

# ACQUISITION OF THE LEFT AND RIGHT PERIPHERIES IN EUROPEAN PORTUGUESE

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## 1. Introduction

This study is concerned with the acquisition of structures with non-basic word order involving constituents on the left and right peripheries of the sentence in European Portuguese (EP). Considering the recent debate on the acquisition of interfaces (especially the syntax/discourse interface), the main goal of this study is to discuss children's comprehension of structures with left- and right-peripheral constituents (topics and antitopics), taking into account their syntactic and information status in both child and adult grammars.

Over the past few years, there has been some debate about these structures, in terms of syntax and information structure. In what concerns the information status, crosslinguistic studies have shown that the constituents on the left and right peripheries are different. Whereas the constituents on the left periphery can correspond to either given or new information (Reinhart, 1982, for English; Duarte, 1987, 1996, in preparation, for EP; Frascarelli & Hinterhölzl, 2007, for Italian), the constituents on the right periphery are always given information (Frascarelli & Hinterhölzl, 2007, Brunetti, 2009, for Italian; Duarte, in preparation, for EP). Brunetti (2009) even argues that in Italian the material on the right periphery can never be interpreted as contrastive, differently from the material that occurs on the left periphery. With regard to the syntactic status, authors have been discussing whether the constituents on the left and right peripheries are derived by Move or by Merge, opposing both peripheries. On the one hand, there are different structures on the left periphery with different derivations across languages. De Cat (2007), in a study of dislocations in spoken French, argues that French dislocation does not necessarily involve movement. For EP, Duarte (1987, 1996) had already shown that there is left-peripheral material either derived by Move (topicalization) or by Merge (clitic-left dislocation). On the other hand, locality effects (*clause-bounded*, see *Right-Roof Constraint* – Ross, 1967) are a strong argument in favor of a Merge derivation of antitopics (De Cat, 2007, for French; Duarte, in preparation, for EP).

Since a recent debate in acquisition is concerned with interfaces (namely, syntax/discourse), the acquisition of these types of structures is at the center of the debate. De Cat (2008), based on an elicitation study, presents experimental

evidence for the mastery of the discourse notion of topic by monolingual preschool children (2;6 to 5;6). Confirming previous results in De Cat (2002), the author shows early sensitivity to some aspects of the syntax/pragmatics interface. For EP, Adragão & Costa (2004) and Adragão (2005) also argued in favor of the early acquisition of structures with non-basic word order, since preschool children (3;3 to 6;1) comprehend fronted object structures, regardless of the type of fronting strategy involved (topicalization or clitic-left dislocation). Additionally, these authors show that topicalizations and clitic-left dislocations (i.e., OSV orders) are less problematic than OVS orders (i.e., subject-verb inversions with a focused subject). Nevertheless, according to Adragão & Costa (2004) and Adragão (2005), the problem is not due to the subject-verb inversion, because whenever the object is absent, in VS orders, children do not show difficulties comprehending these structures. Finally, Carrilho (1994) and Soares (2006) also assume the sensitivity to topic/comment structures with a marked topic by monolingual EP preschool children (2;0-3;3 in Carrilho, 1994; 1;2-4;6 in Soares, 2006), although topicalizations present a low rate in the spontaneous production corpora analyzed.

## 2. Hypotheses

Considering the syntactic and information status of left- and right-peripheral material in adult grammar, it is worth noting the importance of discussing the acquisition of structures with non-basic word order involving constituents on the left and right peripheries of the sentence in EP. On the one hand, these structures involve the syntax/discourse interface and thereby their study can provide answers to two related questions: is the acquisition of discourse-pragmatics early or delayed? Is the acquisition of the interfaces (namely, syntax/discourse) equally early or delayed? On the other hand, this discussion allows us to consider two theoretical issues: the Derivational Complexity Hypothesis (Jakubowicz, 2004, 2005) and some hypotheses that explain the so-called intervention effects (Friedmann, Belletti & Rizzi, 2009), since the relation between both can clarify possible asymmetries in the acquisition of structures with left- and right-peripheral constituents.

According to Jakubowicz (2004, 2005), typical and atypical language development is constrained by economy considerations. Therefore, the author proposes a metric that points out the hypothesis that children prefer Merge over Move, since they prefer less complex derivations and Move is more complex than Merge.

Derivational Complexity Metric:

- a. Merging  $\alpha_i$   $n$  times gives rise to a less complex derivation than merging  $\alpha_i$  ( $n + 1$ ) times.

b. Internal Merge of  $\alpha$  gives rise to a less complex derivation than Internal Merge of  $\alpha + \beta$ . (Jakubowicz, 2005).

Crucially, this Derivational Complexity Hypothesis can be applied to different conditions of language acquisition (L1, L2, typical and atypical development) and adult processing, and can also predict stages in children's acquisition (with less complex structures emerging earlier than more complex ones).

In addition, according to Friedmann, Belletti & Rizzi (2009), subject/object asymmetries in relatives can be explained in terms of intervention effects. Hence, children have a worse performance in object relatives than in subject relatives since the presence of an intervener (namely, the subject) between the head and the tail of the chain in object relatives has a negative effect on the comprehension of the A' dependency.

It appears to restate the effect in terms of intervention: the A' dependency fails (in young children) and is harder (in adults) when the terms to be connected in the dependency are separated by an intervener, a position which could potentially be involved in the A' relation: typically the subject position, which would be a potential site for the variable. (Friedmann, Belletti & Rizzi, 2009: 68).

It is important to note that comprehension and production difficulties with object relatives are, in the words of Friedmann, Belletti & Rizzi (2009), selective, since they depend on the structural similarity between the A' moved element and the intervening subject. Moreover, the authors assume that intervention effects must be considered as an extension of Relativized Minimality (Rizzi, 1990), the syntactic principle that expresses locality effects. If the same principle underlies adult performance as well as child development, then children must have a stricter version of Relativized Minimality, which requires a non inclusion featural specification pattern between the A' moved element and the intervener (Belletti, Friedmann, Brunato & Rizzi, in preparation).

Bearing in mind the theoretical issues discussed above, we can consider the following hypotheses.

H1: Right periphery is more accessible to children than left periphery. This prediction is based upon the Derivational Complexity Hypothesis (Jakubowicz, 2004, 2005) and takes into account that the material on the right periphery is always merged and the material on the left periphery can be either derived by Move or by Merge.

H2: Children's performance is better in topicalization of indirect object than in topicalization of direct object. To formulate this hypothesis, we considered the possibility of intervention effects and the assumption that there is structural similarity between the A' moved element and the intervening subject in a topicalization of direct object (since both are DPs), whereas in a topicalization of

indirect object the same structural similarity does not exist (since we have a dative case marker in the indirect object).

H3: Children's performance is better in topicalization of prepositional object than in topicalizations of direct and indirect objects. Similarly to the previous hypothesis, in this case we take into account the possibility of intervention effects and consider that there is some structural similarity between the A' moved elements and the intervening subjects in topicalizations of direct and indirect objects (in spite of structural differences between direct and indirect objects), but the same structural similarity does not exist in a topicalization of prepositional object (since it is a PP).

H4: Children's performance is slightly better in clitic-left dislocations than in topicalizations of direct object. This prediction is based upon the Derivational Complexity Hypothesis (Jakubowicz, 2004, 2005) and assumes that topicalization of direct object is derived by Move, but clitic-left dislocation is derived by Merge.

H5: Children's performance is better in structures with post-focal subjects on the right periphery (VO#S) than in subject-verb inversions with a focused subject (VOS). This fifth hypothesis considers possible that structures with post-focal subjects on the right periphery (VO#S) are derived by Merge, whereas VOS orders with focused subjects are derived by scrambling of the object (crossing a subject with a similar structure) (Costa, 1998, 2004).

### 3. Methodology

In order to find out whether preschool children understand structures with constituents on both peripheries of the sentence, we designed a Truth-Value Judgment Task (Crain & Thornton, 1998) using pictures. The task was planned to test six conditions selected according to the periphery of the sentence (left or right) and the syntactic function of the argument (subject, direct object, indirect object or prepositional object) involved in the word order change. In the case of direct objects on the left periphery, we considered two conditions: gap (topicalization) and the presence of a clitic (clitic-left dislocation), using the same verbs in both structures. This allowed us to evaluate the status of the clitic as a possible syntactic clue for the adult interpretation. In what concerns structures with (post-focal) subjects on the right periphery, we tested structures with two and three-place predicates, with the aim of determining whether comprehension could be influenced by the presence of more lexical material. Additionally, subject-verb inversions with a focused subject were also tested, in order to verify if there are asymmetries in the comprehension of different structures with post-verbal subjects. The experiment included 32 items: 21 target-sentences (three for each of the seven conditions: two false and one true) and 11 distractors (about a third of the total number of items). The task was applied to a group of 41 monolingual EP preschool

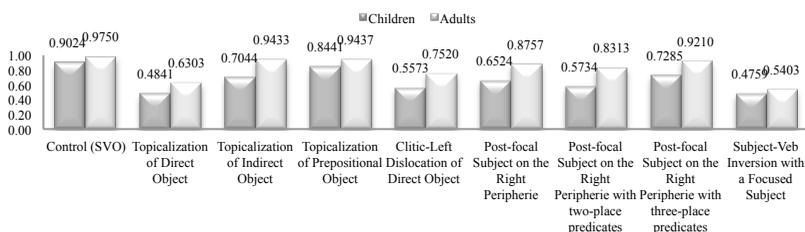
children, between 3;5 and 6;3 years of age (mean: 5;1), in two different sessions, and a control group of 30 monolingual EP adults with no background in linguistics. It is also important to mention that for the purpose of the analysis children were divided in two groups: the first one including children with ages between 3;5 and 4;11 (mean: 4;4), with a total of 15 subjects, and the second one children with ages between 5;0 and 6;3 (mean: 5;5), with a total of 26 subjects.

## 4. Results

As we can see in graphic 1, the children's global results show that: (i) there is an asymmetry between the comprehension of structures with subjects on the right periphery (mean = 0,6524) and structures with direct objects on the left periphery (mean = 0,4841), since preschool children present better results with right-peripheral material; (ii) there are asymmetries in comprehension of different structures with constituents that occur on the left periphery, since children have a better performance in structures with prepositional and indirect objects (mean = 0,8441 and 0,7044, respectively) than with direct objects (mean = 0,4841); and (ii) there is a slight asymmetry between the comprehension of topicalizations of direct object (mean = 0,4841) and clitic-left dislocations (mean = 0,5573), revealed by a better performance in the last one. Finally, the results show that subject-verb inversions with focused subjects (mean = 0,4759) are more problematic than structures with post-focal subjects on the right periphery (mean = 0,6524). Additionally, the data show that children have a worse performance in structures with post-focal subjects on the right periphery with two-place predicates (mean = 0,5734) than with three-place predicates (mean = 0,7285).

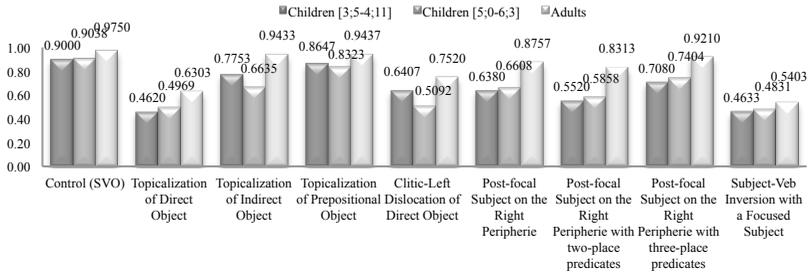
Notably, although with a worse performance, children's behavior goes in the same sense as adult behavior.

Graphic 1. Global Distribution of Target Answers.



Graphic 2 allows us to compare the two groups of children and shows that there are no differences between the younger and the older group. Therefore, data do not reveal linguistic development in these structures.

Graphic 2. Distribution of Target Answers by Age.



## 5. Discussion

In conclusion, we can argue that the data confirm our initial predictions. Thus, regarding our first hypothesis, we can state that there are asymmetries between the left and right peripheries that can be explained by the different syntactic status of the constituents that occur on both peripheries. If right-peripheral subjects are not derived by Move, but by Merge, the Derivational Complexity Hypothesis (Jakubowicz, 2004, 2005) would explain a preference for right-peripheral subjects over left-peripheral (topicalized) objects. Furthermore, the Derivational Complexity Hypothesis (Jakubowicz, 2004, 2005) also plays a key role in children's slightly better performance in clitic-left dislocation than in topicalization of direct object, as predicted by the fourth hypothesis. If the topicalization of direct object is derived by Move and the clitic-left dislocation is derived by Merge, once again the preference for Merge over Move can explain children's performance.

On the other hand, we identified asymmetries in comprehension between structures with different types of arguments on the left periphery (second and third hypotheses), which can be viewed as a consequence of intervention effects (Friedmann, Belletti & Rizzi, 2009). Specifically, in structures involving direct objects on the left periphery, both the subject and the object have the same internal structure (i.e., DP), unlike what happens with structures involving indirect and prepositional objects, since at least in the latter case there is a preposition. Therefore, an intervention effect may explain worse results with the topicalization of direct object than with the topicalization of a true prepositional object (a PP crossing the DP subject does not create an intervention effect); as for indirect objects, the preposition *a* 'to' may act as clue, but since it is not a true preposition, it may induce worse results than those obtained with a topicalization of a PP complement. We indeed observed a comprehension scale involving topicalizations

of different types of arguments: prepositional objects > indirect objects > direct objects.

Finally, the asymmetries between the different structures with post-verbal subjects can be explained by their different derivations. Thus, the presence of an intervener between the head and the tail of the object chain (Friedmann, Belletti & Rizzi, 2009) in subject-verb inversions with a focused subject can explain intervention effects in these structures. In right-peripheral subjects, derived by Merge, we do not expect these effects. In this case, we think that we should also consider as a possible clue the different prosodic realization of subjects in VOS where the subject is focused and in VO#S with a right-peripheral subject (e.g. phrasing and  $f_0$  measures).

It is also worth mentioning that adult clue performance in structures with left- and right-peripheral constituents leads to an important question: given the similar pattern of results between children and adults, shouldn't we analyze the issue of intervention effects in terms of processing?

Therefore, we conclude that the comprehension of non-basic word orders involving constituents on the left and right peripheries of the sentence in EP is not completely stabilized in the preschool years. Nevertheless, since there is an early sensitivity by children to structures involving syntax/discourse mapping, we can argue in favor of an early acquisition of discourse-pragmatics as well as the syntax/discourse interface.

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