

# Language Acquisition at the Interfaces



# Language Acquisition at the Interfaces:

*Proceedings of GALA 2015*

Edited by

Jiyoung Choi, Hamida Demirdache,  
Oana Lungu and Laurence Voeltzel

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## INTRODUCTION

The conference *Generative Approaches to Language Acquisition* is the biannual meeting of researchers working on language development from a generative perspective. The conference provides a forum for discussion of the most recent advances on first and second language acquisition, heritage language and bilingual acquisition, language pathology, the acquisition of sign language and neurolinguistics.

The 2015 edition was organized by the *Laboratoire de Linguistique de Nantes* (LLING, – UMR 6310 CNRS/Université de Nantes) and was held in Nantes from September 10-12, 2015. The high quality of the research presented at the conference is reflected in the important number of submitted papers (137), from all over the world (21 countries), of which only 35% were accepted for oral presentation.

This 12<sup>th</sup> edition of GALA included, alongside the general session, a special session on *Heritage Language Acquisition: Native vs. Heritage vs. Second language acquisition*, co-organized with Janet Grijzenhout (BSL, University of Konstanz), and supported by the AThEME (Advancing the European Multilingual Experience) collaborative research project studying multilingualism in Europe. Heritage Language users are unbalanced/passive bilinguals who have acquired simultaneously or successively a Heritage Language (HL)— the language of the parents (minority or immigrant) learned from birth in the home environment— and an ambient language spoken outside the home, the Dominant Language of their society (DL). As such, heritage speakers do not fit into either the native vs. non-native or L1 vs. L2 dichotomy, since unlike L2 (but like native) speakers, heritage speakers are exposed to the target language during the critical period, but just like L2 speakers, heritage speakers fail to converge on the target language, exhibiting variability in ultimate attainment.

GALA 12 also included three other workshops. The workshop on *The Role of Prosody in Early Speech Perception* (co-organized with Judit Gervain, LPP – UMR 8242, CNRS/Paris V) focused on recent experimental work on the role of prosody in child language. The workshop on the *Acquisition of Causation: Culmination Entailments and Agency* (co-organized with Fabienne Martin, University of Stuttgart) targeted experimental research probing children's understanding of causation and agenthood. The workshop on *Segments and Interactions in Phonological*

*Acquisition* focused on (a-)typical acquisition of segments and interactions between segments in production and perception. The invited speakers of GALA 2015 were Maria Polinsky (Harvard University), René Kager (University of Utrecht), Angeliek van Hout (University of Groningen), Nina Kazanina (University of Bristol), and Eirini Sanoudaki (Bangor University).

The present volume gathers 18 papers presented at GALA 2015 and reflects the current research in the field of language acquisition at the interface with syntax, semantics and phonology. The papers on the acquisition of syntax and semantics cover (a-)typical first and second language acquisition, heritage language and bilingual acquisition including bimodal bilingualism with heritage signers. They address a wide variety of topics at the syntax semantics interface: *wh*-movement (comprehension of *who* vs. *which* questions, *wh*-expressions in free relatives, relative clauses in bilingual children), passivisation (actional vs. non-actional (long) passives, delayed acquisition of verbal passives), the acquisition of distributivity (in languages marking the distributive share), the acquisition of reference (count nouns in languages with no count/mass grammatical distinction, (non) maximal readings of definites), comparative and positive uses of gradable expressions, anaphora resolution (with null vs. overt pronouns, d-pronouns vs. personal pronouns, long-distance anaphors), the acquisition of indirect recursion and locality, the role of input factors in heritage language acquisition, and heritage language characteristics in bimodal bilingual children (in the domains of phonology, syntax, and discourse). The papers on phonological acquisition focus on the production of consonant clusters, the acquisition of Voice Onset Time, the development of the speech system in infants, and cover both first and second language acquisition.

Given the quality of the papers and the diversity of the subject matter, the Proceedings of GALA 2015 will make, without any doubt, a significant contribution to the field, imposing itself, together with the previous Proceedings volumes, as a valuable reference guide for the researchers working in the domain of language acquisition and language development from a generative perspective.

We are very grateful to the contributors to the volume, to the reviewers, and to the following sponsors for their support in the organization of the conference and the preparation of the volume: the large-scale integrating project AThEME (Advancing the European Multilingual Experience) funded by the European Seventh Framework Programme for research, technological development and demonstration under grant agreement no 613465, the Laboratoire de Linguistique de



Nantes (LLING), the Laboratoire Psychologie de la Perception – UMR 8242, CNRS/Université de Paris V, the project Grasping Meaning across Languages and Learners (GraMALL) funded by the Netherlands Organisation for Scientific Research (NWO), the project *Incremental Specification in Context* (SFB 732) *funded by the National German Science Foundation (DFG)*.

Nantes, October 11, 2016

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Laurence Voeltzel



# COMPREHENSION OF WH-QUESTIONS IN CHILD ROMANIAN: A CASE ABOUT *CASE* AND *LEXICAL RESTRICTION*

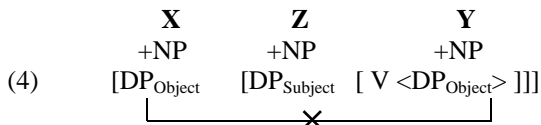
ANAMARIA BENTEA

## 1. Introduction

Cross-linguistic studies on children's comprehension of wh-questions have revealed a twofold asymmetry: (i) subject *which*-questions (1) are easier for children to comprehend than object *which*-questions (2) and (ii) object *who*-questions (3) yield better accuracy than object *which*-questions (De Vincenzi et al. 1999; Avrutin 2000; Philip et al. 2001; Friedmann et al. 2009).

- (1) Which giraffe tickled the turtle?
- (2) Which giraffe did the turtle tickle?
- (3) Who did the turtle tickle?

Friedmann et al. (2009) propose that the source of children's difficulties with questions like (2) lies in the intervention of the subject (*the turtle*) in the interpretive chain formed by the A'-object (*which giraffe*) with its canonical position in the structure (i.e. object of the verb *tickle*). The gist of this approach is that children encounter difficulties with movement structures in which one element containing a lexical restriction (i.e. a [+NP] feature) intervenes in the movement of another [+NP] element, as shown in (4). These intervention effects are traced back to the general locality principle of Relativized Minimality (RM), which imposes constraints on the syntactic relations that can hold between a displaced element and its original position in the sentence.



In other words, children only struggle with those structures in which (i) the A'-chain linking the object to its base-generated position crosses an intervening subject and (ii) the intervening element shares a partial featural specification with the moved constituent. This results in an intervention configuration in *which*-object questions since the subject DP represents a potential competitor in establishing the correct grammatical dependency between the object and its original position as argument of the verb. Children's improved performance with object *who*-questions shows that they can easily establish a movement dependency once the object and the intervening subject do not share the feature [+NP].

Wh-questions in Romanian are particularly relevant in this context as *which*-questions can appear without an overt NP. Although such *which*-questions do not carry an expressed NP, they still have lexical specificity, which limits the set of possible referents for the wh-expression to those existing in the discourse context. This offers a good testing ground to determine whether children's grammar is sensitive to the presence of a lexical restriction or NP feature on both the moved element and the intervener, even when the lexical NP restriction is not overtly expressed in the wh-expression.

Moreover, object questions in Romanian are disambiguated from subject questions through the presence of the accusative marker *pe*. The form of the interrogative pronoun thus overtly signals whether the structure should be interpreted as a subject or object question. Testing the comprehension of wh-questions can therefore prove insightful into the role that *pe* plays in the processing of A'-dependencies in Romanian.

The rest of this paper is organized as follows: section 2 briefly describes the syntax of wh-questions in Romanian; section 3 outlines the experimental study and the results, which are discussed in section 4; section 5 concludes the paper.

## 2. Wh-questions in Romanian

Two wh-elements introduce subject and object questions referring to [+animate] entities: *cine* ("who") for non-lexically-restricted or bare wh-questions (see (5-6)) and *care* ("which") for lexically-restricted questions, as in (7) and (8). The noun phrase in parentheses in these latter examples illustrates the option of having *care*-questions without an overtly expressed lexical NP. For the sake of clarity, we will refer to such questions as *which* -NP (vs. *which* +NP questions, i.e. those questions containing an overt lexical restriction):

- (5) Cine l-a                    interviewat pe            student?  
 who him<sub>i</sub>.ACC-has interviewed pe.ACC student<sub>i</sub>  
*Who interviewed the student?*
- (6) Pe        cine a    interviewat profesorul?  
 pe.ACC who has interviewed professor.the.M.SG  
*Who did the professor interview?*
- (7) Care (profesor) l-a                    interviewat pe            student?  
 which professor him<sub>i</sub>.ACC-has interviewed pe.ACC student<sub>i</sub>  
*Which professor interviewed the student?*
- (8) Pe        care (student) l-a                    interviewat  
 pe.ACC which student<sub>i</sub> him<sub>i</sub>.ACC-has interviewed  
 profesorul?  
 professor.the.M.SG  
*Which student did the professor interview?*

Note that in object *which*-questions (8), contrary to object *who*-questions (6), a co-indexed clitic pronoun *l* (“him”) doubles the direct object *pe profesor*<sup>1</sup>. The contrast between (6) and (8) shows that clitic pronouns are illicit in non-lexically-restricted interrogatives, but are obligatory with lexically-restricted wh-phrases, as illustrated by the ungrammaticality of examples (9) and (10):

- (9) \*Pe        cine l<sub>i</sub>-a                    interviewat profesorul?  
 pe.ACC who<sub>i</sub> him<sub>i</sub>-has interviewed professor.the.M.SG  
*Who did the professor interview?*
- (10) \*Pe        care (student) a                    interviewat profesorul?  
 pe.ACC which student has interviewed professor.the.M.SG  
*Which student did the professor interview?*

Given the parallelism between *which* +NP and *which* –NP structures with respect to the obligatory presence of a clitic pronoun corresponding to the moved argument, it follows that they also share the same structural properties and that *which* –NP is only an apparent instantiation of a bare wh-element<sup>2</sup>. Investigating whether Romanian children are sensitive to the differences between *which*-questions, both +NP and –NP, and *who*-questions can prove very insightful for the study of children’s syntactic development.

### 3. Experimental study

In light of the above considerations, the current study explores Romanian children's sensitivity to morphosyntactic information in the interpretation of bare and lexically-restricted wh-questions and investigates to what extent children's selective difficulties with movement dependencies can be modulated by language-specific properties, such as case-marking. To date, this is the first paper that investigates the comprehension of *who*- and *which*-questions by Romanian children, and thus aims to fill the gap in the acquisition literature on the comprehension of wh-questions in Romanian.

#### 3.1. Participants

We report the results of 44 typically developing monolingual Romanian-speaking children aged 3;8 to 7;2. They were recruited at a pre-school and a school in Bistrița, Romania and divided across two age groups, as illustrated in Table 1. In addition, 10 adult native speakers of Romanian were included as a control group.

**Table 1: Participant data per age group (number per group, age range, mean age and standard deviation)**

Age group	No. of participants	Age range	Mean Age (S.D.)
4 y.o.	21	3;8 - 5;2	4;4 (0.60)
6 y.o.	23	5;8 - 7;2	6;5 (0.62)
Adults	10	18;0 - 40	31 (6.73)

#### 3.2. Materials

The experiment investigated the comprehension of subject and object questions introduced by various types of wh-elements. The study used a 2 X 3 design with type of structure (*subject* vs *object*) and type of wh-element (*who* vs *which* +NP vs *which* -NP) as within-participant factors. 18 sets of 6 sentences like those exemplified in (11) were constructed. The *which* +NP and *which* -NP notation distinguishes between *care* ("which") questions with and without an overt full lexical noun. In using this notation, we adopt the terminology of previous studies (Friedmann et al. 2009, Belletti et al. 2012) where the +NP feature characterized cases involving the presence of a lexical noun and, accordingly, we initially classify wh-questions headed only by *care* and *pe care* as -NP.

- (11) a. Subject **cine** (“who”) question  
**Cine** a gădilă țestoasă?  
 who has tickled turtle.the.F.SG  
*Who tickled the turtle?*
- b. Object **cine** (“who”) question  
**Pe cine** a gădilă țestoasă?  
 pe.ACC who has tickled turtle.the.F.SG  
*Who did the turtle tickle?*
- c. Subject **care** +NP (“which +NP”) question  
**Care girafă** a gădilă țestoasă?  
 which giraffe has tickled turtle.the.F.SG  
*Which giraffe tickled the turtle?*
- d. Object **care** +NP (“which +NP”) question  
**Pe care girafă** a gădilă-o  
 pe.ACC which giraffe has tickled-her.ACC  
 țestoasă?  
 turtle.the.F.SG  
*Which giraffe did the turtle tickle?*
- e. Subject **care** –NP (“which –NP”) question  
**Care** a gădilă țestoasă?  
 which has tickled turtle.the.F.SG  
*Which one tickled the turtle?*
- f. Object **care** –NP (“which –NP”) question  
**Pe care** a gădilă-o țestoasă?  
 pe.ACC which has tickled-her.ACC turtle.the.F.SG  
*Which one did the turtle tickle?*

In the test items, (i) *pe* was the only element that signaled an object interpretation vs. a subject interpretation for *cine* (“who”) questions in (11a-b); (ii) subject and object *care* NP “which +NP” and *care* –NP (“which –NP”) questions in (11c-d) and (11e-f) were disambiguated through the use of *pe* and the clitic pronoun<sup>3</sup>; (iii) object *cine* (“who”) and object *care* (“which –NP”) questions were only distinguished, at a surface level, by the use of the clitic pronoun in the latter structures. All target sentences contained transitive verbs and nouns that matched in gender and number. The characters were always either two animals or two humans. A post-verbal subject was used in all object questions.

Children saw each item twice. The 6 sentences of each set were divided into three lists such that each list included 6 items for each of the 6 conditions. Items were presented in a randomized order within each list and were mixed with 18 fillers. Additionally, there were 2 practice trials at

the beginning of each list. Consequently, each list included 2 practice trials, 36 target sentences and 18 fillers, summing up to a total of 56 trials per list. Each experimental session lasted approximately 35 minutes, with a short intermediary break. Children were also told that they could stop the experiment and have a break at any time.

The task used was a character-selection task adapted from Friedmann, et al.'s (2009) study on wh-questions in Hebrew and Adani's (2011) study on relative clauses (RCs) in Italian. The visual stimuli were cartoon movies realized with an animation software. Each cartoon displayed three characters (e.g. two giraffes and a turtle) involved in the same action and was accompanied by a pre-recorded description of the scenes. A sample description and an example of test question are illustrated in (12). Figure 1 shows the sequence of events in the visual display.

(12) *Lead-in:* Uite două girafe și o țestoasă!

*Look! There are two giraffes and a turtle.*

*1<sup>st</sup> action:* Să vedem ce se întâmplă! O girafă gădilă țestoasa.

*Let's see what happens next! A giraffe is tickling the turtle.*

*2<sup>nd</sup> action:* Acum uite! Țestoasa gădilă o altă girafă.

*Now look! The turtle is tickling another giraffe.*

*Question:* Care girafă a gădilat țestoasa?

*Which giraffe tickled the turtle?*

In order to create a pragmatically felicitous context for the use of *care* –NP (“which –NP”) questions *Care a gădilat țestoasa?* (“Which one tickled the turtle?”), the target question was always preceded by an introductory question (e.g. *Ai văzut girafele?* *Did you see the giraffes?*).

After each question, a puppet—the reindeer Rudolf—asked the child a wh-question, thus prompting her to point to the correct character or reply by describing the color of the character (e.g. “the pink giraffe”). When the children heard the target question, the characters appeared in their original position. The adult participants saw the same experimental stimuli. The procedure used with them was similar to that used with the children, but the experimenter would ask the question directly, without using the puppet. The experiment with the adults took approximately 15 minutes.



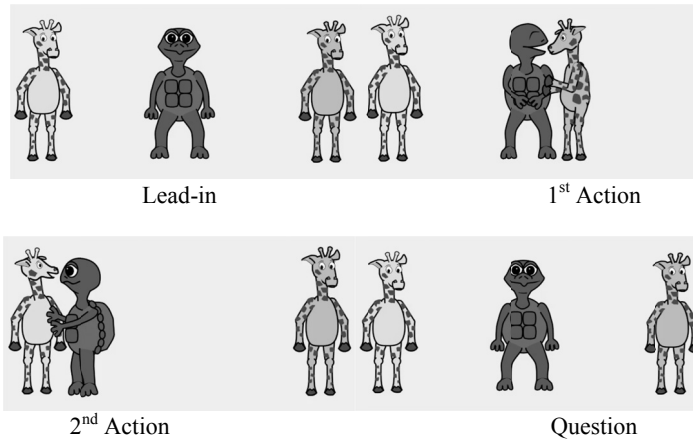


Figure 1: An example of animation sequence used to assess comprehension of wh-questions

### 3.3. Predictions

Several predictions hold for the study. First, as shown in section 2, the syntactic behavior of *care* “which –NP” phrases patterns with that of *which*-expressions with an overtly expressed noun and is distinct from that of bare wh-phrase like *who*. In addition, as far as their meaning is concerned, both types of *which*-expressions presuppose the availability of a given set of referents in the discourse context. Contrary to questions introduced by *cine* “who”, questions introduced by *care* “which” cannot be asked out-of-the-blue since they imply a choice from “a set of individuals previously introduced into the discourse, or . . . part of the ‘common ground’ shared by speaker and hearer” (Pesetsky 2000, 16). Despite the similarity in surface form between *cine* “who” and *care* “which –NP”, only the first wh-element can be truly considered as –NP, whereas the latter only apparently lacks a lexical restriction. The apparently bare *care* is in fact analogous to the English *which one*. It could thus be assigned the form [<sub>WH</sub> [<sub>NP</sub> [<sub>N</sub> e]]], along the lines of Dobrovie-Sorin (1994), where the N has been deleted, contrary to *care NP* cases (e.g. *care* “which one” vs *care girafă* “which giraffe”), where an NP is present. As such, the instances of *care* “which” are not followed by an overt full lexical noun still contain a [+NP] specification.

This has interesting consequences for an account of children’s comprehension difficulties with object A’-dependencies in terms of

intervention effects driven by a similar featural specification on the A'-moved element and the intervening subject. An important observation of the intervention account is that the features that enter the computation of locality are the features that function as attractors for movement. Independent evidence in favour of considering lexical restriction as an attractor in different constructions comes from Northeastern Italian Dialects. Munaro (1999, cited in Poletto & Pollock 2000) showed that bare *wh*-words and lexically-restricted *wh*-elements in Bellunese occur in different positions at the left periphery of the clause, as lexically-restricted *wh*-phrases target a sentence-initial position, while bare *wh*-phrases appear sentence-finally:

- (13) a. Ha-tu magnà *che*?  
         have-you eaten what ?  
         *What did you eat ?*  
       b. \**Che* ha-tu magnà?  
         what have-you eaten ?  
       c. *Che* vestito à-la comprà?  
         what dress has-she bought  
         *Which dress did she buy?*  
       d. \*Ha-la comprà *che vestito*?  
         has-she bought what dress ?

The difference in syntactic behavior between lexically-restricted and bare *wh*-phrases points to the presence of different attractors for the movement of the two types of *wh*-elements. Romanian also supports this conclusion based on data from multiple *wh*-questions in which lexically-restricted *wh*-elements target a higher position than bare *wh*-words. Thus, the data from Bellunese and Romanian related to the behaviour of *wh*-elements with or without a lexical restriction clearly show that the NP feature acts as an attractor for movement of *which*-elements to a higher position than that of bare *wh*-phrases.

The NP feature thus forms part of the array of morphosyntactic features that trigger movement and, as such, should enter into the computation of intervention. Consequently, if NP enters the computation of locality, then the child's grammar system should be sensitive to this feature although it is not overtly expressed through the presence of a noun from the contentive lexicon. If the child's grammar system only paid attention to the surface form of the lexical elements and if this were enough to overcome comprehension difficulties, then performance for bare *who*-questions should be on a par with performance for *which*-

questions that do not have a full nominal element. Moreover, children should comprehend these questions better than *which* +NP ones.

The second prediction is linked to the effect that case-marking on the wh-pronoun has on the comprehension of questions in child Romanian. If the presence of *pe* at the very onset of the wh-question is an informative enough cue to signal that the wh-phrase should be assigned a patient theta-role and interpreted as the object of the verb and if children are able to draw upon this information, as well as the mismatch in case features between the A'-object and the intervening subject, then the presence of *pe* should greatly reduce any subject-object asymmetry attested in the comprehension of wh-questions. In addition, the fact that case-marking is present on both bare (*cine*) and lexically-restricted (*care*) wh-questions should equally facilitate processing of the two structures and modulate the difference between questions with (*which*) or without (*who*) a lexically restricted +NP feature attested cross-linguistically.

### 3.4. Results

Response accuracy was the dependent variable in the experiment: an answer was coded as correct when the child pointed to or described the corresponding character targeted by the wh-question. While the adults performed at ceiling for all the experimental conditions, children's comprehension scores within the two age groups revealed that the 6-year-old group gave overall more accurate responses than the 4-year-old group. However, the same performance patterns could be observed within the groups for each of the experimental conditions (see Figure 2).

As illustrated below, both age groups performed equally well for subject and object *who*-questions. The 4-year-olds performed on a par for object *which* +NP and *which* -NP questions, whereas they were more accurate with both subject *which* +NP and *which* -NP conditions. The comprehension scores for the 6-year-old group revealed similar performance for all three types of subject wh-questions. In contrast, when it comes to object questions, children comprehended *who*-questions better than both *which* -NP and *which* +NP. Like for the 4-year-old children, the accuracy scores of the 6 year-olds show that they struggled most with object *which* +NP questions and this led to a sharper subject-object contrast in the comprehension of *which* +NP questions.

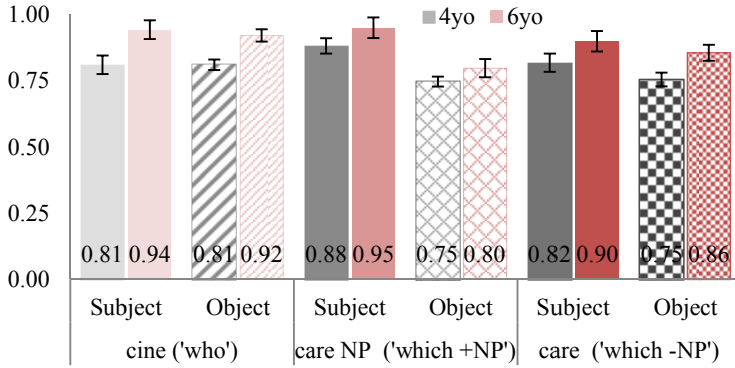


Figure 2: Proportion of correct answers for children by type of structure, wh-phrase and age group (4yo and 6yo). The bars in each figure represent the standard error to the mean.

The data obtained were fit to a mixed logit model with type of structure (i.e. Structure Type), type of wh-element (i.e. Wh-word Type) and age group as fixed predictors<sup>4</sup>. The reference level was the response accuracy mean for Object *Which -NP* against which the means for each of the other levels of the variables Structure Type, Wh-word Type and Age Group were compared. The maximal random effect structure justified by the data included intercepts for subjects and items, as well as by-subject random slopes for Structure Type. The analysis revealed that, while the interaction between Structure Type and Wh-word Type with Age Group did not add significance to the model ( $\chi^2(5) = 4.01$ ,  $p = 0.54$ ), the effect of Age Group was significant ( $\chi^2(1) = 5.79$ ,  $p < .01$ ), as was the interaction between Structure Type and Wh-word Type ( $\chi^2(2) = 11.06$ ,  $p < .001$ ).

The results showed that children overall comprehended subject wh-questions better than object questions ( $\beta = 0.79$ ,  $SE = 0.39$ ,  $z = 2.02$ ,  $p < .05$ ). Children also performed better with object *who* questions than with object *which -NP* questions ( $\beta = 0.54$ ,  $SE = 0.26$ ,  $z = 2.07$ ,  $p < .05$ ), whereas there was no significant difference in comprehension between object *which +NP* and object *which -NP* questions ( $\beta = 0.20$ ,  $SE = 0.23$ ,  $z = 0.85$ ,  $p < .05$ ). The 6-year-old group gave significantly more accurate responses ( $\beta = 0.84$ ,  $SE = 0.35$ ,  $z = 2.43$ ,  $p < .05$ ), illustrating that comprehension of wh-dependencies improves with age. The interaction between Structure Type and Wh-word Type was also significant and was due to Wh-word Type having a different effect on subject and object questions: while comprehension of subject *who* and subject *which -NP*

questions was on a par, children performed better with subject *which* +NP questions. The type of wh-word had a different effect on object questions: whereas there was no difference in performance between object *which* – NP and object *which* +NP questions, children were more accurate with object *who* questions.

#### 4. Discussion

Given that the adult data showed no asymmetries in comprehension, as adults performed at ceiling for all the experimental conditions, we will focus on the child data in the discussion.

We will first examine the role that an overt or covert lexical restriction or +NP feature plays in the comprehension of wh-questions in Romanian. Such a comparison is particularly relevant given the findings for *who*-questions, i.e. [–NP] questions that pose no difficulties for comprehension. The results revealed a subject-object asymmetry for *which*-questions: children comprehended subject *which*-questions better than object *which*-questions, not only when the lexical NP overtly followed the wh-expression, but also when the lexical restriction was not expressed on the wh-phrase. No difference in performance emerged between subject *who*- and object *who*-questions. These findings are consistent with the results of a number of studies on a variety of languages (De Vincenzi et al. 1999; Avrutin 2000; Friedmann et al. 2009 etc.) illustrating that children struggle more with object *which*-questions and reinforce the idea that not all types of object movement configurations are problematic for acquisition, but only those that give rise to an inclusion relation between the set of features on the moved wh-object and the intervening subject due to the presence of a +NP lexical restriction on both elements, as represented in (14a):

- |         |   |  |     |
|---------|---|--|-----|
|         | +Q+NP   |  | +NP |
| (14) a. | Pe        care    (girafă) a    gădilă-o    țestoasă? |  |     |
|         | pe.ACC which   giraffe has tickled-her turtle.the     |  |     |
|         | <i>Which giraffe did the turtle tickle?</i>           |  |     |
|         | +Q  |  | +NP |
| b.      | Pe        cine a    gădilă țestoasă?                  |  |     |
|         | pe.ACC who has tickled turtle.the                     |  |     |
|         | <i>Who did the turtle tickle?</i>                     |  |     |

The computation of the inclusion relation in (14a) is more problematic for children than the computation of a disjunction relation (14b) (Friedmann

et al. 2009; Belletti et al. 2012), because the intervening subject in (14a) hinders the realization of the correct dependency between the moved element and its base-position as it becomes a potential candidate for this relation. This holds for both *care* +NP and *care* –NP questions. In contrast, *who*-questions, in which the fronted constituent is –NP, do not give rise to such intervention effects, since the featural sets of the subject and the object are in a disjunction relation (14b). Children's performance with *which*-questions further underscores the role that even the covert presence of a +NP element plays in the processing of wh-dependencies.

The second finding of this experimental study concerns the role of the preposition *pe* in children's parsing of wh-questions. The use of *pe* in the experimental material should straightforwardly disambiguate between a subject and an object interpretation, irrespective of the type of wh-word, and should help children identify the thematic role of the wh-argument in relation with the verb. The data revealed that case marking on the wh-pronoun in Romanian considerably improved comprehension of object questions, but did not eliminate the subject-object difference in *which*-questions, nor the asymmetry between *who* and *which*-object interrogatives (both +NP and –NP).

Note however that the subject-object asymmetry surfacing in the comprehension of *which*-questions in Romanian is greatly reduced with respect to earlier studies with other languages. The children tested in this study comprehended object *which* +NP questions 77% of the time, compared with earlier findings of 58% for Hebrew (Friedmann et al. 2009) and 50% for Italian (De Vincenzi et al. 1999). The improved results for the comprehension of *which*-questions seem likely due to properties of wh-questions in Romanian that facilitate comprehension of object questions to a greater extent. More specifically, the improved performance of Romanian-speaking children compared to their Hebrew- and Italian-speaking peers could be explained through the additive effect of the case marker *pe* and the post-verbal subject. The latter, coupled with the presence of *pe* at the very onset of the wh-question, which signals that the phrase should receive an object interpretation, seems to boost children's comprehension of object wh-questions. These two properties distinguish Romanian questions from both Hebrew and Italian questions<sup>5</sup>.

The idea we would like to put forth is that the presence of a post-verbal subject allows to by-pass the strong intervention effects found in structures in which the subject is pre-verbal, such as RCs. This can be achieved by postulating an analysis of *care* structures that builds on Cecchetto's (2000) analysis of clitic left-dislocated (CLLD-ed) objects. According to Cecchetto (2000), the CLLD-ed object originates in the

argument position of the verb as a Big DP headed by the clitic (*la* in examples (15) and (16)) and they obligatorily reconstruct in an IP-internal position outside the vP, located higher than the one occupied by a post-verbal subject, but lower than the one occupied by a pre-verbal subject.

- (15) \*[L'opera prima di uno scrittore]<sub>i</sub>]<sub>j</sub>, lui<sub>i</sub> la<sub>j</sub> scrive  
 the-work first of a writer<sub>i</sub>, he<sub>i</sub> it.F.SG writes  
 sempre (volentieri).  
 always (with pleasure)  
*A writer's first work, he always writes it with pleasure.*

- (16) [L'opera prima di uno scrittore]<sub>i</sub>]<sub>j</sub>, la<sub>j</sub> scrive sempre lui<sub>i</sub>.  
 the-work first of a writer<sub>i</sub>, it.F.SG writes always he<sub>i</sub>  
*A writer's first work is always written by the writer himself.*

Thus, the co-indexation between the DP contained in the CLLD-ed object and the preverbal pronominal subject gives rise to a Principle C violation because the referential expression is reconstructed within the c-command domain of the pronoun. Conversely, the DP *uno scrittore* can be coindexed with the post-verbal subject in (16) without violating Principle C since the referential expression is reconstructed outside the c-command domain of the post-verbal subject.

Such an account has interesting consequences for an analysis of *which*-object questions in Romanian. Contrary to *cine*-questions, *which*-questions do not give rise to weak cross-over effects (WCO) (see also endnote ii), as the wh-element *pe care băiat* in (16a) can felicitously bind the pronoun inside the post-verbal subject DP:

- (17) a. \*Pe cine<sub>i</sub> a certat mama lui<sub>i</sub>?  
 pe.ACC who<sub>i</sub> has scolded mother.the his<sub>i</sub>  
 \*Who<sub>i</sub> did his<sub>i</sub> mother scold?  
 b. Pe care băiat<sub>i</sub> l<sub>i</sub>-a certat mama lui<sub>i</sub>?  
 pe.ACC which boy<sub>i</sub> him<sub>i</sub>-has scolded mother.the his<sub>i</sub>  
 Which boy<sub>i</sub> was scolded by his<sub>i</sub> own mother?

Along the lines of Cecchetto's (2000) analysis of CLLD-ed objects, we explain the absence of WCO effects with *care*-structures by postulating that the wh-element and the clitic are initially generated as a Big DP<sup>6</sup> in the internal argument position of the verb and together undergo a first movement to an intermediate position within the IP domain<sup>7</sup>, higher than the post-verbal subject. Once in this intermediate position, the wh-element

undergoes A'-movement to the left periphery and it is reconstructed above the c-command domain of the pronoun *lui*. The co-indexation between the referential expression *băiat* and the pronoun *lui* can thus take place without triggering WCO effects. In the case of *cine*-questions, since no clitic is present in the structure, the wh-element does not reconstruct in an intermediate position within the IP, thus giving rise to the prototypical WCO configuration where the pronoun inside the post-verbal subject is c-commanded by the operator, but not by the variable.

According to this analysis, the only instance in which the lexically restricted wh-phrase crosses over the subject is when the Big DP moves to the intermediate IP-internal position preceding the post-verbal subject. Since what is moved across the intervening subject is a larger constituent, namely the Big DP containing both the clitic and the +NP wh-double, this could alleviate the intervention effects found in object *which*-questions (much like in the case of the smuggling analysis proposed by Belletti 2014; Contemori & Belletti 2014 for circumventing intervention effects in passive object relatives). In the case of *cine* object questions, no intervention effects hold since the features of the moved A'-object are in a disjunction relation with the features of the intervening post-verbal subject.

If this analysis is on the right track, then the presence of a pre-verbal subject in *care*-structures would lead to stronger intervention effects, since the pre-verbal subject will appear in a position between the moved wh-phrase and its intermediate reconstruction site inside the IP. Moreover, the presence of a pre-verbal subject would also give rise to a typical case of inclusion relation when the wh-element containing the +NP feature moves out of the intermediate site of the Big DP to a position at the left periphery. This second movement inevitably crosses over the pre-verbal subject, thus creating an inclusion configuration with the feature of the embedded subject that also contains a +NP specification. Though it is impossible to test this prediction with wh-questions, since wh-elements must be adjacent to the verb, RCs in Romanian offer a good test case, as they can have both a pre-verbal and a post-verbal subject. The analysis outlined above predicts that, in Romanian, object RCs with a post-verbal subject should be easier to comprehend than object RCs with a pre-verbal subject. Bentea (2012) reports low comprehension scores for object RCs with pre-verbal subjects, while the results of Sevcenco & Avram (2012) do not show a clear distinction between the comprehension of RCs with a pre- or a post-verbal subject. The question whether the presence of a pre- or a post-verbal subject can alleviate intervention effects therefore requires further investigation. The preliminary results of an ongoing study



investigating the comprehension of RCs with a pre- or a post-verbal subject and using the same methodology as in the experiment reported in this paper seem to bring converging evidence for the analysis outlined above, however more children need to be tested and the data analyzed in more detail.

Let us now turn to the comparison between the results obtained for Romanian wh-questions and those reported for Hebrew (Friedmann et al. 2009) and Italian (De Vincenzi et al. 1999; Belletti & Guasti 2015). The comparison with the results for Hebrew becomes more straightforward: while in both languages *which*-elements are preceded by an external case-marker (*et* in Hebrew, *pe* in Romanian), only Romanian wh-questions have both a post-verbal subject and a clitic. The wh-questions tested in Hebrew (Friedmann et al. 2009) all contained pre-verbal subjects that, according to the analysis outlined above, lead to strong intervention effects. As for the difference found between the comprehension of object *which*-questions in Romanian and Italian, despite the presence of a post-verbal subject in both languages, we can account for it by linking it to the absence of clitic doubling in Italian questions. It follows that *which*-phrases in Italian cannot undergo reconstruction in an IP internal position and therefore cross the post-verbal subject on their way to the left periphery, thus giving rise to an inclusion configuration.

This brings us to the role that case-marking has on the comprehension of wh-questions in Romanian. The findings of the present study suggest that case *per se* does not affect comprehension of wh-questions in Romanian. More specifically, we see that despite the presence of a case-marker in both *care* and *cine* questions, we still find an asymmetry in comprehension between the two types of questions, even when *care* questions do not contain an overt lexical restriction and are similar in surface form to *cine* questions. Although case-marking appears very early in the structure, its effect is not unselective, but depends on the particular syntactic configuration in which it is found. If children used a general strategy drawing on the presence of a case-marker on the wh-word to determine the object and hence the patient of the verb, we would expect no difference between subject and object questions. In addition, we would expect no difference between structures with a pre- and a post-verbal subject. Studying the comprehension of Romanian RCs will thus provide crucial insight into whether the effect of case-marking on A'-dependency comprehension is linked to a specific syntactic configuration. More cross-linguistic data on the effect of case-marking on wh-comprehension could also help to shed light on the role it plays in circumventing or reducing intervention effects in acquisition.

## 5. Conclusions

This study aimed at investigating whether a subject-object asymmetry also surfaces in the comprehension of *who* and *which*-questions in Romanian, as well as determine whether the [+NP] feature impacts the processing of wh-dependencies even in the absence of an overt lexical restriction or lexical noun on the moved wh-object.

Whereas no difference in comprehension emerged from the adult data, children's results revealed two asymmetries: (i) a subject-object asymmetry in the comprehension of *which*-questions, but no difference in the comprehension of subject and object *who*-questions; (ii) an asymmetry in performance with object *who*-dependencies and object *which*-dependencies, independent of the absence of a full lexical noun after the wh-phrase. That children comprehended *care* "which –NP" questions on a par with *care NP* "which +NP" object questions suggests that the child's grammar system also takes into consideration features that do not have an overt manifestation, but which play a role in the computation of locality. Importantly, the findings for Romanian children's comprehension of *care* "which" object questions show that the subject-object asymmetry found cross-linguistically is considerably reduced, contrary to what has been reported so far for the comprehension of *which*-object questions in Hebrew-speaking and Italian-speaking children, for example.

We account for such differences by postulating an analysis of *care* "which" object questions building on the idea that intervention effects can be alleviated in structures with a post-verbal subject due to a two-step movement: (i) movement of a Big DP (containing the clitic and the wh-double) over the post-verbal subject to an intermediate position internal to the IP, but higher than the subject in the specifier of vP, and (ii) movement of the wh-element to the left-periphery out of this intermediate reconstruction site.

## Notes

<sup>1</sup> This is an instantiation of the "clitic doubling" phenomenon present in languages like Romanian and Spanish, whereby an accusative or dative clitic pronoun appears together with a co-referential full lexical noun phrase.

<sup>2</sup> The presence of a clitic pronoun in *care*-structures determines additional differences with respect to *cine*-structures as to the presence or absence of weak crossover (WCO) effects and whether they license or not parasitic gaps. See Dobrovie-Sorin (1994) for a more detailed discussion and analysis of clitic doubling in *care*- vs. *cine*-questions.

<sup>3</sup> The clitic pronoun can appear either post-verbally (in the case of the feminine clitic) or pre-verbally (in the case of the masculine clitic)

<sup>4</sup> Final model: Response Accuracy  $\sim$  Structure Type + Wh-word Type + Age Group + Structure Type \* Wh-word Type + (1 + Structure Type | Participant) + (1 | Item); N = 1584, AIC = 1186.4, BIC = 1245.4, log-likelihood = -582.20,  $\chi^2 = 5.27$ .

<sup>5</sup> In Hebrew, the wh-object is also preceded by an accusative marker – *et* – similar to *pe* in Romanian, but the subject appears in a pre-verbal position. In Italian, on the other hand, the subject appears in a post-verbal position in object wh-questions, but there is no case marking on the wh-phrase. This leads to the same surface order in both subject and object questions in Italian, rendering the *WH Verb NP* order ambiguous between a subject and object interpretation. Agreement with the verb is therefore crucial to disambiguate the structure.

<sup>6</sup> Following Belletti (1999 and subsequent work), we consider that the doubled lexical argument appears in the PP complement of the clitic head in the Big DP structure, and not in its specifier position (Uriagereka 1995).

<sup>7</sup> Cecchetto (2000) calls this position FP, however the fine details of this intermediate landing site require further investigation. See Coene & Avram (2012) for an analysis of the final landing site of the clitic.

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# FREE RELATIVE CLAUSES AND THE OVER-GENERALIZATION OF WH-MOVEMENT

MICHAEL CLAUSS

## 1. Free Relative Clauses and Wh-Movement

Wh-movement has, in much classic syntactic work, been assumed to be essentially a single generalized operation used to derive a number of constructions by moving a Wh operator to the specifier of a clause (Chomsky 1977, *inter alia*). This syntactic assumption is thought to hold for a variety of constructions, such as Wh question formation, Relativization (1), as well as other operations like Tough Movement and Clefting.

- (1) Wh-Movement
  - a. [<sub>CP</sub> **What** did John see (*t*)]
  - b. The thing [<sub>CP</sub> **which** John saw (*t*)]

However, different Wh-movement constructions also are subject to different constraints on output form. One example of this is the availability of complex (i.e. phrasal) Wh expressions in Wh questions compared with Free Relative Clauses (FRCs), discussed in some detail recently by Donati (2006) and Cecchetto & Donati (2011, 2015).

- (2) Wh-NP sequences
  - a. What (**gift**) did Ben bring?
  - b. I wonder what (**gift**) Ben brought
  - c. I opened what (**\*gift**) Ben brought

This effect, which I will refer to as the \*Wh-NP rule, will be the focus here, though other such rules exist which distinguish FRCs from other Wh constructions. One byproduct of this rule is that certain potentially ambiguous sentences which could be interpreted as either embedded questions or FRCs (for example, sentences containing verbs which select both nominal and clausal arguments) are disambiguated in the presence of

Wh-NP sequences. We will see in the following discussion that children do not make use of disambiguation by \*Wh-NP.

The discussion will proceed as follows: Section 2 will discuss cases where Wh movement sentences might be ambiguous between different sorts of constructions; Section 3 will discuss children's knowledge of the semantics and syntax of Free Relative Clauses, and in particular failure to use the \*Wh-NP rule to disambiguate between FRCs and questions; Section 4 will discuss two possible ways in which children might be making over-generalizations of Wh Movement syntax which would result in this performance. Section 5 concludes with general remarks about the role of over-generalization in acquisition paths.

## 2. The semantics of CP/DP ambiguities

As discussed above, the \*Wh-NP rule is a way in which the syntax of FRCs and embedded Wh questions can be distinguished. Generally, it's the case, as Donati (2006) points out, that categorial selection distinguishes where these constraints apply; FRCs are nominals (DPs), and so in a nominal position one cannot have a Wh-NP sequence (etc.); Wh-questions are clauses (CPs), so in a clausal position one can.

- (3) CP positions
  - a. Ben asked {if Molly had arrived, what gift Molly brought}
  - b. {That Molly came, What gift Molly brought} surprised Ben
- (4) DP positions
  - a. Ben opened {the box, what (\*gift) Molly brought}
  - b. {The box, what (\*gift) Molly brought} lay open on the table

Cases like (3-4), where the selecting predicate takes exclusively clausal or nominal arguments, make this distinction clearest. A subtler effect, however, comes up in contexts where the syntactic context allows for either clausal or nominal arguments. Such an environment is the complement of *see* (5). This gives rise to categorial ambiguity between DPs and CPs with strings like *what Molly brought*, which can be either an embedded question or an FRC. But, this ambiguity disappears where the \*Wh-NP rule would be violated (6).

- (5) Complement of *see*
  - a. Ben saw [<sub>DP</sub> the book]
  - b. Ben saw [<sub>CP</sub> that Molly wrote the book]