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Locality and Intervention in the Acquisition of Greek Relative Clauses

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Abstract: According to the most recent formulation of Relativized Minimality (cf. Rizzi 2013), grammatical features are distinguished between those that are syntactically active and those that are not. Under this view, only the first play a role in the computation of locality. Furthermore, whether a certain feature is +/- syntactically active is determined by language specific factors. Gender is one of the grammatical features that have been argued to have different values in Hebrew vs Italian, and as a result, to correlate with difficulties in Hebrew-speaking children's comprehension of relative clauses only due to intervention effects. Amidst this backdrop, this paper focuses on gender and case, and examines whether or not they pose similar difficulties in the comprehension of relative clauses by Greek-speaking children. Greek differs from Hebrew in that gender does not qualify as a syntactically active feature, hence, the prediction is that it should behave like case, which does not qualify as syntactically active either. The paper presents results from a novel study showing that, indeed, neither gender nor case are responsible for locality effects in the comprehension of relative clauses by Greek-speaking children, although both features are robustly expressed in Greek nominal morphology.

Keywords: case; gender; Relativized Minimality, relative clauses, acquisition

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1. Introduction

This paper is concerned with how relative clauses, RCs, are comprehended by children, and, in particular, with how object relative clauses, OBJ RCs, compare with the corresponding subject relatives, SUBJ RCs, across various dimensions. A representative pair of RCs appears below from English and shows that the two types of RCs differ in that there is movement of the subject from the embedded subject position in the first, (1a), and movement of the object from the embedded object position in the second, (1b).

(1) a. This is the girl who <girl> pushed the boy. SUBJ RC
b. This is the boy who the girl pushed <boy>. OBJ RC

OBJ RCs are difficult for children, and this has long been noted in the related literature. It was reported in the seventies already, for instance, that children make more errors in comprehending, or acting out, OBJ RCs (cf. Brown 1971; Cook 1975; Tavakolian 1978 i.a.).

The above asymmetry was captured in the recent syntactic literature by resorting to a fundamental property of language, locality. The principle of locality holds that a (local) relationship fails across an intervening element. This explains a number of ungrammatical outputs that are the result of movement and was formalized by Rizzi (1990), as Relativized Minimality (RM), simplified in (2a).

(2) a. X … Z … Y…
X and Y cannot be connected by movement (or other local relations) if Z intervenes between them, and Z is of the same structural type as X.
b. **When* do you wonder *who* left __.
X Z Y

According to RM, a sentence such as (2b) is ungrammatical because in order for it to be properly interpreted, the *wh*-element *when*, (X), must be related to its trace, Y. This relation fails, however, because of the intervention of *who*, (Z), which is another element between *when* and its trace, and it is of the same structural type as *when*, as they are both *wh*-elements.[1]

In subsequent versions of RM, and in order to capture the observation in Starke (2001) that the elements that are more richly specified, such as *which problem*, can be extracted from the domain of elements that are less richly specified, such as *how*, but not *vice versa* (cf. 3a-b), Relativized Minimality was restated, as in (4), to make reference to the features of the elements that are involved (Rizzi 2004, Rizzi 2013 i.a.).

(3) a. ?Which problem do you wonder [how to solve <which problem>]?
b *How do you wonder [which problem to solve <how>]?

(4) Relativized Minimality (revised):
in the configuration
X . . . Z . . . Y . . .
A local relation (e.g., movement) cannot hold between X and Y if Z intervenes and Z fully matches the specification of X in the relevant morphosyntactic features.
(Rizzi 2013:34)

This development in syntactic theory obviously carries over to RCs, as they too involve movement. As we will see in what follows, the featural approach to locality and the ensuing intervention effects are actually in a position to offer an understanding of the trouble children have with RCs in a much more detailed manner than earlier accounts.

In a pioneering article, Friedmann et al. (2009) investigated the RCs of Hebrew-speaking children and discovered different performance even within the same type of RCs. In particular, they found that RCs as in (5a) are harder than those in (5b), although they are both OBJ RCs.

(5) a. Show me the monkey that the boy is hugging <the monkey>.
[+R] [+NP] [+NP]
b. Show me who the boy is hugging <who>.
[+R] [+NP]

The authors consider the difficulties with (5a) to be the consequence of intervention effects, which RCs as in (5b) are able to escape. Specifically, they hold that the relativized constituents are specified as +R (relativized) and, depending on whether they are lexically restricted as well, namely, on whether the relativized DPs contain an NP (restriction), they might further be specified as +/− NP. Hence, the relativized object, *monkey*, is specified as both [+R] and [NP] in (5a), but the relativized object who in (5b), which is known to form what is known as a free relative, is only specified as [+R]. The intervention effects in

[1] This, among other A' asymmetries, as they are manifested by adults, have also been investigated exte3nsively in the processing psycholinguistics literature (see Frazier & Clifton 1989 for the Active Filler Hypothesis, along with a detailed review of related studies).

(5a) follow from the (partial) structural similarity between the relativized DP and the subject, both of which are specified as [+NP]. On the other hand, *who* and *the boy* in (5b) are not specified for some common feature, hence, no intervention effects arise and no difficulties for children either.[2]

Varlokosta et al. (2015) confirm the subject/object asymmetries in the comprehension of Greek-speaking children's RCs, and further show that both internal structure and specification of the moved constituent and the intervener affect children's comprehension. The authors do so by focusing on free and restrictive RCs, as well as on *wh*-questions, but only the +/− NP specification is considered in their tasks. See also Nerantzini et al. (2014) and Varlokosta et al. (2014) for similar studies with atypical populations.

While up to this point the approach to locality had investigated in detail the effects of the +/− NP feature specification on children's *wh*-questions and RCs, it was soon discovered that other features may be associated with intervention effects as well. Yet, not all morphosyntactic features may cause such effects, and this is of utmost importance for a theory of locality and intervention in early language. Belletti et al. (2012) studied children between 3;9 and 5;5, and found that Hebrew OBJ RCs pose additional difficulties if the object and the subject of the RC have the same value for gender, an effect that does not carry over to SUBJ RCs obviously as no element intervenes between the relativized subject and its original position. Contrary to Hebrew, however, Italian children's comprehension of OBJ RCs are not affected by the same gender features of the participating DPs in a similar manner, constituting the ideal minimal pair to investigate children's behavior on OBJ RCs. The authors claim that the different behavior of children on the OBJ RCs of the two languages is due to the fact that gender is an active morphosyntactic feature only in Hebrew. This is because gender is overtly manifestated on the verb in Hebrew, and, most importantly, it belongs to the features that function as attractors of movement of the subject to the specifier of Infl (Shlonsky 1997). This is not the case in Italian, on the other hand, where the verb does not inflect for gender, but only for number and person. Based on these findings, Belletti et al. argue for a version of RM in which locality (and intervention) in children's grammar is computed in terms of the active morphosyntactic features of the participating DPs. It should be noted that similar effects had already been pointed out for the feature number in Italian (Adani 2010), which is also an active morphosyntactic feature, as the verb agrees with the subject in number. Since number is an active feature in very many languages, however, no minimal pairs with respect to number have been investigated, to make the clear point Hebrew and Italian make with respect to gender. This is why we consider the Belletti et al. (2012) study important, and why it constituted the primary motivation for the study we are about to report.

1.1 The objectives of this study

In light of the view that only a subset of grammatical features, i.e., the active ones, matter for locality and are responsible for intervention effects in early language, this study investigates the role of gender and case in the comprehension of RCs by Greek-speaking children. Furthermore, it also investigates whether case mismatches between the head of the RC and its extraction site are an additional disturbing factor.

[2] Friedmann et al. (2009) describe three possible relations between the features of the moved element and the intervener: a) identity of features, b) disjunction, that is, no features in common between the two, and c) inclusion, that is, partial overlap of features, in the sense that the intervener has a subset of the features of the moved element. See also Villata et al. (2016) for evidence from degrees of deviance.

2. Intervention in Greek RCs

2.1 Setting the stage: the Greek data

Greek RCs of different types, restrictive or pseudo-relatives, and certain types of complement clauses, are introduced by the invariant item *pu* (see Roussou (2018) and Angelopoulos (2019) for recent descriptions and analyses of various properties of *pu*).

(6) a. O naftis pu akoluthi
the.NOM.MASC sailor.NOM.MASC that follows.3SG
ton nearo...
the.ACC.MASC young man.ACC.MASC
'The sailor that follows the young man...' SUBJ RC

b. O naftis pu akoluthi
the.NOM.MASC sailor.NOM.MASC that follows.3SG
o nearos...
the.NOM.MASC young man.NOM.MASC
'The sailor that the young man follows...' OBJ RC

Greek verbs are inflected for person and number, though not for gender, therefore, they resemble Italian verbs, and also crucially differ from Hebrew in this respect. On the other hand, both determiners and the associated nominal constituents are marked with gender (masculine, feminine, or neuter) and case morphology (nominative or accusative in subject and object positions respectively) in Greek. This last difference initiated our interest in investigating the effects of case on the RCs of Greek-speaking children, as case has mostly been studied in Hebrew so far in this respect, where case marking takes place via a preposition-like marker that attaches to definite direct objects (Friedman et al. 2017).[3] Studying the effects of gender in Greek is added in order to further evaluate the claim that gender is a feature resulting in intervention effects only when it is syntactically active, a claim based on the contrast between Hebrew and Italian child language, even when it is robustly manifested morphologically on the DP, as is the case of Greek.[4]

Turning to the position of the DPs in the Greek RCs, similar considerations hold as for other types of A-bar movement. Concretely, in all kinds of A-bar movement that involve the object, the subject of the clause tends to occur post-verbally. This is also shown

[3] Hence, what we actually end up having in Hebrew is either i) two DPs without case marking, or ii) one DP without case marking and the other with the Prepositional element *et*.

(i) Eize pil ha-arie martiv?
which elephant the lion wets
(ii) Et eize pil ha-arie martiv?
ACC which elephant the lion wets (Friedmann et al. 2017:3)

It seems to us that therefore, that what we see in (i) are not two DPs (*elephant, lion*) that are specified for the same case feature, but two DPs that are not specified for case. Hence, the need for DPs that are both specified for case (either the same or different), which the current study contributes.

[4] Related to our interest in investigating potential effects of the feature gender in child Greek, although there is no reason to believe that gender is a syntactically active feature in the language, is the fact that it has been found that same gender of the two DPs of OBJ RCs render them significantly more difficult for Broca's aphasics to understand (Terzi & Nanousi 2018). For the beginning of the work on minimality effects in the language of agrammatics, see Garraffa & Grillo (2008) and Grillo (2009). See also Varlokosta et al. (2014) and Nerantzini et al. (2014) for minimality effects and lexical restriction in the language of Greek agrammatics.

in the RC in (6b) where the subject, *o nearos* 'young man', surfaces after the verb. The consensus in previous works (see Kotzoglou 2006 for an overview) is that inverted subjects in *wh*-questions occupy a VP-internal or low VP-peripheral position. The postverbal order of the subject arises after V-to-T movement.[5] We adopt and extend to RCs this consensus, assuming a VP-internal position for inverted subjects. The exact syntactic position we assume for the verb, the subject and the relativized phrase in object RCs, as the one in (6b), is illustrated below:

(7) [DP o [CP naftis.NOM pu$_C$ [TP akoluthi T [VP o nearos.NOM [v' <~~akoluthi~~$_V$> <~~o naftis~~>]]]].

(7) is important for our purposes because it shows that subjects in Greek do count as interveners in computing locality in RM terms in the case of OBJ RCs.[6]

2.2 *The study*

2.2.1 The participants and brief overview of the study

32 typically developing Greek-speaking children, aged 4;3 to 5;3 (mean age 4;9) took part in a picture matching comprehension task. All children were recruited from public kindergartens in Patras. The comprehension tasks they were administered comprised (i) SUBJ RCs and OBJ RCs and (ii) their corresponding transitive active and passive sentences. The active sentences were used as a baseline to ensure successful identification of the content of the picture. Our task was designed to come into two versions, which minimally differed with respect to case marking (nominative or accusative) on the relativized constituent (subject or object).

2.2.2. Experiment Version 1: Nominative marked relativized DPs

Version 1 of the study investigated via a picture matching task the comprehension of SUBJ and OBJ RCs with a nominative case marked relativized DP. There were 24 RCs in each category, 12 SUBJ RCs and 12 OBJ RCs, half of which with DPs of the same gender value, either feminine (6RCs) or masculine (6RCs) (RC-Gmatch condition). The other half RCs contained DPs of different gender value (RC-Gmismatch condition). The DPs referred to professions and kinship or other such relations with relatively direct correspondence between grammatical and physical gender. For instance, (8a) illustrates a SUBJ RC: the relativized subject carries the same gender with the object (Gmatch). On the other hand, the gender of the relativized subject is different from the gender specification of the object in (8b) (Gmismatch). (9a) and (9b) illustrate OBJ RCs: the gender of the relativized object is either the same as this of the subject, (9a), or different, (9b).

[5] See Alexiadou and Anagnostopoulou (1998) among others for the idea that the verb in Greek is in T.

[6] The following example shows that a subject surfaces after manner adverb, such as *pista* 'obediently.' Manner adverbs are standardly taken to occupy the vP. So, the fact that a subject can follow this adverb suggests that it occupies a vP-internal position, just as shown in (7).

(i)	O	naftis	pu	akoluthi	pista
	the	sailor.MASC.NOMthat	follow.3SG		obediently
	o	nearos...			
	the	young man.MASC.NOM			

'The sailor that the young man follows obediently...'

(8) a. Edo ine o kirios pu
here is the.NOM.MASC man.NOM.MASC that
fotografizi ton magira.
photograph.3SG the.ACC.MASC cook.ACC.MASC
'Here is the man that photographs the cook' SUBJ RC-Gmatch

b. Edo ine o papus pu
here is the.NOM.MASC grandpa.NOM.MASC that
chirokroti ti nifi.
applaud.3SG the.ACC.FEM bride.ACC.FEM
'Here is the grandpa that applauds the bride.' SUBJ RC-Gmismatch

(9) a. Edo ine i vasilisa pu
here is the.NOM.FEM queen.NOM.FEM that
akoluthi i kiria.
follow.3SG the.NOM.FEM lady.NOM.FEM
'Here is the queen that the lady follows.' OBJ RC-Gmatch

b. Edo ine i yiayia pu
here is the.NOM.FEM grandma.NOM.FEM that
fotografizi o gabros.
photograph.3SG the.NOM.MASC groom.NOM.MASC
'Here is the grandma that the groom photographs.'
OBJ RC-Gmismatch

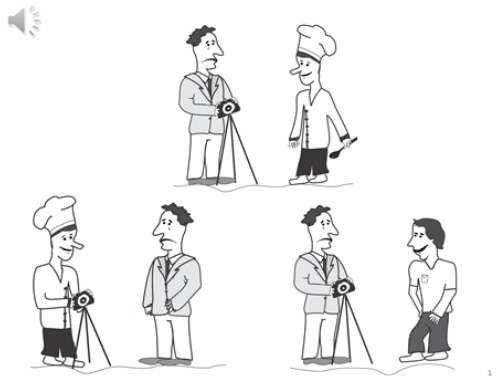

Figure (1a): SUBJ RC, Gender match (8a)

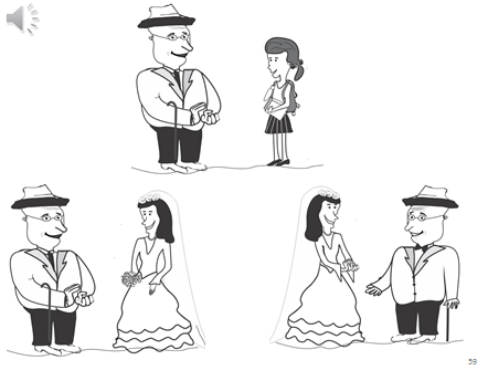

Figure (1b): SUBJ RC, Gender mismatch (8b)

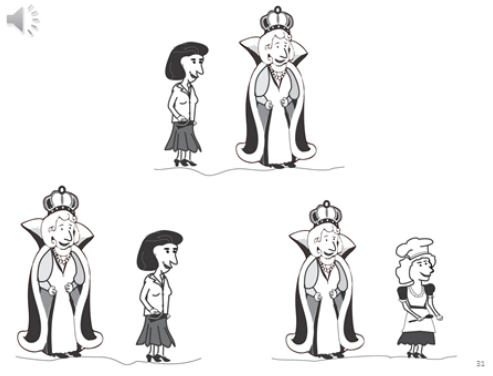

Figure (2a): OBJ RC, Gender match (9a)

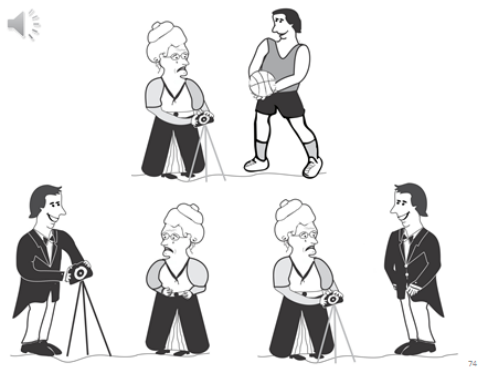

Figure (2b): OBJ RC, Gender mismatch (9b)

The picture selection task was administered on a computer screen via a ppt. file. There were three pictures in each slide, one that corresponded to the target picture and two more. For SUB RCs, besides the target picture, there was a picture depicting the corresponding OBJ RC and a third one in which the subject of the target sentence performed the action of the verb to another individual, see Figures (1a) and (2a), which contain the picture sets for the SUB RCs in (8a) and (8b) respectively. For OBJ RCs, besides the target picture, there was a picture of the counterpart SUB RC and a third one in which the object of the target sentence performed the action of the verb to another individual. See Figures (2a) and (2b) for the OBJ RCs in (9a) and (9b) respectively. Sentences were pseudo-randomized, so that:

- sentences with the same verb were not next to each other,
- no more than two sentences of the same condition were next to each other, and
- no more than two sentences with the target picture in the same position were next to each other.
- Furthermore, the position of the target picture was pseudo-randomized both within each condition and within the entire protocol.

The sentences were recorded by two female native speakers of Greek, so that all participants heard them in exactly the same manner and participants were instructed to choose the picture that corresponded to the sentence they heard. In the beginning they were presented with two slides that contained all characters of the task, and, subsequently, they were given four training sentences to match to the corresponding pictures. It took two sessions for each child to complete the task.

2.2.3. Experiment Version 2: Accusative marked relativized DPs

Version 2 of the experiment differs from Version 1 on the introductory instructions. In this version the head of the RC surfaces with accusative case. This was the consequence of embedding the RCs in the imperative form of the verb *dikse* (mu) 'show (me)'.

(10) a. Dikse mu ton kirio pu
show me the.ACC.MASC man.ACC.MASC that
fotografizi ton magira.
photograph.3SG the.ACC.MASC cook.ACC.MASC
'Show me the man that photographs the cook.' SUBJ RC-Gmatch

b. Dikse mu ton papu pu
show me the.ACC.MASC grandpa.ACC.MASC that
chirokroti ti nifi.
applaud.3SG the.ACC.FEM bride.ACC.FEM
'Show me the grandpa that applauds the bride.' SUBJ RC-Gmismatch

(11) a. Dikse mu ti vasilisa pu
show me the.ACC.FEM queen.ACC.FEM that
akoluthi i kiria.
follow.3SG the.NOM.FEM lady.NOM.FEM
'Show me the queen that the lady follows.' OBJ RC-Gmatch

b. Dikse mu ti yiayia pu
show me the.ACC.FEM grandma.ACC.FEM that
fotografizi o gabros.
photograph.3SG the.NOM.MASC groom.NOM.MASC
'Show me the grandma that the groom photographs.'
OBJ RC-Gmismatch

Note that the head of the SUBJ RC has now accusative case, (10a)-(10b), which is different from the (nominative) case assigned in its extraction subject position. Likewise, the head of the OBJ RC, (11), has accusative, which now is the same case it has in its extraction (object) position. The two DPs that participate in the OBJ RC are not specified for the same case feature in this version of the experiment. Hence, they differ in this respect from the corresponding sentences of Version 1, where both DPs carried nominative, and raised the concern as to whether same case specification could cause intervention effects.

3. Results

3.1 Version 1

The data in Table 1 summarize the error rates of 27 out of the 32 children we assessed in Version 1 of the experiment. 5 children were excluded because they had more than 2 errors in the 24 active sentences. The first line presents raw scores, and the second presents the percentage of errors across conditions.

Table 1: Errors on Version 1 of the experiment

	SUBJ RCs	OBJ RCs	OBJ RCs Gender match	OBJ RCs Gender mismatch
Errors total	59/648	131/648	75/324	56/324
Error rate	9.10%	20.22%	23.15%	17.28%

3.2 Version 2

The data presented in Table 2 below summarize the responses of the 27 children on Version 2 of the experiment.

Table 2: Errors on Version 2 of the experiment

	SUBJ RCs	OBJ RCs	OBJ RCs Gender match	OBJ RCs Gender mismatch
Errors total	86/648	152/648	79/324	73/324
Errors rate	13.27%	23.46%	24.38%	22.53%

Repeated Measures Anova with Sentence Type (SUBJ RCs Version 1, OBJ RCs Version 1, SUBJ RCs Version 2, OBJ RCs Version 2) with Bonferroni adjustment for multiple comparisons was performed to investigate differences in performance between different conditions. Results showed a significant difference in performance accuracy between SUBJ RCs and OBJ RCs in Task 1 (Version 1), $F(3, 24)=11.12$, $p=.028$. A significant difference in performance was also found between SUBJ RCs and OBJ RCs in Task 2 (Version 2), $F(3, 24)=10.18$, $p=.020$ Comparison of accuracy between OBJ RCs in Task 1 (Version 1) and OBJ RCs in Task 2 (Version 2) did not yield a significant difference, $F(3,24)= 3.24$, $p=1.00$. Comparison of accuracy between SUBJ RCs in Task 1 (Version 1) and SUBJ RCs in Task 2 (Version 2) did not yield a significant difference either, $F(3,24)= 4.17$, $p=0.247$.

In order to gain an understanding of the role of gender in the acquisition of Greek RCs, paired samples t-test was performed to compare performance accuracy between OBJ RCs match and OBJ RCs mismatch in Task 1 (Version 1). Analysis did not show a significant difference between conditions, $t(26)=1.44$, $p=.162$. Paired samples t-test was also performed to compare performance accuracy between OBJ RCs match and OBJ RCs mismatch in Task 2 (Version 2). Analysis did not show a significant difference between conditions either, $t(26)=.640$, $p=.528$.

4. Discussion

Comparison of errors between SUBJ and OBJRCs in Task 1 showed a significant difference ($p=.028$), that is, children made more errors on OBJ RCs than on SUBJ RCs, as expected. The errors on OBJ RCs were further investigated with regard to gender fea-

ture. Table 1 demonstrates that comparison between OBJ RCs-match and OBJ RCs-mismatch does not show a significant difference (p=.162), namely, children did not benefit on OBJ RCs when the participating DPs had a different gender feature.

The first conclusions to draw are that: a) OBJ RCs indeed create a significantly bigger problem than SUB RCs for the Greek-speaking children, confirming previous findings for Greek (Varlokosta et al. (2015) i.a.), b) same value for the feature gender does not constitute an additional source of difficulty for the comprehension of OBJ RCs in children's grammar. It should be noted that Version 1 did not control for potential effects of the case of the head noun. Recall that the RCs in Version 1 are introduced by the instruction 'here is ...', with the consequence that the DP that follows has nominative case. Both the relativized subjects, (8), and the relativized objects, (9), carry nominative case morphology, which is distinct and overt in Greek. Hence, in OBJ RCs, (9), noninative case, NOM, may be involved in the computation of similarity between the moved object and the intervening subject, and induce intervention effects which would render OBJ RCs even more difficult. Moreover, the relativized object of OBJ RCs has nominative case, and this may be another source of additional difficulty, besides intervention effects. We will return to these issues after we discuss the results from Version 2 of the experiment.

The subject/object asymmetry holds in Version 2 as well, with the difference between SUBJ and OBJRCs being statistically significant (p=.020). Moreover, comparison between OBJ RCs-match and OBJ RCs-mismatch does not show a significant difference either (p=.528). This means that children did not benefit on OBJ RCs in Version 2 of the experiment when the participating DPs had a different gender feature. Recall that in this version of the experiment OBJ RCs did not face the additional issues raised in Version 1 of the experiment, since a) the relativized DP had the same case as in its extraction site (accusative), and b) the two DPs of the sentence did not have the same case. It seems safe to conclude, therefore, that gender is not involved in intervention effects in early Greek. This is expected on the basis of the claim that only active morphosyntactic features trigger such effects in early language, and we have no reason to believe that gender is an active morphosyntactic feature in Greek in the relevant sense.

At this point we are also in a position to understand whether morphological case is a feature that may induce locality effects in early Greek. This is because the two DPs of OBJ RCs are specified for the same morphological case (nominative-nominative) in Version 1 of the experiment, but for different case (accusative-nominative) in Version 2. Results extracted from the respective Tables constitute the Table below:

Table 3: Case and intervention effects

	OBJ RCs Version 1 – Case match	OBJ RCs Version 2 – Case mismatch
Errors total	131/648	152/648
Error rate	20.22%	23.46%

If case induced intervention effects, hence, posed additional difficulties on children's grammar, we would expect the OBJ RCs of Version 1 of the experiment to be more difficult than those of Version 2, as they contain two DPs with the same (nominative) case. This is not so, however, and we see that there were fewer errors on the first set of OBJ RCs, in fact, the difference between the two OBJ RCs is not statistically significant (p=.162). We conclude, therefore, that case, which is overtly and distinctively marked on feminine and masculine DPs in Greek, does not induce intervention effects in child language.

4.1 Case of the relativized DP and its extraction site

A final issue that concerns this work is whether it matters if the case of the relativized DP is different from the case it has in its extraction site. Recall that, in Version 1 of the experiment, the relativized object of OBJ RCs has nominative case, rather than the accusative it receives in its extraction site, (8a) repeated below.

(8a) Edo ine i vasilisa pu akoluthi
here is the.NOM.FEM queen.NOM.FEM that follow.3SG
i kiria.
the.NOM.FEM lady.NOM.FEM
'Here is the queen that the lady follows.'

On the other, in Version 2 of the experiment, the relativized subject of SUBJ RCs has accusative case, rather than the nominative it has in its extraction (subject) position, see (7a), repeated below:

(10a) Dikse mu ton kirio pu
show me the.ACC.MASC man.ACC.MASC that
fotografizi ton magira.
photograph.3SG the.ACC.MASC cook.ACC.MASC
'Show me the man that photographs the cook.'

Does it matter for children if an (extracted) object appears with nominative case, or an (extracted) subject appears with accusative? Given the omnipresence of Greek case morphology, an answer to this question is important for the validity of the various experiments that are administered to children, whose results may otherwise be contaminated. The relevant data are below. Notice that the data we compare for OBJ RCs are the same as those that investigated the possible intervention effects of case. Unlike then, however, this comparison extends to SUBJ RCs as well.

Table 4: Case and the extraction site of the relativized DP

	OBJ RCs Version 1	OBJ RCs Version 2	SUBJ RCs Version 1	SUBJ RCs Version 2
Errors total	131/648	152/648	59/648	86/648
Error rate	20.22%	23.46%	9.10%	13.27%

If we compare the two versions of OBJ RCs, which differ in that in Version 1 the relativized object has nominative case, but in Version 2 it has accusative, we see that the difference (20.22% vs. 23.46%) is not a significant one (p=.162). If we compare the two versions of SUBJ RCs, that is when the relativized subject has nominative with when it has accusative case, (9.10% vs. 13.27%), the difference is not significant either (p=0.247).

Before concluding, we should mention a study that has been brought to our attention several times because it appears at first glance to investigate, in a slightly different manner, to the issue that concerns this last section. Guasti et al. (2012) investigated the effects of morphological case in the comprehension of subject and object RCs in Greek and Italian, via comprehension experiments with 27 Italian-speaking children (Range: 4.5-6.5) and 43 Greek-speaking children (Range: 4.5-6.5). Their experiments comprised pairs of sentences which differ in the way the grammatical function of the DPs, that is, subject/object, is distinguished in the RC. For instance, the RCs in (12a) and (12b) feature two DPs formed with the articles *to* and *ta* (neuter SG and PL respectively). *To* and *0* are ambiguous between nominative and accusative case so in principle, the DPs in examples like (12) could be used as subjects or objects of the verb. The only way in which the grammatical function of neuter DPs can be distinguished in RCs is via subject agreement on the verb. Concretely, the RC in (12a) is a SUBJ RC because the verb agrees in number with the relativized DP, *to alogo* 'the horse'. On the other hand, the RC in (12b) is an OBJ RC because the verb displays 3PL agreement, which is the number specification of the post-verbal subject.

(12) a. Dikse mu to alogo
show me the.NOM.NEUT.SG horse.NOM.NEUT.SG
pu kiniga ta liontaria.
that chase.3SG the.ACC.NEUT.PL lions.ACC.NEUT.PL
'Show me the horse that chases the lions.'

b. Dikse mu to alogo pu
show me the.ACC.NEUT.SG horse.ACC.NEUT.SG that
kinigun ta liontaria.
chase.3PL the.NOM.NEUT.PL lions.NOM.NEUT.PL
'Show me the horse that the lions chase.'

In (13), the verb carries 3SG agreement in both cases. Nonetheless, the gender of the DPs is feminine and the article combining with feminine DPs is different in nominative and accusative case, that is, *i* and *tin* respectively. With DPs, as those formed with *i* or *tin*, that are unambiguously marked with case, OBJ RCs are distinguished from SUBJ RCs by their case marking. For instance, (13a) features a SUBJ RC: the post-verbal DP carries accusative case and thus, functions as the object of the verb of the RC. The relativized DP can only function as the SUBJ of the verb of the RC, but is assigned accusative case in its surface position from the matrix verb. In (13b), the postverbal DP carries nominative case and thus it is interpreted as the subject of the verb. The relativized DP is the object of the verb of the RC and is marked with accusative case, as expected.

(13) a. Dikse mu ti maimu
show me the.NOM.FEM.SG monkey.NOM.FEM.SG
pu pleni tin arkuda.
that wash.3SG the.ACC.FEM.SG bear.ACC.FEM.SG
'Show me the monkey that washes the bear.'

b. Dikse mu ti maimu
show me the.ACC.FEM.SG monkey.ACC.FEM.SG
pu pleni i arkuda.
that wash.3SG the.NOM.FEM.SG bear.NOM.FEM.SG
'Show me the monkey that the bear washes.'

As far as the more general phenomenon goes, Guasti et al. observe an SUBJ/OBJ asymmetry in the comprehension of RCs showing, as expected, that SUBJ RCs are easier to comprehend. They also present a formal explanation of this asymmetry using machinery that has been introduced in previous work by Franck et al. (2006). Setting this asymmetry aside, the novel, and more interesting, finding in Guasti et al. is that Greek-speaking children comprehend better the kind of OBJ RCs in (13b), where the function of the DPs is disambiguated by morphological case marking, than those of (12b) where it is disambiguated by number.[7] This is the finding that led Guasti et al. (2012) to the conclusion that morphological case matters for the comprehension of RCs. It is important to note, however, that their work does not extend to a central question of ours, namely, whether case plays any role in the computation of locality, in the same way that gender and other formal features have been argued to do (cf. Belletti et al. 2012 i.a.). In fact, case is not expected to play any different role in the computation of locality in (12b) and (13b) because in both examples, the relativized object has accusative case which is different from the nominative case carried by the subject. The only thing that is different between (12b) and (13b) is the

[7] Furthermore, it is observed that Italian-speaking children perform better in SUBJ RCs than Greek-speaking children. This is explained in rather loose terms in Guasti et al. (2012), assuming that '[...] changing the grammatical function from the main clause to the RC has a penalty in Greek, but not in Italian.' We do not understand what this penalty can be, and why it only holds in Greek.

morphological exponence of nominative case: in the first, it is syncretic with the accusative whereas in the latter, it is not. This difference is not predicted to play a role in the computation of locality in any obvious manner, however.

5. Discussion and Conclusions

The paper presented results from a new study examining the role of gender and case in the comprehension of SUBJ and OBJ RCs by typically developing Greek speaking children. The results of the study showed (i) that neither gender nor case pose additional difficulties in the comprehension of OBJ RCs by the 27 typically developing children we assessed, and (ii) that OBJ RCs are systematically more difficult than SUBJ RCs, just as has been shown in several previous studies. In regard to (i), Greek behaves like Italian where gender does not impose additional difficulties in the comprehension of RCs. Importantly, a common property of both languages is that in neither of them gender qualifies as a syntactically active feature. In Greek as well as in Italian, this can be witnessed by the fact that, in contrast to, e.g., Hebrew, gender is not morphologically realized on the verb. Similarly, case is not syntactically active in Greek either. As discussed, the fact that gender does not impose additional difficulties as well as the fact that case and gender pattern alike in regard to comprehension of RCs finds an immediate explanation in the most recent version of RM; this version is advocated in a growing body of literature, and contends that only the syntactically active features are relevant in the computation of locality.

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