An
Ci sono due bambini. Un bambino lava un trenino, l'altro bambino dipinge un trenino. Tu quale bambino preferiresti essere? 'There are two boys. One boy is washing one train, the other boy is painting a train. Which boy would you prefer to be?'	Il bambino che lava/dipinge il trenino. 'The boy that is washing/painting the train'	SR −An +An

Ci sono due cestelli. Un bambino rompe un cestello, un bambino aggiusta l'altro cestello. Tu quale cestello preferiresti usare? 'There are two baskets. A boy is breaking one basket, a boy is repairing the other basket. Which basket would you prefer to use?'	Il cestello che il bambino rompe/ aggiusta. 'The basket that the boy is breaking/ repairing'	OR −An +An
Ci sono due trattori. Un bambino perde un trattore, un bambino presta l'altro trattore. Tu quale trattore preferiresti? 'There are two tractors. A boy is losing one tractor, a boy is loaning the other tractor. Which tractor would you prefer?'	Il trattore che il bambino perde/ presta. 'The tractor that the boy is losing/loaning'	OR −An +An
Ci sono due fiori. Un bambino raccoglie un fiore, un bambino strappa l'altro fiore. Tu quale fiore preferiresti? 'There are two flowers. A boy is picking one flower, a boy is tearing the other flower. Which flower would you prefer?'	Il fiore che il bambino raccoglie/strappa. 'The flower that the boy is picking/tearing.	OR −An +An
Ci sono due quaderni. Un bambino colora un quaderno, un bambino taglia l'altro quaderno. Tu quale quaderno preferiresti? 'There are two books. A boy is painting one book, a boy is preparing the other book. Which book would you prefer?'	Il quaderno che il bambino colora/ taglia. 'The book that the boy is painting/ preparing'	OR −An +An
Ci sono due palloni. Un bambino tira un pallone, un bambino buca l'altro pallone. Tu quale pallone preferiresti usare? 'There are two balls. A boy is throwing one ball, a boy is piercing the other ball. Which ball would you prefer?'	Il pallone che il bambino tira/buca. 'The ball that the boy is throwing/ piercing'	OR −An +An
Ci sono due dolci. Un bambino cucina una dolce, Un bambino compra una dolce. Tu quale dolce preferiresti mangiare? 'There are two desserts. A boy is making one dessert, a boy is buying the other dessert. Which dessert would you prefer to eat?'	La dolce che il bambino cucina/ compra. 'The dessert that the boy is making/ buying'	OR −An +An
Ci sono due giocattoli. Un bambino regala un giocattolo, un bambino vende l'altro giocattolo. Tu quale giocattolo preferiresti? 'There are two toys. A boy is offering one toy, a boy is selling the other toy. Which toy would you prefer?'	Il giocattolo che il bambino regala/ vende. 'The toy that the boy is offering/ selling'	OR −An +An

Ci sono due trenini. Un bambino lava un trenino, un bambino dipinge l'altro trenino. Tu quale trenino preferiresti? 'There are two trains. A boy is washing one train, a boy is painting the other train. Which train would you prefer?'	Il trenino che il bambino lava/ dipinge. 'The train that the boy is washing/ painting'	OR −An +An
Ci sono due fuochi. Un fuoco scalda un bambino, l'altro fuoco scotta un bambino. Tu quale fuoco preferiresti? 'There are two fires. One fire is warming a boy, the other fire is burning a boy. Which fire would you prefer?'	Il fuoco che scalda/scotta il bambino. 'The fire that is warming/ burning the boy'	SR +An −An
Ci sono due racconti. Un racconto spaventa un bambino, l'altro racconto incuriosisce un bambino. Tu quale racconto preferiresti ascoltare? 'There are two tales. One tale is straining a boy, the other tale is intriguing a boy. Which tale would you prefer to listen to?'	Il racconto che spaventa/incuriosisce il bambino. 'The tale that is straining/intriguing the boy'	SR +An −An
Ci sono due spettacoli. Uno spettacolo annoia un bambino, l'altro spettacolo diverte un bambino. Tu quale spettacolo preferiresti? 'There are two plays. One play is boring a boy, the other play is entertaining a boy. Which play would you prefer?'	Lo spettacolo che annoia/diverte il bambino. 'The play that is boring/entertaining the boy'	SR +An −An
Ci sono due zaini. Uno zaino appesantisce un bambino, l'altro zaino fa cadere un bambino. Tu quale zaino preferiresti usare? 'There are two backpacks. One backpack is weighting a boy, the other backpack is making a boy fall. Which backpack would you prefer to use?'	Lo zaino che appesantisce/fa cadere il bambino. 'The backpack that is weighting the boy/making the boy fall'	SR +An −An
Ci sono due cavi. Un cavo graffia un bambino, l'altro cavo taglia un bambino. Tu quale cavo preferiresti usare? 'There are two cables. One cable is scratching a boy, the other cable is cutting a boy. Which cable would you prefer to use?'	Il cavo che graffia/taglia il bambino. 'The cable that is scratching/cutting the boy'	SR +An −An
Ci sono due spilli. Uno spillo punge un bambino, l'altro spillo solletica un bambino. Tu quale spillo preferiresti usare? 'There are two pins. One pin is stinging a boy, the other pin is tickling a boy. Which pin would you prefer to use?'	Lo spillo che punge/solletica il bambino. 'The pin that is stinging/tickling the boy'	SR +An −An

Ci sono due rumori. Un rumore disturba un bambino, l'altro rumore sveglia un bambino. Tu quale rumore preferiresti? 'There are two noises. One noise is bothering a boy, the other noise is waking up a boy. Which noise would you prefer?'	Il rumore che disturba/sveglia il bambino. 'The noise that is bothering/waking up the boy'	SR +An −An
Ci sono due stracci. Uno straccio pulisce un bambino, l'altro straccio sporca un bambino. Tu quale straccio preferiresti usare? 'There are two rags. One rag is cleaning a boy, the other rag is dirtying a boy. Which rag would you prefer to use?'	Lo straccio che pulisce/sporca il bambino. 'The rag that is cleaning/dirtying the boy'	SR +An −An
Ci sono due bambini. Un fuoco scalda un bambino, un fuoco scotta l'altro bambino. Tu quale bambino preferiresti essere? 'There are two boys. A fire is warming one boy, a fire is burning the other boy. Which boy would you prefer to be?'	Il bambino che il fuoco scalda/ scotta. 'The boy that the fire is warming/ burning'	OR +An −An
Ci sono due bambini. Un racconto spaventa un bambino, un racconto incuriosisce l'altro bambino. Tu quale bambino preferiresti essere? 'There are two boys. A tale is straining one boy, a tale is intriguing the other boy. Which boy would you prefer to be?'	Il bambino che il racconto spaventa/ incuriosisce. 'The boy that the tale is straining/ intriguing'	OR +An −An
Ci sono due bambini. Uno spettacolo annoia un bambino, uno spettacolo diverte l'altro bambino. Tu quale bambino preferiresti essere? 'There are two boys. A play is boring one boy, a play is entertaining the other boy. Which boy would you prefer to be?'	Il bambino che lo spettacolo annoia/ diverte. 'The boy that the play is boring/ entertaining'	OR +An −An
Ci sono due bambini. Uno zaino appesantisce un bambino, uno zaino fa cadere l'altro bambino. Tu quale bambino preferiresti essere? 'There are two boys. A backpack is weighting one boy, a backpack is making the other boy fall. Which boy would you prefer to be?'	Il bambino che lo zaino appesantisce/ fa cadere. 'The boy that the backpack is weighting /making fall'	OR +An −An
Ci sono due bambini. Un cavo graffia un bambino, un cavo taglia l'altro bambino. Tu quale bambino preferiresti essere? 'There are two boys. A cable is scratching one boy, a cable is cutting the other boy. Which boy would you prefer to be?'	Il bambino che il cavo graffia/taglia. 'The boy that the cable is scratching/ cutting'	OR +An −An

Ci sono due bambini. Uno spillo punge un bambino, uno spillo solletica l'altro bambino. Tu quale bambino preferiresti essere? 'There are two boys. A pin is stinging one boy, a pin is tickling the other boy. Which boy would you prefer to be?'	Il bambino che lo spillo punge/ solletica. 'The boy that the pin is stinging/ tickling'	OR +An −An
Ci sono due bambini. Un rumore disturba un bambino, un rumore sveglia l'altro bambino. Tu quale bambino preferiresti essere? 'There are two boys. A noise is bothering one boy, a noise is waking up the other boy. Which boy would you prefer to be?'	Il bambino che il rumore disturba/ sveglia. 'The boy that the noise is bothering/ waking up'	OR +An −An
Ci sono due bambini. Uno straccio pulisce un bambino, uno straccio sporca l'altro bambino. Tu quale bambino preferiresti essere? 'There are two boys. A rag is cleaning one boy, a rag is dirtying the other boy. Which boy would you prefer to be?'	Il bambino che lo straccio pulisce/ sporca. 'The boy that the rag is cleaning/ dirtying'	OR +An −An
Ci sono due acquazzoni. Un acquazzone bagna un passeggino, l'altro acquazzone arrugginisce un passeggino. Tu quale acquazzone preferiresti? 'There are two downpours. One downpour is wetting a stroller, the other downpour is rusting a stroller. Which downpour would you prefer?'	L'acquazzone che bagna/arrugginisce il passeggino. 'The downpour that is wetting/rusting the stroller'	SR −An −An
Ci sono due stufe. Una stufa riscalda una stanza, l'altra stufa incendia una stanza. Tu quale stufa preferiresti usare? 'There are two stoves. One stove is warming a room, the other stove is burning a room. Which stove would you prefer to use?'	La stufa che riscalda/incendia la stanza. 'The stove that is warming/burning the room'	SR −An −An
Ci sono due ferri da stiro. Un ferro da stiro stira un pigiama, l'altro ferro da stiro brucia un pigiama. Tu quale ferro da stiro preferiresti usare? 'There are two irons. One iron is ironing the pyjama, the other iron is burning the pyjama. Which iron would you prefer to use?'	Il ferro da stiro che stira/brucia il pigiama. 'The iron that is ironing/burning the pyjama'	SR −An −An
Ci sono due temporali. Un temporale distrugge un ombrello, l'altro temporale rovina un ombrello. Tu quale temporale preferiresti? 'There are two storms. One storm is breaking an umbrella, the other storm is ruining an umbrella. Which storm would you prefer?'	Il temporale che distrugge/rovina l'ombrello. 'The storm that is breaking/ruining the umbrella'	SR −An −An

Ci sono due folate di vento. Una folata di vento rovescia una pianta, l'altra folata di vento spacca una pianta. Tu quale folata di vento preferiresti? 'There are two gusts of wind. One gust of wind is overturning a potted plant, the other gust of wind is crushing a potted plant. Which gust of wind would you prefer?'	La folata di vento che rovescia/spacca la pianta. 'The gust of wind that is overturning/ crushing the potted plant'	SR −An −An
Ci sono due scritte. Una scritta abbellisce una pagina, l'altra scritta imbruttisce una pagina. Tu quale scritta preferiresti? 'There are two writings. One writing is decorating a page, the other writing is uglying up a page. Which writing would you prefer?'	La scritta che abbellisce/imbruttisce la pagina. 'The writing that is decorating/uglying up the page'	SR −An −An
Ci sono due nastri. Un nastro nasconde un buco, l'altro nastro tappa un buco. Tu quale nastro preferiresti? 'There are two tapes. One tape is hiding a hole, the other tape is plugging a hole. Which tape would you prefer?'	Il nastro che nasconde/tappa il buco. 'The tape that is hiding/plugging the hole'	SR −An −An
Ci sono due temporali. Un temporale inzuppa un lenzuolo, l'altro temporale strappa un lenzuolo. Tu quale temporale preferiresti? 'There are two thunderstorms. One thunderstorm is soaking a blanket, the other thunderstorm is tearing a blanket. Which thunderstorm would you prefer?'	Il temporale che inzuppa/strappa il lenzuolo. 'The thunderstorm that is soaking/ tearing the blanket'	SR −An −An
Ci sono due passeggini. Un acquazzone bagna un passeggino, un acquazzone arrugginisce l'altro passeggino. Tu quale passeggino preferiresti? 'There are two strollers. A shower is wetting one stroller, a shower is rusting the other stroller. Which stroller would you prefer?'	Il passeggino che l'acquazzone bagna/ arrugginisce. 'The stroller that the shower is wetting/rusting'	OR −An −An
Ci sono due stanze. Una stufa riscalda una stanza, una stufa incendia l'altra stanza. Tu quale stanza preferiresti? 'There are two rooms. A stove is warming one room, a stove is burning the other room. Which room would you prefer?'	La stanza che la stufa riscalda/ incendia. 'The room that the stove is warming/ burning'	OR −An −An
Ci sono due pigiami. Un ferro da stiro stira un pigiama, un ferro da stiro brucia l'altro pigiama. Tu quale pigiama preferiresti? 'There are two pyjamas. An iron is ironing one pyjama, an iron is burning the other pyjama. Which pyjama would you prefer?'	Il pigiama che il ferro da stiro stira/ brucia. 'The pyjama that the iron is ironing/ burning'	OR −An −An

290

Ci sono due ombrelli. Un temporale distrugge un ombrello, un temporale rovina l'altro ombrello. Tu quale ombrello preferiresti usare? 'There are two umbrellas. A storm is breaking one umbrella, a storm is ruining the other umbrella. Which umbrella would you prefer to use?'	L'ombrello che il temporale rovina/ distrugge. 'The umbrella that the storm is ruining/breaking.	OR −An −An
Ci sono due piante. Una folata di vento rovescia una pianta, una folata di vento spacca l'altra pianta. Tu quale pianta preferiresti? 'There are two plotted plants. A gust of wind is overturning one plant, a gust of wind is crushing the other plant. Which plant would you prefer?'	La pianta che la folata di vento rovescia/spacca. 'The plant that the gust of wind is overturning/crushing'	OR −An −An
Ci sono due pagine. Una scritta abbellisce una pagina, una scritta imbruttisce l'altra pagina. Tu quale pagina preferiresti? 'There are two pages. A writing is decorating one page, a writing is uglying up the other page. Which page would you prefer?'	La pagina che la scritta abbellisce/ imbruttisce. 'The page that the writing is decorating/uglying up'	OR −An −An
Ci sono due buchi. Un nastro nasconde un buco, un nastro tappa l'altro buco. Tu quale buco preferiresti? 'There are two holes. A tape is hiding one hole, a tape is plugging the other hole. Which hole would you prefer?'	Il buco che il nastro tappa/nasconde. 'The hole that the tape is plugging/ hiding'	OR −An −An
Ci sono due lenzuoli. Un temporale inzuppa un lenzuolo, un temporale strappa l'altro lenzuolo. Tu quale lenzuolo preferiresti? 'There are two blankets. A thunderstorm is soaking one blanket, a thunderstorm is tearing the other blanket. Which blanket would you prefer?'	Il lenzuolo che il temporale strappa/ inzuppa. 'The blanker that the thunderstorm is tearing/soaking'	OR −An −An

List of elicitations and items in Experiment 5: Elicited production of relative clauses with an animacy mis/match in French.

Version for female participants.

Elicitation	Item	Condition
Deux femmes sont à un spectacle. Une femme écoute une fille, une femme applaudit une fille. Quelle femme est-ce que tu préférerais ? 'Two women are at a play. A woman is listening to a girl, a woman is applauding a girl. Which woman would you prefer?'	La femme qui écoute/applaudit la fille. 'The woman that is listening/ applauding the girl'	SR +An +An
Deux amies voient que deux filles font des caprices. Une amie gronde une fille, une amie réconforte une fille. Quelle amie tu préférerais ? 'Two friends saw two girls throwing a tantrum. A friend is reproaching a girl, a friend is comforting a girl. Which friend would you prefer?'	L'amie qui gronde/réconforte la fille. 'The friend that is reproaching/comforting the girl'	SR +An +An
Il y a deux femmes. Une femme réveille une fille, une femme endort une fille. Quelle femme est-ce que tu préférerais ? 'There are two ladies. A lady is waking up a girl, a lady is putting to sleep a girl. Which lady would you prefer?'	La femme qui réveille/endort la fille. 'The lady that is waking up/putting to sleep the girl'	SR +An +An
Deux femmes sont au parc. Une femme salue une fille, une femme indique une fille. Quelle femme est-ce que tu préférerais ? 'Two ladies are at the park. A lady is greeting a girl, a lady is pointing to a girl. Which lady would you prefer?'	La femme qui salue/indique la fille. 'The lady that is greeting/pointing to the girl'	SR +An +An
Deux femmes jouent à cache-cache. Une femme cherche une fille, une femme trouve une fille. Quelle femme est-ce que tu préférerais ? 'Two women are playing hide and seek. A woman is looking for a girl, a woman is finding a girl. Which woman would you prefer?'	La femme qui cherche/trouve la fille. 'The woman that is looking for/finding the girl'	SR +An +An
Il y a deux maitresses. Une maîtresse gronde une fille, une maîtresse punit une fille. Quelle maîtresse est-ce que tu préférerais ?	La maitresse qui gronde/punit la fille.	SR +An +An

'There are two teachers. A teacher is scolding a girl, a teacher is grounding a girl. Which teacher would you prefer?'	'The teacher that is scolding/ grounding the girl'	
Il y a deux mamans. Une maman caresse une fille, une maman embrasse une fille. Quelle maman est-ce que tu préférerais ? 'There are two moms. A mom is caressing a girl, a mom is hugging a girl. Which mom would you prefer?'	La maman qui embrasse/caresse la fille. 'The mom that is hugging/caressing the girl'	SR +An +An
Il y a deux mamans. Une maman lave une fille, une maman habille une fille. Quelle maman est-ce que tu préférerais ? 'There are two moms. A mom is washing a girl, a mam is dressing a girl. Which mom would you prefer?'	La maman qui lave/habille la fille. 'The mom that is washing/dressing the girl'	SR +An +An
Deux filles font un spectacle. Une femme écoute une fille, une femme applaudit une fille. Quelle fille est-ce que tu préférerais être ? 'Two girls are doing a show. A woman is listening to a girl, a woman is applauding a girl. Which girl would you prefer to be?'	La fille que la femme écoute/applaudit. 'The girl that the woman is listening to/applauding'	OR +An +An
Deux filles font des caprices. Une amie gronde une fille, une amie réconforte une fille. Quelle fille est-ce que tu préférerais être ? 'Two girls are throwing a tantrum. A friend is reproaching a girl, a friend is comforting a girl. Which girl would you prefer to be?'	La fille que l'amie gronde/réconforte. 'The girl that the friend is reproaching/comforting'	OR +An +An
Deux filles sont au lit. Une femme réveille une fille, une femme endort une fille. Quelle fille est-ce que tu préférerais être ? 'Two girls are in bed. A lady is waking up a girl, a lady is putting to sleep a girl. Which girl would you prefer to be?'	La fille que la femme réveille/endort. 'The girl that the lady is waking up/putting to sleep'	OR +An +An
Deux filles sont au parc. Une femme salue une fille, une femme indique une fille. Quelle fille est-ce que tu préférerais être ? 'Two girls are at the park. A lady is greeting a girl, a lady is pointing to a girl. Which girl would you prefer to be?'	La fille que la femme salue/indique. 'The girl that the lady is greeting/pointing to'	OR +An +An
Deux filles jouent à cache-cache. Une femme cherche une fille, une femme trouve une fille. Quelle fille est-ce que tu préférerais être ?	La fille que la femme cherche/trouve.	OR +An +An

'Two girls are playing hide and seek. A woman is looking for a girl, a woman is finding a girl. Which girl would you prefer to be?'	'The girl that the woman is looking for/finding'	
Il y a deux filles. Une maîtresse gronde une fille, une maîtresse punit une fille. Quelle fille est-ce que tu préférerais être ? 'There are two girls. A teacher is scolding a girl, a teacher is grounding a girl. Which girl would you prefer to be?'	La fille que la maitresse gronde/punit. 'The girl that the teacher is scolding/ grounding'	OR +An +An
Il y a deux filles. Une maman caresse une fille, une maman embrasse une fille. Quelle fille est-ce que tu préférerais être ? 'There are two girls. A mom is caressing a girl, a mom is hugging a girl. Which girl would you prefer to be?'	La fille que la maman embrasse/ caresse. 'The girl that the mom is hugging/ caressing.	OR +An +An
Il y a deux filles. Une maman lave une fille, une maman habille une fille. Quelle fille est-ce que tu préférerais être ? 'There are two girls. A mom is washing a girl, a mom is dressing a girl. Which girl would you prefer to be?'	La fille que maman lave/habille. 'The girl that the mom is washing/ dressing'	OR +An +An
Il y a deux filles. Une fille perd une bague, une fille prête une bague. Quelle fille est-ce que tu préférerais être ? 'There are two girls. A girl is losing a ring, a girl is loaning a ring. Which girl would you prefer to be?'	La fille qui perd/prête la bague. 'The girl that is losing/loaning the ring	SR −An +An
Il y a deux filles. Une fille casse une chaise, une fille répare une chaise. Quelle fille est-ce que tu préférerais être ? 'There are two girls. A girl is breaking a chair, a girl is repairing a chair. Which girl would you prefer to be?'	La fille qui casse/répare la chaise. 'The girl that is breaking/repairing the chair'	SR −An +An
Il y a deux filles. Une fille cueille une marguerite, une fille arrache une marguerite. Quelle fille est-ce que tu préférerais ? 'There are two girls. A girl is picking a marguerite, a girl is tearing a marguerite. Which girl would you prefer to be?'	La fille qui cueille/arrache la marguerite. 'The girl that is picking/ tearing the marguerite'	SR −An +An
Il y a deux filles. Une fille peint une boite, une fille prépare une boite. Quelle fille est-ce que tu préférerais être ?	La fille qui peint/prépare la boite.	SR −An +An

'There are two girls. A girl is painting a box, a girl is preparing a box. Which girl would you prefer to be?'	'The girl that is painting/preparing the box'	
Il y a deux filles. Une fille lance une balle, une fille perce une balle. Quelle fille est-ce que tu préférerais être ? 'There are two girls. A girl is throwing a ball, a girl is piercing a ball. Which girl would you prefer to be?'	La fille qui lance/perce une balle. 'The girl that is throwing/piercing the ball'	SR −An +An
Il y a deux filles. Une fille prépare une tarte, une fille achète une tarte. Quelle fille est-ce que tu préférerais être ? 'There are two girls. A girl is making a cake, a girl is buying a cake. Which girl would you prefer to be?'	La fille qui prépare/achète une tarte. 'The girl that is making/buying the cake'	SR −An +An
Il y a deux filles. Une fille offre une poupée, une fille vend une poupée. Quelle fille est-ce que tu préférerais être ? 'There are two girls. A girl is offering a doll, a girl is selling a doll. Which girl would you prefer to be?'	La fille qui offre/vend la poupée. 'The girl that is offering/selling the doll'	SR −An +An
Il y a deux filles. Une fille dessine une plante, une fille photographie une plante. Quelle fille est-ce que tu préférerais être ? 'There are two girls. A girl is drawing a plant, a girl is photographing a plant. Which girl would you prefer to be?'	La fille qui dessine/photographie la plante. 'The girl that is drawing/photographing the plant'	SR −An +An
Il y a deux chaises. Une fille casse une chaise, une fille répare une chaise. Quelle chaise est-ce que tu préférerais utiliser ? 'There are two chairs. A girl is breaking a chair, a girl is repairing a chair. Which chair would you prefer to use?'	La chaise que la fille casse/répare. 'The chair that the girl is breaking/ repairing'	OR −An +An
Il y a deux bagues. Une fille perd une bague, une fille prête une bague. Quelle bague est-ce que tu préférerais ? 'There are two rings. A girl is losing a ring, a girl is loaning a ring. Which ring would you prefer?'	La bague que la fille perd/prête. 'The ring that the girl is losing/loaning'	OR −An +An
Il y a deux marguerites. Une fille cueille une marguerite, une fille arrache une marguerite. Quelle marguerite est-ce que tu préférerais ? 'There are two marguerites. A girl is picking a marguerite, a girl is tearing a marguerite. Which marguerite would you prefer?'	La marguerite que la fille cueille/ arrache. 'The marguerite that the girl is picking/tearing.	OR −An +An

Il y a deux boites. Une fille peint une boite, une fille prépare une boite. Quelle boite est-ce que tu préférerais ? 'There are two boxes. A girl is painting a box, a girl is preparing a box. Which box would you prefer?'	La boite que la fille peint/prépare. 'The box that the girl is painting/ preparing'	OR −An +An
Il y a deux balles. Une fille lance une balle. Une fille perce une balle. Quelle balle est-ce que tu préférerais? 'There are two balls. A girl is throwing a ball, a girl is piercing a ball. Which ball would you prefer?'	La balle que la fille lance/perce. 'The ball that the girl is throwing/ piercing'	OR −An +An
Il y a deux tartes. Une fille prépare une tarte, une fille achète une tarte. Quelle tarte est-ce que tu préférerais ? 'There are two cakes. A girl is making a cake, a girl is buying a cake. Which cake would you prefer to eat?'	La tarte que la fille prépare/achète. 'The cake that the girl is making/ buying'	OR −An +An
Il y a deux poupées. Une fille offre une poupée, une fille vend une poupée. Quelle poupée est-ce tu préférerais ? 'There are two dolls. A girl is offering a doll, a girl is selling a doll. Which doll would you prefer?'	La poupée que la fille offre/vend. 'The doll that the girl is offering/ selling'	OR −An +An
Il y a deux plantes. Une fille dessine une plante, une fille photographie une plante. Quelle plante est-ce que tu préférerais voir ? 'There are two plants. A girl is drawing a plant, a girl is photographing a plant. Which plant would you prefer to see?'	La plante que la fille dessine/ photographie 'The plant that the girl is drawing/ photographing'	OR −An +An
Il y a deux flammes. Une flamme chauffe une fille, une flamme brûle une fille. Quelle flamme est-ce que tu préférerais ? 'There are two flames. A flame is warming a girl, a flame is burning a girl. Which flame would you prefer?'	La flamme qui chauffe/brûle la fille. 'The flame that is warming/ burning the girl'	SR +An −An
Il y a deux histoires. Une histoire effraie une fille, une histoire intéresse une fille. Quelle histoire est-ce que tu préférerais écouter ? 'There are two stories. A story is scaring a girl, a story is intriguing a girl. Which story would you prefer to listen to?'	L'histoire qui effraie/intéresse la fille. 'The story that is scaring/intriguing the girl'	SR +An −An

Il y a deux pièces. Une pièce ennuie une fille, une pièce amuse une fille. Quelle pièce est-ce que tu préférerais ? 'There are two plays. A play is boring a girl, a play is entertaining a girl. Which play would you prefer?'	La pièce qui ennuie/amuse la fille. 'The play that is boring/entertaining the girl'	SR +An −An
Il y a deux pierres. Une pierre fait trébucher une fille, une pierre fait tomber une fille. Quelle pierre est-ce que tu préférerais ? 'There are two stones. A stone is making a girl stumble, a stone is making a girl fall. Which stone would you prefer?'	La pierre qui fait trébucher/tomber la fille. 'The stone that is making the girl stumble/fall'	SR +An −An
Il y a deux cordes. Une corde gratte une fille, une corde coupe une fille. Quelle corde est-ce que tu préférerais utiliser ? 'There are two cords. A cord is scratching a girl, a cord is cutting a girl. Which cord would you prefer to use?'	La corde qui gratte/coupe la fille. 'The cord that is scratching/cutting the girl'	SR +An −An
Il y a deux épingles. Une épingle pique une fille, une épingle chatouille une fille. Quelle épingle est-ce que tu préférerais utiliser ? 'There are two brooches. A brooch is stinging a girl, a brooch is tickling a girl. Which brooch would you prefer to use?'	L'épingle qui pique/chatouille la fille. 'The brooch that is stinging/tickling the girl'	SR +An −An
Il y a deux musiques. Une musique réveille une fille, une musique gêne une fille. Quelle musique est-ce que tu préférerais ? 'There are two melodies. A melody is bothering a girl, a melody is waking up a girl. Which melody would you prefer?'	La musique qui gêne/réveille la fille. 'The melody that is bothering/waking up the girl'	SR +An −An
Il y a deux éponges. Une éponge essuie une fille, une éponge salit une fille. Quelle éponge est-ce que tu préférerais utiliser ? 'There are two sponges. A sponge is drying a girl, a sponge is dirtying a girl. Which sponge would you prefer to use?'	L'éponge qui essuie/salit la fille. 'The sponge that is drying/dirtying the girl'	SR +An −An
Il y a deux filles. Une flamme chauffe une fille, une flamme brûle une fille. Quelle fille est-ce que tu préférerais être ? 'There are two girls. A flame is warming a girl, a flame is burning a girl. Which girl would you prefer to be?'	La fille que la flamme chauffe/brûle. 'The girl that the flame is warming/burning'	OR +An −An

Il y a deux filles. Une histoire effraie une fille, une histoire intéresse une fille. Quelle fille est-ce que tu préférerais être ? 'There are two girls. A story is scaring a girl, a story is intriguing a girl. Which girl would you prefer to be?'	La fille que l'histoire effraie/intéresse. 'The girl that the story is scaring/ intriguing'	OR +An −An
Il y a deux filles. Une pièce ennuie une fille, une pièce amuse une fille. Quelle fille est-ce que tu préférerais être ? 'There are two girls. A play is boring a girl, a play is entertaining a girl. Which girl would you prefer to be?'	La fille que la pièce ennuie/amuse. 'The girl that the play is boring/ entertaining'	OR +An −An
Il y a deux filles. Une pierre fait trébucher une fille, une pierre fait tomber une fille. Quelle fille est-ce que tu préférerais être ? 'There are two girls. A stone is making a girl stumble, a stone is making a girl fall. Which girl would you prefer to be?'	La fille que la pierre fait trébucher/ tomber. 'The girl that the stone is making stumble/fall'	OR +An −An
Il y a deux filles. Une corde gratte une fille, une corde coupe une fille. Quelle fille est-ce que tu préférerais être ? 'There are two girls. A cord is scratching a girl, a cord is cutting a girl. Which girl would you prefer to be?'	La fille que la corde gratte/coupe. 'The girl that the cord is scratching/ cutting'	OR +An −An
Il y a deux filles. Une épingle pique une fille, une épingle chatouille une fille. Quelle fille est-ce que tu préférerais être ? 'There are two girls. A brooch is stinging a girl, a brooch is tickling a girl. Which girl would you prefer to be?'	La fille que l'épingle pique/chatouille. 'The girl that the brooch is stinging/ tickling'	OR +An −An
Il y a deux filles. Une musique réveille une fille, une musique gêne une fille. Quelle fille est-ce que tu préférerais être ? 'There are two girls. A melody is bothering a girl, a melody is waking up a girl. Which girl would you prefer to be?'	La fille que la musique gêne/réveille. 'The girl that the melody is bothering/ waking up'	OR +An −An
Il y a deux filles. Une éponge essuie une fille, une éponge salit une fille. Quelle fille est-ce que tu préférerais être ? 'There are two girls. A sponge is drying a girl, a sponge is dirtying a girl. Which girl would you prefer to be?'	La fille que l'éponge essuie/salit. 'The girl that the sponge is drying/ dirtying'	OR +An −An

Il y a deux orages. Un orage détruit un parapluie, un orage tord un parapluie. Quel orage est-ce que tu préférerais ? 'There are two thunderstorms. A thunderstorm is breaking an umbrella, a thunderstorm is twisting an umbrella. Which thunderstorm would you prefer?'	L'orage qui détruit/tord le parapluie. 'The thunderstorm that is breaking/ twisting the umbrella'	SR −An −An
Il y deux cheminées. Une cheminée réchauffe une salle, une cheminée brûle une salle. Quelle cheminée est-ce que tu préférerais utiliser ? 'There are two fireplaces. A fireplace is warming a room, a fireplace is burning a room. Which stove would you prefer to use?'	La cheminée qui réchauffe/brûle la salle. 'The fireplace that is warming/burning the room'	SR −An −An
Il y a deux fers à repasser. Un fer à repasser repasse un pyjama, un fer à repasser brûle un pyjama. Quel fer est-ce que tu préférerais ? 'There are two irons. An iron is ironing the pyjama, an iron is burning the pyjama. Which iron would you prefer to use?'	Le fer à repasser qui repasse/ brûle le pyjama. 'The iron that is ironing/burning the pyjama'	SR −An −An
Il y a deux tempêtes. Une tempête mouille une poussette, une tempête abîme une poussette. Quelle tempête est-ce que tu préférerais ? 'There are two storms. A storm is wetting a stroller, a storm is ruining a stroller. Which storm would you prefer?'	La tempête qui mouille/abime la poussette. 'The storm that is wetting/ruining the stroller'	SR −An −An
Il y a deux coups de vent. Un coup de vent renverse un vase, un coup de vent casse un vase. Quel coup de vent est-ce que tu préférerais ? 'There are two gusts of wind. A gust of wind is overturning a vase, a gust of wind is crushing a vase. Which gust of wind would you prefer?'	Le coup de vent qui renverse/casse le vase. 'The gust of wind that is overturning/ crushing the vase'	SR −An −An
Il y a deux écritures. Une écriture embellit une page. Une écriture rend moche une page. Quelle écriture est-ce que tu préférerais ? 'There are two writings. A writing is decorating a page, a writing is uglying up a page. Which writing would you prefer?'	L'écriture qui embellit/rend moche la page. 'The writing that is decorating/uglying up the page'	SR −An −An
Il y a deux rubans. Un ruban cache un trou, un ruban bouche un trou. Quel ruban est-ce que tu préférerais ? 'There are two tapes. A tape is hiding a hole, a tape is plugging a hole. Which tape would you prefer?'	Le ruban qui bouche/cache le trou. 'The tape that is hiding/plugging the hole'	SR −An −An

Il y a deux averses. Un orage trempe un drap, un orage déchire un drap. Quel orage est-ce que tu préférerais ? 'There are two thunderstorms. A thunderstorm is soaking a blanket, a thunderstorm is tearing a blanket. Which thunderstorm would you prefer?'	L'orage qui trempe/déchire le drap. 'The thunderstorm that is soaking/ tearing the blanket'	SR −An −An
Il y a deux parapluies. Un orage détruit un parapluie, un orage tord un parapluie. Quel parapluie est-ce que tu préférerais utiliser ? 'There are two thunderstorms. A thunderstorm is breaking an umbrella, a thunderstorm is twisting an umbrella. Which umbrella would you prefer to use?'	Le parapluie que l'orage détruit/tord. 'The umbrella that the thunderstorm is breaking/twisting'	OR −An −An
Il y deux salles. Une cheminée réchauffe une salle, une cheminée brûle une salle. Quelle salle est-ce que tu préférerais ? 'There are two rooms. A fireplace is warming a room, a fireplace is burning a room. Which room would you prefer?'	La salle que la cheminée réchauffe/ brûle. 'The room that the fireplace is warming/ burning'	OR −An −An
Il y a deux pyjamas. Un fer à repasser repasse un pyjama, un fer à repasser brûle un pyjama. Quel pyjama est-ce que tu préférerais utiliser ? 'There are two pyjamas. An iron is ironing a pyjama, an iron is burning a pyjama. Which pyjama would you prefer?'	Le pyjama que le fer à repasser repasse/brûle. 'The pyjama that the iron is ironing/ burning'	OR −An −An
Il y a deux poussettes. Une tempête mouille une poussette, une tempête abîme une poussette. Quelle tempête est-ce que tu préférerais ? 'There are two strollers. A storm is wetting a stroller, a storm is ruining a stroller. Which storm would you prefer?'	La poussette que la tempête mouille/ abime. 'The stroller that the storm is wetting/ ruining.	OR −An −An
Il y a deux vases. Un coup de vent renverse un vase, un coup de vent casse un vase. Quel vase est-ce que tu préférerais ? 'There are two vases. A gust of wind is overturning a vase, a gust of wind is crushing a vase. Which vase would you prefer?'	Le vase que le vent renverse/casse. 'The vase that the gust of wind is overturning/crushing'	OR −An −An
Il y a deux pages. Une écriture embellit une page. Une écriture rend moche une page. Quelle page est-ce que tu préférerais ? 'There are two pages. A writing is decorating a page, a writing is uglying up a page. Which page would you prefer?'	La page que l'écriture embellit/rend moche. 'The page that the writing is decorating/uglying up'	OR −An −An

Il y a deux trous. Un ruban cache un trou, un ruban bouche un trou. Quel trou est-ce que tu préférerais ? 'There are two holes. A tape is hiding a hole, a tape is plugging a hole. Which hole would you prefer?'	Le trou que le ruban bouche/cache. 'The hole that the tape is plugging/ hiding'	OR −An −An
Il y a deux draps. Un orage trempe un drap, un orage déchire un drap. Quel drap est-ce que tu préférerais ? 'There are two blankets. A thunderstorm is soaking a blanket, a thunderstorm is tearing a blanket. Which blanket would you prefer?'	Le drap que l'orage trempe/déchire. 'The blanker that the thunderstorm is tearing/soaking'	OR −An −An

Version for male participants.

Elicitation	Item	Condition
Deux messieurs sont à un spectacle. Un monsieur écoute un garçon, un monsieur applaudit un garçon. Quel monsieur est-ce que tu préférerais ? 'Two men are at a play. A man is listening to a boy, a man is applauding a boy. Which man would you prefer?'	Le monsieur qui écoute/applaudit le garçon. 'The man that is listening/ applauding the boy'	SR +An +An
Deux amis voient que deux garçons font des caprices. Un ami gronde un garçon, un ami réconforte un garçon. Quel ami tu préférerais ? 'Two friends saw two boys throwing a tantrum. A friend is reproaching a boy, a friend is comforting a boy. Which friend would you prefer?'	L'ami qui gronde/réconforte le garçon. 'The friend that is reproaching/ comforting the boy'	SR +An +An
Il y a deux messieurs. Un monsieur réveille un garçon, un monsieur endort un garçon. Quel monsieur est-ce que tu préférerais ? 'There are two men. A man is waking up a boy, a man is putting to sleep a boy. Which man would you prefer?'	Le monsieur qui réveille/endort le garçon. 'The man that is waking up/putting to sleep the boy'	SR +An +An
Deux messieurs sont au parc. Un monsieur salue un garçon, un monsieur indique un garçon. Quel monsieur est-ce que tu préférerais ? 'Two men are at the park. A man is greeting a boy, a man is pointing to a boy. Which man would you prefer?'	Le monsieur qui salue/indique le garçon. 'The man that is greeting/pointing to the boy'	SR +An +An

Deux messieurs jouent à cache-cache. Un monsieur cherche un garçon, un monsieur trouve un garçon. Quel monsieur est-ce que tu préférerais ? 'Two men are playing hide and seek. A man is looking for a boy, a man is finding a boy. Which man would you prefer?'	Le monsieur qui cherche/trouve le garçon. 'The man that is looking/finding the boy'	SR +An +An
Il y a deux maîtres. Un maître gronde un garçon, un maître punit un garçon. Quel maître est-ce que tu préférerais ? 'There are two teachers. A teacher is scolding a boy, a teacher is grounding a boy. Which teacher would you prefer?'	Le maître qui gronde/punit la garçon. 'The teacher that is scolding/ grounding the boy'	SR +An +An
Il y a deux papas. Un papa caresse un garçon, un papa embrasse un garçon. Quel papa est-ce que tu préférerais ? 'There are two daddies. A dad is caressing a boy, a dad is hugging a boy. Which dad would you prefer?'	Le papa qui embrasse/caresse le garçon. 'The dad that is hugging/caressing the boy'	SR +An +An
Il y a deux papas. Un papa lave un garçon, un papa habille un garçon. Quel papa est-ce que tu préférerais ? 'There are two daddies. A dad is washing a boy, a mam is dressing a boy. Which dad would you prefer?'	Le papa qui lave/habille le garçon. 'The dad that is washing/dressing the boy'	SR +An +An
Deux garçons font un spectacle. Un monsieur écoute un garçon, un monsieur applaudit un garçon. Quel garçon tu préférerais être ? 'Two boys are doing a show. A man is listening to a boy, a man is applauding a boy. Which boy would you prefer to be?'	Le garçon que le monsieur écoute/ applaudit. 'The boy that the man is listening to/ applauding'	OR +An +An
Deux garçons font des caprices. Un ami gronde un garçon, un ami réconforte un garçon. Quel garçon est-ce que tu préférerais être ? 'Two boys are throwing a tantrum. A friend is reproaching a boy, a friend is comforting a boy. Which boy would you prefer to be?'	Le garçon que l'ami gronde/réconforte. 'The boy that the friend is reproaching/ comforting'	OR +An +An
Deux garçons sont au lit. Un monsieur réveille un garçon, un monsieur endort un garçon. Quel garçon est-ce que tu préférerais être ? 'Two boys are in bed. A man is waking up a boy, a man is putting to sleep a boy. Which boy would you prefer to be?'	Le garçon que le monsieur réveille/ endort. 'The boy that the man is waking up/ putting to sleep'	OR +An +An

Deux garçons sont au parc. Un monsieur salue un garçon, un monsieur indique un garçon. Quel garçon est-ce que tu préférerais être ? 'Two boys are at the park. A man is greeting a boy, a man is pointing to a boy. Which boy would you prefer to be?'	Le garçon que le monsieur salue/ indique. 'The boy that the man is greeting/ pointing to'	OR +An +An
Deux garçons jouent à cache-cache. Un monsieur cherche un garçon, un monsieur trouve un garçon. Quel garçon tu préférerais être ? 'Two boys are playing hide and seek. A man is looking for a boy, a man is finding a boy. Which boy would you prefer to be?'	Le garçon que le monsieur cherche/ trouve. 'The boy that the man is looking for/ finding'	OR +An +An
Il y a deux garçons. Un maître gronde un garçon, une maître punit un garçon. Quel garçon est-ce que tu préférerais être ? 'There are two boys. A teacher is scolding a boy, a teacher is grounding a boy. Which boy would you prefer to be?'	Le garçon que la maître gronde/punit. 'The boy that the teacher is scolding/ grounding'	OR +An +An
Il y a deux garçons. Un papa caresse un garçon, un papa embrasse un garçon. Quel garçon est-ce que tu préférerais être ? 'There are two boys. A dad is caressing a boy, a dad is hugging a boy. Which boy would you prefer to be?'	Le garçon que le papa embrasse/ caresse. 'The boy that the dad is hugging/ caressing.	OR +An +An
Il y a deux garçons. Un papa lave un garçon, un papa habille un garçon. Quel garçon est-ce que tu préférerais être ? 'There are two boys. A dad is washing a boy, a dad is dressing a boy. Which boy would you prefer to be?'	Le garçon que le papa lave/habille. 'The boy that the dad is washing/ dressing'	OR +An +An
Il y a deux garçons. Un garçon perd un tracteur, un garçon prête un tracteur. Quel garçon est-ce que tu préférerais être ? 'There are two boys. A boy is losing a tractor, a boy is loaning a tractor. Which boy would you prefer to be?'	Le garçon qui perd/prête le tracteur. 'The boy that is losing/loaning the tractor'	SR −An +An
Il y a deux garçons. Un garçon casse un étui, un garçon répare un étui. Quel garçon est-ce que tu préférerais être ? 'There are two boys. A boy is breaking a case, a boy is repairing a case. Which boy would you prefer to be?'	Le garçon qui casse/répare l'étui. 'The boy that is breaking/repairing the case	SR −An +An

Il y a deux garçons. Un garçon cueille un fruit, un garçon arrache un fruit. Quel garçon est-ce que tu préférerais ? 'There are two boys. A boy is picking a fruit, a boy is tearing a fruit. Which boy would you prefer to be?'	Le garçon qui cueille/arrache le fruit. 'The boy that is picking/tearing the fruit'	SR −An +An
Il y a deux garçons. Un garçon peint un cahier, un garçon prépare un cahier. Quel garçon est-ce que tu préférerais être ? 'There are two boys. A boy is painting a book, a boy is preparing a book. Which boy would you prefer to be?'	Le garçon qui peint/prépare le cahier. 'The boy that is painting/preparing the book'	SR −An +An
Il y a deux garçons. Un garçon lance un ballon, un garçon perce un ballon. Quel garçon est-ce que tu préférerais être ? 'There are two boys. A boy is throwing a ball, a boy is piercing a ball. Which boy would you prefer to be?'	Le garçon qui lance/perce un ballon. 'The boy that is throwing/piercing the ball'	SR −An +An
Il y a deux garçons. Un garçon prépare un gâteau, un garçon achète un gâteau. Quel garçon est-ce que tu préférerais être ? 'There are two boys. A boy is making a dessert, a boy is buying a dessert. Which boy would you prefer to be?'	Le garçon qui prépare/achète un gâteau. 'The boy that is making/buying the dessert'	SR −An +An
Il y a deux garçons. Un garçon offre un jouet, un garçon vend un jouet. Quel garçon est-ce que tu préférerais être ? 'There are two boys. A boy is offering a toy, a boy is selling a toy. Which boy would you prefer to be?'	Le garçon qui offre/vend le jouet. 'The boy that is offering/selling the toy'	SR −An +An
Il y a deux garçons. Un garçon dessine un arbre, un garçon photographie un arbre. Quel garçon est-ce que tu préférerais être ? 'There are two boys. A boy is drawing a tree, a boy is photographing a tree. Which boy would you prefer to be?'	Le garçon qui dessine/photographie l'arbre. 'The boy that is drawing/photographing the tree	SR −An +An
Il y a deux étuis. Un garçon casse un étui, un garçon répare un étui. Quel étui est-ce que tu préférerais utiliser ? 'There are two cases. A boy is breaking a case, a boy is repairing a case. Which case would you prefer to use?'	L'étui que le garçon casse/répare. 'The case that the boy is breaking/ repairing'	OR −An +An

Il y a deux tracteurs. Un garçon perd un tracteur, un garçon prête un tracteur. Quel tracteur est-ce que tu préférerais ? 'There are two tractors. A boy is losing a tractor, a boy is loaning a tractor. Which ring would you prefer?'	Le tracteur que le garçon perd/prête. 'The tractor that the boy is losing/ loaning'	OR −An +An
Il y a deux fruits. Un garçon cueille un fruit, un garçon arrache un fruit. Quel fruit est-ce que tu préférerais ? 'There are two fruits. A boy is picking a fruit, a boy is tearing a fruit. Which fruit would you prefer?'	Le fruit que le garçon cueille/ arrache. 'The fruit that the boy is picking/ tearing.	OR −An +An
Il y a deux cahiers. Un garçon peint un cahier, un garçon prépare un cahier. Quel cahier est-ce que tu préférerais ? 'There are two books. A boy is painting a book, a boy is preparing a book. Which book would you prefer?'	Le cahier que le garçon peint/prépare. 'The book that the boy is painting/ preparing'	OR −An +An
Il y a deux ballons. Un garçon lance un ballon, un garçon perce un ballon. Quel ballon est-ce que tu préférerais? 'There are two balls. A boy is throwing a ball, a boy is piercing a ball. Which ball would you prefer?'	Le ballon que le garçon lance/perce. 'The ball that the boy is throwing/ piercing'	OR −An +An
Il y a deux gâteaux. Un garçon prépare un gâteau, un garçon achète un gâteau. Quel gâteau est-ce que tu préférerais ? 'There are two desserts. A boy is making a dessert, a boy is buying a dessert. Which dessert would you prefer to eat?'	Le gâteau que le garçon prépare/ achète. 'The dessert that the boy is making/ buying'	OR −An +An
Il y a deux jouets. Un garçon offre un jouet, un garçon vend un jouet. Quel jouet est-ce tu préférerais ? 'There are two toys. A boy is offering a toy, a boy is selling a toy. Which toy would you prefer?'	Le jouet que le garçon offre/vend. 'The toy that the boy is offering/ selling'	OR −An +An
Il y a deux arbres. Un garçon dessine un arbre, un garçon photographie un arbre. Quel arbre est-ce que tu préférerais voir ? 'There are two tree. A boy is drawing a tree, a boy is photographing a tree. Which tree would you prefer to see?'	L'arbre que le garçon dessine/ photographie 'The tree that the boy is drawing/ photographing'	OR −An +An
Il y a deux briquets. Un briquet chauffe un garçon, un briquet brûle un garçon. Quel briquet est-ce que tu préférerais ?	Le briquet qui chauffe/brûle le garçon.	SR +An −An

'There are two lighters. A lighter is warming a boy, a lighter is burning a boy. Which lighter would you prefer?'	'The lighter that is warming/ burning the boy'	
Il y a deux contes. Un conte effraie un garçon, un conte intéresse un garçon. Quel conte est-ce que tu préférerais écouter ? 'There are two tales. A tale is scaring a boy, a tale is intriguing a boy. Which tale would you prefer to listen to?'	Le conte qui effraie/intéresse le garçon. 'The tale that is scaring/intriguing the boy'	SR +An −An
Il y a deux spectacles. Un spectacle ennuie un garçon, un spectacle amuse un garçon. Quel spectacle est-ce que tu préférerais ? 'There are two plays. A play is boring a boy, a play is entertaining a boy. Which play would you prefer?'	Le spectacle qui ennuie/amuse le garçon. 'The play that is boring/entertaining the boy'	SR +An −An
Il y a deux cailloux. Un caillou fait trébucher un garçon, un caillou fait tomber un garçon. Quel caillou est-ce que tu préférerais ? 'There are two stones. A stone is making a boy stumble, a stone is making a boy fall. Which stone would you prefer?'	Le caillou qui fait trébucher/tomber le garçon. 'The stone that is making the boy stumble/fall'	SR +An −An
Il y a deux fils. Un fil gratte un garçon, un fil coupe un garçon. Quel fil est-ce que tu préférerais utiliser ? 'There are two cables. A cable is scratching a boy, a cable is cutting a boy. Which cable would you prefer to use?'	Le fil qui gratte/coupe le garçon. 'The cable that is scratching/cutting the boy'	SR +An −An
Il y a deux câbles. Un câble pique un garçon, un câble chatouille un garçon. Quel câble est-ce que tu préférerais utiliser ? 'There are two cables. A cable is stinging a boy, a cable is tickling a boy. Which cable would you prefer to use?'	Le câble qui pique/chatouille le garçon. 'The cable that is stinging/tickling the boy'	SR +An −An
Il y a deux bruits. Un bruit réveille un garçon, un bruit gêne un garçon. Quelle musique est-ce que tu préférerais ? 'There are two noises. A noise is bothering a boy, a noise is waking up a boy. Which noise would you prefer?'	Le bruit qui gêne/réveille le garçon. 'The noise that is bothering/waking up the boy'	SR +An −An
Il y a deux chiffons. Un chiffon essuie un garçon, un chiffon salit un garçon. Quel chiffon est-ce que tu préférerais utiliser ?	Le chiffon qui essuie/salit le garçon.	SR +An −An

'There are two rags. A rag is drying a boy, a rag is dirtying a boy. Which rag would you prefer to use?'	'The rag that is drying/dirtying the boy'
Il y a deux garçons. Un briquet chauffe un garçon, un briquet brûle un garçon. Quel garçon est-ce que tu préférerais être ? 'There are two boys. A lighter is warming a boy, a litgher is burning a boy. Which boy would you prefer to be?'	Le garçon que le briquet chauffe/brûle. 'The boy that the lighter is warming/ burning' OR +An −An
Il y a deux garçons. Un conte effraie un garçon, un conte intéresse un garçon. Quel garçon est-ce que tu préférerais être ? 'There are two boys. A tale is scaring a boy, a tale is intriguing a boy. Which boy would you prefer to be?'	Le garçon que le conte effraie/intéresse. 'The boy that the tale is scaring/ intriguing' OR +An −An
Il y a deux garçons. Un spectacle ennuie un garçon, un spectacle amuse un garçon. Quel garçon est-ce que tu préférerais être ? 'There are two boys. A play is boring a boy, a play is entertaining a boy. Which boy would you prefer to be?'	Le garçon que le spectacle ennuie/ amuse. 'The boy that the play is boring/ entertaining' OR +An −An
Il y a deux garçons. Un caillou fait trébucher un garçon, un caillou fait tomber un garçon. Quel garçon est-ce que tu préférerais être ? 'There are two boys. A stone is making a boy stumble, a stone is making a boy fall. Which boy would you prefer to be?'	Le garçon que le caillou fait trébucher/ tomber. 'The boy that the stone is making stumble/fall' OR +An −An
Il y a deux garçons. Un fil gratte un garçon, un fil coupe un garçon. Quel garçon est-ce que tu préférerais être ? 'There are two boys. A cable is scratching a boy, a cable is cutting a boy. Which boy would you prefer to be?'	Le garçon que le fil gratte/coupe. 'The boy that the cable is scratching/ cutting' OR +An −An
Il y a deux garçons. Un câble pique un garçon, un câble chatouille un garçon. Quel garçon est-ce que tu préférerais être ? 'There are two boys. A cable is stinging a boy, a cable is tickling a boy. Which boy would you prefer to be?'	Le garçon que le câble pique/ chatouille. 'The boy that the cable is stinging/ tickling' OR +An −An
Il y a deux garçons. Un bruit réveille un garçon, un bruit gêne un garçon. Quel garçon est-ce que tu préférerais être ?	Le garçon que le bruit gêne/ réveille. OR +An −An

'There are two boys. A noise is bothering a boy, a noise is waking up a boy. Which boy would you prefer to be?'	'The boy that the noise is bothering/ waking up'	
Il y a deux garçons. Un chiffon essuie un garçon, un chiffon salit un garçon. Quel garçon est-ce que tu préférerais être ? 'There are two boys. A rag is drying a boy, a rag is dirtying a boy. Which boy would you prefer to be?'	Le garçon que le chiffon essuie/salit. 'The boy that the rag is drying/ dirtying'	OR +An −An
Il y a deux orages. Un orage détruit un parapluie, un orage tord un parapluie. Quel orage est-ce que tu préférerais ? 'There are two thunderstorms. A thunderstorm is breaking an umbrella, a thunderstorm is twisting an umbrella. Which thunderstorm would you prefer?'	L'orage qui détruit/tord le parapluie. 'The thunderstorm that is breaking/ twisting the umbrella'	SR −An −An
Il y deux cheminées. Une cheminée réchauffe une salle, une cheminée brûle une salle. Quelle cheminée est-ce que tu préférerais utiliser ? 'There are two fireplaces. A fireplace is warming a room, a fireplace is burning a room. Which stove would you prefer to use?'	La cheminée qui réchauffe/brûle la salle. 'The fireplace that is warming/burning the room'	SR −An −An
Il y a deux fers à repasser. Un fer à repasser repasse un pyjama, un fer à repasser brûle un pyjama. Quel fer est-ce que tu préférerais ? 'There are two irons. An iron is ironing the pyjama, an iron is burning the pyjama. Which iron would you prefer to use?'	Le fer à repasser qui repasse/brûle le pyjama. 'The iron that is ironing/burning the pyjama'	SR −An −An
Il y a deux tempêtes. Une tempête mouille une poussette, une tempête abîme une poussette. Quelle tempête est-ce que tu préférerais ? 'There are two storms. A storm is wetting a stroller, a storm is ruining a stroller. Which storm would you prefer?'	La tempête qui mouille/abime la poussette. 'The storm that is breaking/ruining the stroller'	SR −An −An
Il y a deux coups de vent. Un coup de vent renverse un vase, un coup de vent casse un vase. Quel coup de vent est-ce que tu préférerais ? 'There are two gusts of wind. A gust of wind is overturning a vase, a gust of wind is crushing a vase. Which gust of wind would you prefer?'	Le coup de vent qui renverse/casse le vase. 'The gust of wind that is overturning/ crushing the vase'	SR −An −An
Il y a deux écritures. Une écriture embellit une page. Une écriture rend moche une page. Quelle écriture est-ce que tu préférerais ?	L'écriture qui embellit/rend moche la page.	SR −An −An

'There are two writings. A writing is decorating a page, a writing is uglying up a page. Which writing would you prefer?'	'The writing that is decorating/uglying up the page'	
Il y a deux rubans. Un ruban cache un trou, un ruban bouche un trou. Quel ruban est-ce que tu préférerais ? 'There are two tapes. A tape is hiding a hole, a tape is plugging a hole. Which tape would you prefer?'	Le ruban qui bouche/cache le trou. 'The tape that is hiding/plugging the hole'	SR −An −An
Il y a deux averses. Un orage trempe un drap, un orage déchire un drap. Quel orage est-ce que tu préférerais ? 'There are two thunderstorms. A thunderstorm is soaking a blanket, a thunderstorm is tearing a blanket. Which thunderstorm would you prefer?'	L'orage qui trempe/déchire le drap. 'The thunderstorm that is soaking/ tearing the blanket'	SR −An −An
Il y a deux parapluies. Un orage détruit un parapluie, un orage tord un parapluie. Quel parapluie est-ce que tu préférerais utiliser ? 'There are two thunderstorms. A thunderstorm is breaking an umbrella, a thunderstorm is twisting an umbrella. Which umbrella would you prefer to use?'	Le parapluie que l'orage détruit/tord. 'The umbrella that the thunderstorm is breaking/twisting'	OR −An −An
Il y deux salles. Une cheminée réchauffe une salle, une cheminée brûle une salle. Quelle salle est-ce que tu préférerais ? 'There are two rooms. A fireplace is warming a room, a fireplace is burning a room. Which room would you prefer?'	La salle que la cheminée réchauffe/ brûle. 'The room that the fireplace is warming/ burning'	OR −An −An
Il y a deux pyjamas. Un fer à repasser repasse un pyjama, un fer à repasser brûle un pyjama. Quel pyjama est-ce que tu préférerais utiliser ? 'There are two pyjamas. An iron is ironing a pyjama, an iron is burning a pyjama. Which pyjama would you prefer?'	Le pyjama que le fer à repasser repasse/brûle. 'The pyjama that the iron is ironing/ burning'	OR −An −An
Il y a deux poussettes. Une tempête mouille une poussette, une tempête abîme une poussette. Quelle tempête est-ce que tu préférerais ? 'There are two strollers. A storm is wetting a stroller, a storm is ruining a stroller. Which storm would you prefer?'	La poussette que la tempête mouille/ abime. 'The stroller that the storm is ruining/breaking.	OR −An −An
Il y a deux vases. Un coup de vent renverse un vase, un coup de vent casse un vase. Quel vase est-ce que tu préférerais ?	Le vase que le vent renverse/casse.	OR −An −An

'There are two vases. A gust of wind is overturning a vase, a gust of wind is crushing a vase. Which vase would you prefer?'	'The vase that the gust of wind is overturning/crushing'
Il y a deux pages. Une écriture embellit une page. Une écriture rend moche une page. Quelle page est-ce que tu préférerais ? 'There are two pages. A writing is decorating a page, a writing is uglying up a page. Which page would you prefer?'	La page que l'écriture embellit/rend moche. 'The page that the writing is decorating/uglying up' OR −An −An
Il y a deux trous. Un ruban cache un trou, un ruban bouche un trou. Quel trou est-ce que tu préférerais ? 'There are two holes. A tape is hiding a hole, a tape is plugging a hole. Which hole would you prefer?'	Le trou que le ruban bouche/cache. 'The hole that the tape is plugging/hiding' OR −An −An
Il y a deux draps. Un orage trempe un drap, un orage déchire un drap. Quel drap est-ce que tu préférerais ? 'There are two blankets. A thunderstorm is soaking a blanket, a thunderstorm is tearing a blanket. Which blanket would you prefer?'	Le drap que l'orage trempe/déchire. 'The blanker that the thunderstorm is tearing/soaking' OR −An −An

List of items in Experiment 6: Repetition of relative clauses with an animacy mis/match in French.

Item	Condition
La femme qui applaudit la fille.	SR
'The woman that is applauding the girl'	+An +An
L'ami qui réconforte le garçon.	SR
'The friend that is comforting the boy'	+An +An
La femme qui réveille la fille.	SR
'The lady that is waking up the girl'	+An +An
L'homme qui salue le garçon.	SR
'The man that is greeting the boy'	+An +An
L'homme qui cherche le garçon.	SR
'The man that is looking for the boy'	+An +An
La maitresse qui gronde la fille.	SR
'The teacher that is scolding the girl'	+An +An
La maman qui embrasse la fille.	SR
'The mom that is hugging the girl'	+An +An
Le papa qui lave le garçon.	SR
'The dad that is washing the boy'	+An +An
La fille que la femme applaudit.	OR
'The girl that the woman is applauding'	+An +An
Le garçon que l'ami réconforte.	OR
'The boy that the friend is comforting'	+An +An
La fille que la femme réveille.	OR
'The girl that the lady is waking up'	+An +An
Le garçon que l'homme salue.	OR
'The boy that the man is greeting'	+An +An
Le garçon que l'homme cherche.	OR
'The boy that the man is looking for'	+An +An
La fille que la maitresse gronde.	OR
'The girl that the teacher is scolding'	+An +An
La fille que la maman embrasse.	OR
'The girl that the mom is hugging.	+An +An
Le garçon que le papa lave.	OR
'The boy that the dad is washing'	+An +An
La fille qui perd la bague.	SR
'The girl that is losing the ring'	−An +An

La fille qui casse la chaise.	SR
'The girl that is breaking the chair'	–An +An
Le garçon qui cueille le fruit.	SR
'The boy that is picking the fruit'	–An +An
Le garçon qui peint le cahier.	SR
'The boy that is painting the book'	–An +An
La fille qui lance une balle.	SR
'The girl that is throwing the ball'	–An +An
La fille qui prépare une tarte.	SR
'The girl that is making the cake'	–An +An
Le garçon qui offre le jouet.	SR
'The boy that is offering the toy'	–An +An
Le garçon qui dessine l'arbre.	SR
'The boy that is drawing the tree'	–An +An
La chaise que la fille casse.	OR
'The chair that the girl is breaking'	–An +An
La bague que la fille perd.	OR
'The ring that the girl is losing'	–An +An
Le fruit que le garçon cueille.	OR
'The fruit that the boy is picking.	–An +An
Le cahier que le garçon peint.	OR
'The book that the boy is painting'	–An +An
La balle que la fille lance.	OR
'The ball that the girl is throwing'	–An +An
La tarte que la fille prépare.	OR
'The cake that the girl is making'	–An +An
Le jouet que le garçon offre.	OR
'The toy that the boy is offering'	–An +An
L'arbre que le garçon dessine.	OR
'The tree that the boy is drawing'	–An +An
La flamme qui brûle la fille.	SR
'The flame that is burning the girl'	+An –An
L'histoire qui effraie la fille.	SR
'The story that is scaring the girl'	+An –An
Le spectacle qui ennuie le garçon.	SR
'The play that is entertaining the boy'	+An –An
La pierre qui fait tomber la fille.	SR
'The stone that is making the girl fall'	+An –An
La corde qui gratte la fille.	SR
'The cord that is scratching the girl'	+An –An
L'épingle qui pique la fille.	SR
'The brooch that is stinging the girl'	+An –An

Le bruit qui réveille le garçon.	SR
'The noise that is waking up the boy'	+An −An
L'encre qui salit le garçon.	SR
'The ink that is dirtying the boy'	+An −An
La fille que la flamme brûle.	OR
'The girl that the flame is burning'	+An −An
La fille que l'histoire effraie.	OR
'The girl that the story is scaring'	+An −An
Le garçon que le spectacle amuse.	OR
'The boy that the play is entertaining'	+An −An
La fille que la pierre fait tomber.	OR
'The girl that the stone is making fall'	+An −An
La fille que la corde gratte.	OR
'The girl that the cord is scratching'	+An −An
La fille que l'épingle pique.	OR
'The girl that the brooch is stinging'	+An −An
Le garçon que le bruit réveille.	OR
'The boy that the noise is waking up'	+An −An
Le garçon que l'encre salit.	OR
'The boy that the ink is dirtying'	+An −An
L'orage qui détruit le parapluie.	SR
'The thunderstorm that is breaking the umbrella'	−An −An
La cheminée qui réchauffe la chambre.	SR
'The fireplace that is warming the room'	−An −An
Le fer à repasser qui repasse le pyjama.	SR
'The iron that is ironing the pyjama'	−An −An
La tempête qui mouille la voiture.	SR
'The storm that is wetting the car'	−An −An
Le coup de vent qui renverse le vase.	SR
'The gust of wind that is overturning the vase'	−An −An
L'écriture qui embellit la page.	SR
'The writing that is decorating the page'	−An −An
Le ruban qui bouche le trou.	SR
'The tape that is plugging the hole'	−An −An
La pluie qui trempe la chemise.	SR
'The shower that is soaking the shirt'	−An −An
Le parapluie que l'orage détruit.	OR
'The umbrella that the thunderstorm is breaking'	−An −An
La chambre que la cheminée réchauffe.	OR
'The room that the fireplace is warming'	−An −An
Le pyjama que le fer à repasser repasse.	OR
'The pyjama that the iron is ironing'	−An −An

La voiture que la tempête mouille.	OR
'The car that the storm is wetting.	−An −An
Le vase que le coup de vent renverse.	OR
'The vase that the gust of wind is overturning'	−An −An
La page que l'écriture embellit.	OR
'The page that the writing is decorating'	−An −An
Le trou que le ruban bouche.	OR
'The hole that the tape is plugging'	−An −An
La chemise que la pluie trempe.	OR
'The shirt that the shower is soaking'	−An −An

List of introductions and items in Experiment 7: Comprehension of relative clauses with an animacy mis/match in French.

Introduction	Item	Condition
Ici il y a deux femmes. Montre-moi	la femme qui applaudit la fille.	SR
'Here there are two women. Show me	the woman that is applauding the girl'	+An +An
Ici il y a deux grand-papas. Montre-moi	le grand-papa qui filme le garçon.	SR
'Here there are two grandpas. Show me	the grandpa that is filming the boy'	+An +An
Ici il y a deux femmes. Montre-moi	la femme qui caresse la fille.	SR
'Here there are two ladies. Show me	the lady that is caressing the girl'	+An +An
Ici il y a deux messieurs. Montre-moi	le monsieur qui salue le garçon.	SR
'Here there are two men. Show me	the man that is greeting the boy'	+An +An
Ici il y a deux hommes. Montre-moi	l'homme qui trouve le garçon.	SR
'Here there are two men. Show me	the man that is finding the boy'	+An +An
Ici il y a deux maitresses. Montre-moi	la maitresse qui gronde la fille.	SR
'Here there are two teachers. Show me	the teacher that is scolding the girl'	+An +An
Ici il y a deux mamans. Montre-moi	la maman qui embrasse la fille.	SR
'Here there are two moms. Show me	the mom that is hugging the girl'	+An +An
Ici il y a deux papas. Montre-moi	le papa qui lave le garçon.	SR
'Here there are two daddies. Show me	the dad that is washing the boy'	+An +An
Ici il y a deux filles. Montre-moi	la fille que la femme applaudit.	OR
'Here there are two girls. Show me	the girl that the woman is applauding'	+An +An
Ici il y a deux garcons. Montre-moi	le garçon que le grand-papa filme.	OR
'Here there are two boys. Show me	the boy that the grandpa is filming'	+An +An
Ici il y a deux filles. Montre-moi	la fille que la femme caresse.	OR
'Here there are two girls. Show me	the girl that the lady is caressing'	+An +An
Ici il y a deux garcons. Montre-moi	le garçon que le monsieur salue.	OR
'Here there are two boys. Show me	the boy that the man is greeting'	+An +An
Ici il y a deux garcons. Montre-moi	le garçon que l'homme trouve.	OR
'Here there are two boys. Show me	the boy that the man is finding'	+An +An
Ici il y a deux filles. Montre-moi	la fille que la maitresse gronde.	OR
'Here there are two girls. Show me	the girl that the teacher is scolding'	+An +An
Ici il y a deux filles. Montre-moi	la fille que la maman embrasse.	OR
'Here there are two girls. Show me	the girl that the mom is hugging.	+An +An
Ici il y a deux garcons. Montre-moi	le garçon que le papa lave.	OR
'Here there are two boys. Show me	the boy that the dad is washing'	+An +An
Ici il y a deux filles. Montre-moi	la fille qui photographie la fleur.	SR
'Here there are two girls. Show me	the girl that is photographing the flower'	−An +An

Ici il y a deux messieurs. Montre-moi	le monsieur qui répare le lavabo.	SR
'Here there are two men. Show me	the man that is repairing the faucet'	−An +An
Ici il y a deux garcons. Montre-moi	le garçon qui cueille le fruit.	SR
'Here there are two boys. Show me	the boy that is picking the fruit'	−An +An
Ici il y a deux garcons. Montre-moi	le garçon qui peint le cahier.	SR
'Here there are two boys. Show me	the boy that is painting the book'	−An +An
Ici il y a deux filles. Montre-moi	la fille qui lance une balle.	SR
'Here there are two girls. Show me	the girl that is throwing the ball'	−An +An
Ici il y a deux filles. Montre-moi	la fille qui prépare une tarte.	SR
'Here there are two girls. Show me	the girl that is making the cake'	−An +An
Ici il y a deux garcons. Montre-moi	le garçon qui offre le jouet.	SR
'Here there are two boys. Show me	the boy that is offering the toy'	−An +An
Ici il y a deux garcons. Montre-moi	le garçon qui dessine l'arbre.	SR
'Here there are two boys. Show me	the boy that is drawing the tree'	−An +An
Ici il y a deux fleurs. Montre-moi	la fleur que la fille photographie.	OR
'Here there are two flowers. Show me	the flower that the girl is photographing'	−An +An
Ici il y a deux lavabos. Montre-moi	le lavabo que la monsieur répare.	OR
'Here there are two faucets. Show me	the faucet that the man is repairing'	−An +An
Ici il y a deux fruits. Montre-moi	le fruit que le garçon cueille.	OR
'Here there are two fruits. Show me	the fruit that the boy is picking.	−An +An
Ici il y a deux cahiers. Montre-moi	le cahier que le garçon peint.	OR
'Here there are two books. Show me	the book that the boy is painting'	−An +An
Ici il y a deux balles. Montre-moi	la balle que la fille lance.	OR
'Here there are two balls. Show me	the ball that the girl is throwing'	−An +An
Ici il y a deux tartes. Montre-moi	la tarte que la fille prépare.	OR
'Here there are two cakes. Show me	the cake that the girl is making'	−An +An
Ici il y a deux jouets. Montre-moi	le jouet que le garçon offre.	OR
'Here there are two toys. Show me	the toy that the boy is offering'	−An +An
Ici il y a deux arbres. Montre-moi	l'arbre que le garçon dessine.	OR
'Here there are two trees. Show me	the tree that the boy is drawing'	−An +An
Ici il y a deux bougies. Montre-moi	la bougie qui brûle la fille.	SR
'Here there are two candles. Show me	the candle that is burning the girl'	+An −An
Ici il y a deux musiques. Montre-moi	la musique qui endort la fille.	SR
'Here there are two melodies. Show me	the melody that is making the girl sleep'	+An −An
Ici il y a deux marteaux. Montre-moi	le marteau qui blesse le garçon.	SR
'Here there are two hammers. Show me	the hammer that is hurting the boy'	+An −An
Ici il y a deux pierres. Montre-moi	la pierre qui fait tomber la dame.	SR
'Here there are two stones. Show me	the stone that is making the lady fall'	+An −An
Ici il y a deux vases. Montre-moi	le vase qui cogne la fille.	SR
'Here there are two vases. Show me	the vase that is hitting the girl'	+An −An
Ici il y a deux épingles. Montre-moi	l'épingle qui pique la fille.	SR
'Here there are two brooches. Show me	the brooch that is stinging the girl'	+An −An

Ici il y a deux explosions. Montre-moi 'Here there are two explosions. Show me	l'explosion qui réveille la fille. the explosion that is waking up the girl'	SR +An −An
Ici il y a deux encres. Montre-moi 'Here there are two inks. Show me	l'encre qui salit le garçon. the ink that is dirtying the boy'	SR +An −An
Ici il y a deux filles. Montre-moi 'Here there are two girls. Show me	la fille que la bougie brûle. the girl that the candle is burning'	OR +An −An
Ici il y a deux filles. Montre-moi 'Here there are two girls. Show me	la fille que la musique endort. the girl that the melody is making sleep'	OR +An −An
Ici il y a deux garcons. Montre-moi 'Here there are two boys. Show me	le garçon que le marteau blesse. the boy that the hammer is hurting'	OR +An −An
Ici il y a deux dames. Montre-moi 'Here there are two ladies. Show me	la dame que la pierre fait tomber. the lady that the stone is making fall'	OR +An −An
Ici il y a deux filles. Montre-moi 'Here there are two girls. Show me	la fille que le vase cogne. the girl that the vase is hitting'	OR +An −An
Ici il y a deux filles. Montre-moi 'Here there are two girls. Show me	la fille que l'épingle pique. the girl that the brooch is stinging'	OR +An −An
Ici il y a deux filles. Montre-moi 'Here there are two girls. Show me	la fille que l'explosion réveille. the girl that the explosion is waking up'	OR +An −An
Ici il y a deux garcons. Montre-moi 'Here there are two boys. Show me	le garçon que l'encre salit. the boy that the ink is dirtying'	OR +An −An
Ici il y a deux orages. Montre-moi 'Here there are two men. Show me	l'orage qui détruit le parapluie. the thunderstorm that is breaking the umbrella'	SR −An −An
Ici il y a deux cheminées. Montre-moi 'Here there are two fireplaces. Show me	la cheminée qui réchauffe la chambre. the fireplace that is warming the room'	SR −An −An
Ici il y a deux fers à repasser. Montre-moi 'Here there are two irons. Show me	le fer à repasser qui repasse le pyjama. the iron that is ironing the pyjama'	SR −An −An
Ici il y a deux tempêtes. Montre-moi 'Here there are two storms. Show me	la tempête qui mouille la voiture. the storm that is wetting the car'	SR −An −An
Ici il y a deux coups de vent. Montre-moi 'Here there are two gusts of wind. Show me	le coup de vent qui casse le vase. the gust of wind that is breaking the vase'	SR −An −An
Ici il y a deux images. Montre-moi 'Here there are two pictures. Show me	l'image qui décore la page. the picture that is decorating the page'	SR −An −An
Ici il y a deux tapis. Montre-moi 'Here there are two carpets. Show me	le tapis qui cache le trou. the carpet that is hiding the hole'	SR −An −An
Ici il y a deux pluies. Montre-moi 'Here there are two showers. Show me	la pluie qui trempe la chemise. the shower that is soaking the shirt'	SR −An −An
Ici il y a deux orages. Montre-moi 'Here there are two thunderstorms. Show me	le parapluie que l'orage détruit. the umbrella that the thunderstorm is breaking'	OR −An −An
Ici il y a deux chambres. Montre-moi 'Here there are two rooms. Show me	la chambre que la cheminée réchauffe. the room that the fireplace is warming'	OR −An −An

Ici il y a deux pyjamas. Montre-moi 'Here there are two pyjamas. Show me	le pyjama que le fer à repasser repasse. the pyjama that the iron is ironing'	OR −An −An
Ici il y a deux voitures. Montre-moi 'Here there are two cars. Show me	la voiture que la tempête mouille. the car that the storm is wetting.	OR −An −An
Ici il y a deux vases. Montre-moi 'Here there are two vases. Show me	le vase que le coup de vent casse. the vase that the gust of wind is breaking'	OR −An −An
Ici il y a deux pages. Montre-moi 'Here there are two pages. Show me	la page que l'image décore. the page that the picture is decorating'	OR −An −An
Ici il y a deux trous. Montre-moi 'Here there are two holes. Show me	le trou que le tapis cache. the hole that the carpet is hiding'	OR −An −An
Ici il y a deux chemises. Montre-moi 'Here there are two shirts. Show me	la chemise que la pluie trempe. the shirt that the shower is soaking'	OR −An −An