

# The Development of DATIVE Arguments: Evidence from Modern Greek Clitics

Despina Oikonomou, Elena Anagnostopoulou, and Vina Tsakali

## 1. Introduction

The acquisition of dative-Clitic arguments (DAT-CL) has received relatively limited attention cross-linguistically, especially compared to the acquisition of accusative-Clitics (ACC-CL), which has been a prolific topic and has led to theories of typological differences among clitic languages (see Tsakali 2014 for an overview). The term DAT-CL encompasses a number of diverse constructions cross-linguistically (e.g. indirect objects of ditransitive verbs, ethical datives, possessive datives). Previous studies (Lyczkowski 1999, Blasco 2000; for Spanish, Babyonyshev & Marin 2006; for Romanian, Gavarró & Mosella 2009; for Catalan, Bello 2017; for French i.a.) indicate comparable rates of IO-clitic omission across languages.

In our study, we aim at determining the developmental path of DAT-clitics in Greek, by distinguishing among different types of dative-arguments and comparing them to ACC-CL. We show that ACC-CL emerge significantly earlier than DAT-CL and that DAT-CL do not emerge uniformly in Greek. We argue that the difference of the former and the developmental variability of the latter relate primarily to the *obligatoriness* of the argument-type under investigation.

## 2. The syntax of dative arguments

One of the main questions addressed in this study is whether the syntactic/semantic differences among the different types of DATIVE<sup>1</sup>-arguments is reflected in their developmental path. Based on their syntactic and semantic properties, dative arguments are classified at least into the following categories:

---

\* Despina Oikonomou, Humboldt University of Berlin (email: despina.oikonomou@hu-berlin.de), Elena Anagnostopoulou, University of Crete (email: anagnostopoulou@uoc.gr), Vina Tsakali, University of Crete, (email: tsakali@uoc.gr). This project was supported financially by the Special Account for Research Funds of University of Crete (SARF UoC KA4488). D. Oikonomou is also partially supported by the by DFG award AL 554/8-1 (Leibniz-Preis 2014) to Artemis Alexiadou.

<sup>1</sup> Greek displays genitive/dative syncretism. Nevertheless, it has been convincingly argued that the case assigned to the DP in ditransitive constructions bears the properties of the dative-case (see Anagnostopoulou 2003).

- i) Indirect object goal arguments (e.g. *give, send, bring, show, throw, say*)
- ii) Indirect object source arguments (e.g. *take, remove, borrow, detach*)
- iii) Benefactive arguments (e.g. *cook, draw, play music, sing*)
- iv) Ethical/Malefactive arguments (e.g. *worry <you/he/she are/is worried and I am affected by it>*)
- v) Affected (inalienable) external possessors (e.g. *wash <sb's> hands*)
- vi) Affected external possessors (e.g. *carry <sb's> bag*)
- vii) Experiencer arguments (e.g. *'mu aresi'-it appeals to me*)

This study, being the first part of a series of experiments on DAT-arguments, focuses on categories (i), (iii) and (v), namely on GOAL-CL, BENEFACT-CL and Affected (inalienable) external possessors (hence POSS-CL). In the next section we briefly introduce the syntax for GOAL-, BENEFACT- and POSS-CL, anticipating their predictions for language acquisition.

## 2.1. The syntax of GOALS versus BENEFACTIVES

At least since Larson (1988), it has been established that the syntax of ditransitive verbs involves two different structures, i.e. the so-called Double Object Construction (hence DOC) (1a) and the Prepositional Construction (hence PC) (1b). Previous studies on Greek (Anagnostopoulou 2003, 2005, Bowers and Georgala 2007, Georgala 2012, Michelioudakis 2012 i.a.), have shown that the Greek Dative-Construction (hence DC) (2a) patterns with the English DOC (1a) and the prepositional *se*-construction (2b) patterns with English PP-ditransitives (1b) in many respects.<sup>2</sup> The main arguments for grouping the two languages together with respect to the realization of dative arguments rely on the facts that the GOAL-argument c-commands the THEME-argument in (1a) and (2a) and that the DOC in English and the DC in Greek require an animate GOAL, unlike the prepositional construction (1b-2b). Given that the DAT-CL in Greek can corefer only with an animate DP (cf. 2b-2c) we take it that the DAT-CL construction is associated with the DC which imposes this restriction.

- (1) a. John gave Mary/(*\*the library*) the book. [DOC]
- b. John gave the book to Mary/to the library. [PC]
- (2) a. *Dative Construction (DC)*  
       O Jianis        edose        tis Marias/        (*\*tis vivliothikis*) to vivlio  
       the Jianis.NOM give.3PST the Maria.DAT the library.DAT the vivlio.ACC  
       ‘Jianis gave Mary/(*\*the library*) the book’
- b. *Prepositional Construction*  
       O Jianis        edose        to vivlio        sti        Maria<sub>k</sub>/sti        vivliothiki<sub>j</sub>.  
       the Jianis.NOM give.3PST the vivlio.ACC to-the Mary/ to-the library  
       ‘Jianis gave the book to Mary/to the library’

---

<sup>2</sup> See Anagnostopoulou (2005) for differences between GOALS introduced by *to* in English and *se*-GOALS in Greek. In general, *se* in Greek is more permissive than English *to* both with *se*-GOALS and with *se*-BENEFACTS.

c. *Dative-clitic*

O Jianis **tis**<sub>k/\*j</sub> edose to vivlio.

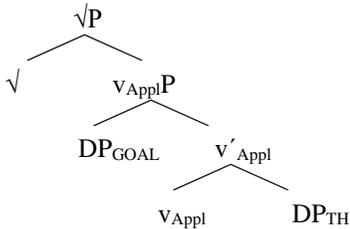
The John her.CL gave the book

‘Jianis gave her/\*it the book’ → *Animacy restriction*.

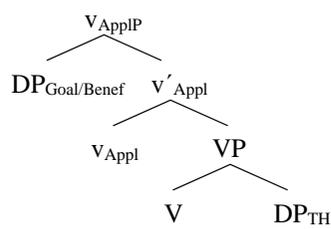
Syntactically, there is a debate whether DAT-GOALS are low or high applicative arguments. Pyllkkänen (2002/2008), analyzes them as low-applicatives (3a), in which the  $v_{\text{AppI}}\text{P}$  is the argument of the root introducing a possessive relation between the goal and the theme (cf. Harley (1997, 2002) for a comparable ‘low’ analysis). By contrast, Bruening (2010) and Anagnostopoulou (2003) for Greek (cf. Georgala & Whitman 2007, Georgala 2012 for a more refined analysis of Greek) analyze DAT-GOALS as introduced by a high applicative head,  $v_{\text{AppI}}$ , which takes as its argument the VP with the internal argument (3b). Evidence for this type of analysis comes from adverbial-placement, idiom-formation and scope readings with *again*, which are hard to explain under a low-applicative analysis.

(3) a. **Low Applicative**

(Pyllkkänen 2002/2008)

b. **High applicative**

(Anagnostopoulou 2003, Bruening 2010)



Crucial for developmental studies is that under both analyses (high or low applicative), the GOAL-argument is semantically interpreted as forming an intended possessive relation with the Theme.

Unlike goal constructions which have a more complex derivation, the beneficiary argument is inserted directly and is assigned its thematic role by  $v_{\text{AppI}}$  in this position (3b). Thus, the high applicative structure in (3b) accommodates dative beneficiaries and PP-beneficiaries introduced by the preposition *se* ‘to’ (4ab) in Greek, unlike beneficiaries introduced with *ja* ‘for’ which are treated as adjuncts (Anagnostopoulou 2005).

(4) a. *Dative/Se-Beneficiary*

O Jianis eftiakse **tis** Marias / sti Maria kafe.

The Jianis.NOM make.3PST the Mary.DAT to-the Maria coffee.ACC

‘Jianis made Mary a coffee.’

b. *Dative-Clitic Beneficiary*

O Jianis **tis** eftiakse kafe.

The Jianis.NOM her.CL make.3PAST coffee.ACC

‘Jianis made her coffee’

c. *for-beneficiaries*

O Jianis eftiakse kafe **ja** ti Maria.  
 ‘Jianis made coffee for Mary’

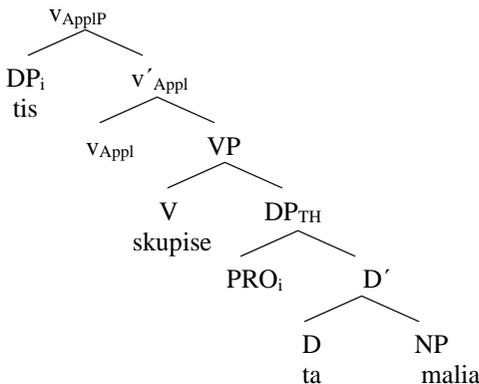
## 2.2. External affected possessors

External possession refers to the case where “a nominal is dependent on the verb but in addition it is understood as the possessor of one of its co-arguments” (Deal 2017, p.1). As Anagnostopoulou & Sevdali (2020) discuss, a DP-internal possessor like *tis Marias* in (5a) can ambiguously be interpreted as ‘drying out Maria’s hair’ or ‘wiping Maria’s hair from the floor’ (i.e. Maria is not affected); the ambiguity also holds for (5b), in which the possessor *tis Marias* has focus moved out of its DP. We can thus only be certain that we deal with an external affected possessor in (5c), in which the clitic (*tis*) is dependent on the verb and it can only be interpreted as ‘drying out Maria’s hair’ (i.e. Maria is affected).

- (5) a. O komotis skupise ta malia tis Marias.  
 The hairdresser.NOM wipe.3PST the hair.ACC the Maria.GEN  
 ‘The hairdresser swiped/toweled (dried) Maria’s hair.’  
 Ambiguous: Maria’s hair is either attached on her or on the ground
- b. Tis MARIAS<sub>F</sub> skupise o komotis ta malia.  
 the Maria.GEN wipe.3PST the hairdresser.NOM the hair.ACC
- c. O komotis tis skupise ta malia.  
 the hairdresser.NOM her.DAT.CL wipe.3PST the hair.ACC  
 ‘The hairdresser toweled her hair’ → *Affectee reading obligatory*  
 [modified ex. (46) from Anagnostopoulou & Sevdali 2020]

Following previous studies (Deal 2017, Anagnostopoulou & Sevdali 2020 for Greek), we assume that affected external possessors involve a control structure in which the possessor inside the DP is bound by the affectee argument (6).

### (6) External affected possessors



Under this view, the  $v_{\text{Appl}}$  in this environment has the same syntax and semantics as BENEf-DATs with the crucial difference that in the case of external possessors the DP is in a control relationship with the internal possessor. In this sense, the availability of an unquestionable benefactive interpretation without assuming external possession, can be achieved either by introducing a distinct DP-internal possessor as in (7b) or with a creation verb and an indefinite object which is incompatible with a possessive interpretation (7c). In our study, we used the latter strategy to elicit pure BENEf-CLs without a possessive interpretation.

- (7) a. O Dior  $\mu_i$  erapse to nifiko.  
 the Dior me.DAT.CL tailor.3.PST the wedding-dress.ACC  
 ‘Dior tailored my wedding dress’ → *favoring a possessive reading.*
- b. O Dior  $\mu_i$  erapse to nifiko tis Anas.  
 the Dior me.DAT.CL tailor.3.PST the wedding-dress.ACC the Ana.GEN  
 ‘Dior tailored Ana’s wedding dress (for me)’
- c. O Dior  $\mu_i$  erapse ena nifiko.  
 the Dior me.DAT.CL tailor.3.PST a wedding-dress.ACC  
 ‘Dior tailored me a wedding dress.’

### 2.3. Potential implications for acquisition & the Main Hypothesis

The syntactic-semantic properties of DAT-arguments/CL along with the ACC-Theme arguments/CL point towards a number of factors which could potentially affect their developmental order, giving rise to different hypotheses:

#### I. Hypothesis 1: *Prioritize Locality/Thematic roles.*

Under this hypothesis, children rely first on the thematic role of each argument, grouping together BENEf-DATs and (affected external) POSS-DATs (since both involve an Applicative head which introduces an affectee argument and under certain analyses both originate higher), and DAT-GOALS with ACC-THEMES which are assigned their thematic role at the ROOT-level.

#### II. Hypothesis 2: *Prioritize Final position of the argument.*

It is possible that the presence of the  $v_{\text{Appl}}$ -head, whether it is contentful or not, plays a role in processing the entire structure. Under this hypothesis, we would expect all DAT-arguments associated with  $v_{\text{Appl}}$ -head to emerge later than ACC-arguments, without being able to observe any differences among DAT-CL.

#### III. Hypothesis 3: *Prioritize the level of obligatoriness of the argument type.*

The level of obligatoriness refers to the requirement for overtly realizing an argument when this is already salient in the context. It is well-established that Greek does not allow Definite Object Drop (9a,b) (Dimitriadis 1994). However, when it comes to Dative arguments, there is a variability regarding the obligatory presence of the argument, which has not been extensively studied. Consider the dialogue in (8)-(9): in a response to the question in (8), omitting a GOAL-CL (9d) or a BENEf-CL (9h), although marked, is acceptable, while omitting a POSS-CL (9f) or a SOURCE-CL (9j), leads to strong ungrammaticality.

- (8) Ti kani ston Petro i mama?  
‘What is Mom doing to Peter?’

<i>Type of argument</i>	<i>Acceptability of omitting the argument</i>
(9) a. Ton kinigai. THEME.CL is-chasing	b. *Kinigai. Is-chasing
c. √Tu dini to vivlio GOAL.CL is-giving the book	d. ??Dini to vivlio is-giving the book
e. √Tu kovi ta nihia POSS.CL is-cutting the nails	f. *Kovi ta nihia is-taking the nails
g. √Tu magirevi BENEF.CL is-cooking	h. ?Magirevi is-cooking
i. √Tu perni to fai SOURC.CL is-taking the food	j. *Perni to fai is-taking the food

Although, it is not entirely clear what determines this variability among DAT-arguments, we conjecture that the *Obligatoriness Scale* can play a role in their developmental order. The present hypothesis goes beyond the obligatoriness stemming from lexical variability (relational vs. non-relational verbs, obligatorily vs. freely relational verbs) discussed in Bello (2017). Based on the obligatoriness scale, we expect inalienable POSS-CL to develop earlier than other DAT-CLs and GOAL-CLs to precede the development of BENEF-CL.

As we show in Section 4, our results corroborate Hypothesis III. Hypotheses I and II are not confirmed by our data but it still remains open whether the thematic role/root-proximity could also play a role.

### 3. Previous studies on the development of DATIVE-clitics

Previous studies on the acquisition of indirect objects can be divided into those which rely on spontaneous speech data and those that have used an experimental method to either elicit or test the comprehension of DAT-CL.

Overall, the results from naturalistic data suggest that children have no particular problems with indirect object clitics, while it is hard to tell whether there is any significance compared to direct object clitics. In Lyczkowski’s (1999) study of three monolingual Spanish children, IO-CL were produced fairly early (earliest emergence being at 1;7 as DO-CL) and their omission rate in obligatory environments was less than 1%. Similarly, in Torrens & Wexler’s study (2000) on the production of IO-CL in Spanish within clitic doubling environments by a monolingual Spanish child aged 1;7 to 3;11 DAT-CL were produced in 23 out of 24 obligatory environments. Early production of DAT-CL was also attested in the spontaneous speech of three Romanian-speaking children aged 1;9-2;11 (Coene & Avram 2011). In this study DAT-CL were found to emerge slightly later than ACC-CL and to reach ceiling performance shortly after the first occurrence. More recently, Bello (2017) examined the spontaneous production of three children

(ages 1;10–4;3,21) of DAT-CL in French and found that their emergence varied among files (with a disparity from 33% to 100%).

Turning to the second group of studies which relied on experimental methods, Blasco (2002) elicited the production of DAT- and ACC-CL in simple clitic constructions and CID constructions in Spanish with children aged 1;9-2;10. According to her findings, clitic omission was at similar rates for both ACC- and DAT-CL, starting at a rate of 17.7% at the earliest ages (1;9-1;10) and decreasing to 4.5% already from the age of 2;1.

Similarly, in Romanian, Babyonyshev & Marin (2006) report that 18 Romanian children (aged 2-3 year-olds) participated in an elicitation experiment and displayed equal rates of production with both ACC- and DAT-CL<sup>3</sup>. However, it seems that children perform slightly worse with IO- than with DO-CLs, regardless of whether they are grouped by age or MLU, and that IO-CL production is more variable than DO-CLs across participants. The difference is attributed to the nature of the experimental task coupled with the special properties of the IO-CL construction not shared by the DO-CL construction.<sup>4</sup>

Gavarró & Mosella (2009) replicated the previous study eliciting DAT-CL in Catalan speaking children (aged 2-4 year-olds). Their results indicate low levels of IO-clitic omission, significantly lower to ACC-CL omission. The difference is remarkable, as IO-clitic omission for the 2-year olds is as high as 35% compared to 74% of DO omission for the same age group, while the 3-year olds perform only 8% omission with IO as opposed to 25% in DO environments.<sup>5</sup>

Kapia (2010) investigated the acquisition of DAT- and ACC-CL in CID environments in Albanian in an elicitation task (children's age 2;0-4;0). She observes that children overgeneralize the obligatoriness of ACC-CL resulting in ungrammaticalities with doubled contrastive ACC-CL 20% of the times, while children's production of CID with DAT-CL is adult-like since the age of 2;0.

Radeva-Bork (2012) run a picture matching comprehension experiment in sixteen Bulgarian-speaking children from 2;5-4;2 years old on DAT- and ACC-CL in CID constructions. Only half of the children gave correct answers, while the percentages for each age group moved slowly from 47% for the 2-year old group to 51% for the 3-year olds, reaching the maximum of 63% at the age of 4.

---

<sup>3</sup> This study was the first attempt to distinguish among the different types of DAT-CL. However, the classification of the verbs (for example, the possessive constructions used are not in all cases clearly distinct from benefactives) and the task itself as discussed from the authors themselves, raise some doubts regarding the conclusions we can draw with respect to the different types of DAT-arguments.

<sup>4</sup> Their view is supported by adult's data as they failed to produce them in 11% of cases. Another complication with Romanian is that it requires clitic doubling with dative objects.

<sup>5</sup> These results are very enlightening, as Catalan, being a clitic-omission language (unlike Spanish, Romanian and Bulgarian), presents an ideal case for checking potential differences between direct and indirect requirements.

Bello (2017) tested DAT- and ACC-CL with 65 French-speaking children (3 to 6 years old) divided into four age groups. According to her results, DAT-CL display low rates at ages 3 and 4 without reaching adult's performance even at the age of 6. Bello's thesis builds on the observation that omission is directly linked to the verb type requirements for overt realization of the argument: obligatorily relational verbs (*montrer* 'show', *donner* 'give') would result in fewer omissions compared to freely relational verbs (*écrire* 'write', *envoyer* 'send').

Finally, DAT-CL omission has also been tested in European Portuguese (Costa et al. 2008), a null direct and indirect object clitic language. The study reports omission of DAT-CL at the rate of 50% for the ages 3 and 4. Despite the fact that clitics were tested in strong island syntactic environments, in which null objects are not allowed in adult language, the findings are not surprising as European Portuguese is a null object language.

#### 4. Our study

From our perspective, the puzzle raised for developmental studies revolves around the following question: Does the developmental course of clitics follow the obligatoriness scale as expressed in *Hypothesis III*, or is it the case that the thematic role/*root-proximity* or the presence of an Appl-head (*Hypothesis I* and *II*) bears more weight in children's setting of parameters? Without excluding the possibility of both factors playing a separate but interactive role during the learnability process, crucially the two approaches make discrete predictions: if *Hypothesis III* is on the right track, the expected developmental order is: ACC>POSS>GOAL>BENEF. By contrast, *Hypothesis I* predicts GOAL-CL to be acquired earlier than BENEF- and POSS-CL and *Hypothesis II* predicts that there should be no variance between the different types of DAT-clitics.

##### 4.1. The design

We ran a picture elicitation task testing 3<sup>rd</sup> Singular GOAL-CL, (Inalienable) POSS-CL, BENEF-CL and ACC-CL (six items per condition). Within DAT-CL conditions, three items were targeted for 3<sup>rd</sup> Singular Masculine/Neuter Clitic (i.e. 'tu' (*him*)) and three items for 3<sup>rd</sup> Singular Feminine Clitic (i.e. 'tis' (*her*)). Our participants were 42 Greek monolingual children (aged 2;2-5;6; mean age 3;6). To be able to observe the developmental path and age effect differences we divided our participants into three different groups: a) **Group 1**: (ages 2-3; mean age 2;7, N=12), b) **Group 2**: (age 3-4; mean age 3;6, N=18), and c) **Group 3**: (age 4-5; mean age: 4;5, N=17). The study was also tested on 16 Greek monolingual adults (mean age 33). The duration of the study was 15-20 minutes.

##### 4.2. Procedure & Items

Throughout the testing session, the child was watching pictures on the experimenter's laptop. The child's task was to watch the pictures attentively and answer the experimenter's questions. Prior to the elicitation question, the

experimenter would present a brief context about the characters and the context of the picture, assuring that the names of the characters/animals had been mentioned (facilitating the use of the clitic in the answer). The elicitation question had always the form ‘*what is x doing to/for y*’ (using the grammatical in Greek V-IO-S word order), as exemplified in Fig.1-4.



**Figure 1. Elicitation of GOAL-Clitics**  
**Experimenter’s question:**

“Ti kani sto provataki i kukuvaaja?”  
*What is the owl doing to the sheep?*

**Expected Answer: Tu dini to vivlio**  
HIM.GOAL give.3PRS the book  
‘She is giving him the book’.



**Figure 3. Elicitation of BENEF-Clitics**  
**Experimenter’s question:**

“Ti kani stin Annula o Jimmy?”  
*What is Jimmy doing for Anna?*

**Expected Answer: Tis tragudai**  
HER.BENEF sing.3PRS  
‘He is singing for her’.



**Figure 2. Elicitation of POSS-Clitics**  
**Experimenter’s question:**

“Ti kani ston arkudo to kunelaki?”  
*What is the bunny doing to the bear?*

**Expected Answer: Tu kovi ta nixia (tu)**  
HIM.POSS cut. 3PRS nails (his)  
‘He is cutting his nails’.



**Figure 4. Elicitation of ACC-Clitics**  
**Experimenter’s question:**

“Ti kani ston avgo o Petros?”  
*What is the boy doing to the egg?*

**Expected Answer: To vafi**  
IT.THEME paint. 3PRS  
‘He is painting it’.

The experimenter made sure that no clitic form was used, neither in the question, nor in the presentation of the context. The study included 6 warm-ups and 12 fillers. All children were recruited privately in the area of Attica and Crete.

## 5. Results

The descriptive breakdown of children’s errors on each item per condition is presented in Table (1). In our results we counted as correct children’s responses using an alternative verb to the ones we had originally in mind as long as the type

of the structure under investigation and the type of the elicited clitic was preserved (e.g. ‘tis pezi musiki’ (*he is playing music for her*) and ‘tis tragudai’ (*he is singing to/for her*) for Item 3.6 were equally considered correct. On the contrary, responses which were grammatically fine but did not correspond to the intended structure were counted as incorrect (e.g. ‘tu rixni nero’ (*he is throwing water to it*) instead of ‘to potizi’ (*he is watering it*) for Item 1.6) since the type of the CL used was not the appropriate one, i.e. DAT instead of ACC).

**Table 1. Children’s raw numbers of errors on each item/condition**

#	Cond	Target Utterance	Group1	Group2	Group3	Adults
1.1	ACC	He is chasing her.CL	0/12	1/18	0/17	0/16
1.2	ACC	He is painting it.CL	3/12	3/18	3/17	0/16
1.3	ACC	She is shooting him.CL	7/12	5/18	2/17	1/16
1.4	ACC	He is pushing him.CL	0/12	0/18	0/17	0/16
1.5	ACC	She is hugging her.CL	4/12	4/18	1/17	0/16
1.6	ACC	He is watering it.CL	4/12	5/18	4/17	0/16
<b>Total</b>			<b>18/72</b>	<b>18/108</b>	<b>10/102</b>	<b>1/96</b>
2.1	POSS	She is washing his.CL feet	4/12	8/18	8/17	0/16
2.2	POSS	She is taking her.CL shirt off	10/12	6/18	4/17	1/16
2.3	POSS	She is putting on her.CL shoes	6/12	5/18	2/17	0/16
2.4	POSS	He is tying his.CL shoelaces	4/12	4/18	1/17	0/16
2.5	POSS	He is cutting his.CL nails	4/12	8/18	5/17	1/16
2.6	POSS	She is wiping her.CL hair	8/12	7/18	7/17	0/16
<b>Total</b>			<b>36/72</b>	<b>38/108</b>	<b>27/102</b>	<b>2/96</b>
3.1	BEN	He is cooking for her.CL	12/12	13/18	6/17	0/16
3.2	BEN	They are making a party for him.CL	8/12	9/18	9/17	6/16
3.3	BEN	They are building a house for him.CL	11/12	9/18	7/17	0/16
3.4	BEN	They are playing music for him.CL	5/12	13/18	6/17	0/16
3.5	BEN	They are painting a picture for her.CL	12/12	10/18	7/17	3/16
3.6	BEN	He is singing for her.CL	7/12	8/18	5/17	1/16
<b>Total</b>			<b>55/72</b>	<b>52/108</b>	<b>40/102</b>	<b>10/96</b>
4.1	DITR	She is giving him.CL a book	8/12	4/18	3/17	0/16
4.2	DITR	He is sending her.CL a letter	9/12	10/18	8/17	4/16
4.3	DITR	She is telling her.CL a story	3/12	4/18	5/17	0/16
4.4	DITR	He is bringing him.CL a parcel	10/12	3/18	5/17	0/16
4.5	DITR	He is showing her.CL a picture	6/12	5/18	5/17	0/16
4.6	DITR	He is throwing him.CL the ball	11/12	13/18	14/17	0/16
<b>Total</b>			<b>47/72</b>	<b>35/108</b>	<b>38/102</b>	<b>4/96</b>

Significances across conditions and across groups was statistically calculated in two ways: At first, we included all items as presented in Table (1) and subsequently we measured for differences by excluding the highlighted (in grey) items in Table (1), i.e. Item 1.3 for ACC, Items 2.2 and 2.3 for POSS, Items 3.2 and 3.5 for BENE, and Items 4.2 and 4.6 for GOAL-CLs. We considered re-evaluating our results by excluding these items, as we believe that children’s performance on these particular items could be affected by the experimental material (i.e. the depiction of the verb).

Fig. 5 and Fig. 6 contrast the statistical differences across conditions if we group all children together (mean age: 3;6). ACC-CL develop significantly earlier compared to each type of DAT-CL, i.e. in comparison to POSS, BENEF- and GOAL-CL ( $p < 0.001$ ). Moreover, in Fig. 6 (with the items excluded), a significant difference between GOAL-CL and BENEF-CL ( $p < 0.01$ ) was revealed.

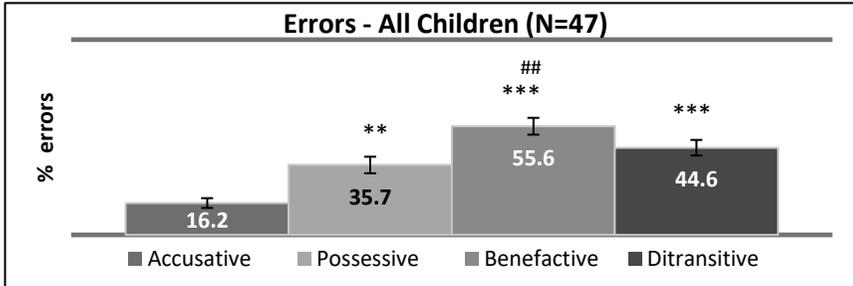


Figure 5. % of children's errors across conditions (all items)

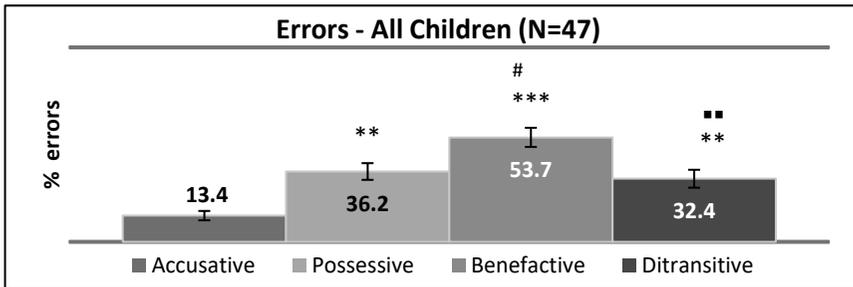


Figure 6. % of children's errors across conditions (with excluded items)

The overall picture in Fig. 5 and Fig. 6 is confirmed by comparison of conditions across age groups (Fig. 7 and Fig. 8). ACC-CL emerge significantly earlier compared to GOAL- and BENEF-CL across all age groups. Statistical analysis (2-way ANOVA) shows that the difference between ACC-CL and BENEF-CL is significant ( $p < 0.01$ ) across all age-groups (all items included; Fig. 7), while it is not significant for the oldest group (Age 4+) when certain items were excluded (Fig. 8). Crucial to our predictions is the significance found between ACC-CL and GOAL-CL for Group1 ( $p < 0.01$ ) and Group 3 ( $p < 0.01$ ) in Fig. 7 and only for Group 1 in Fig. 8. No significance was found between ACC-CL and POSS-CL across groups. Moreover, comparison among DAT-conditions across groups showed the following significances: BENEF-CL compared to POSS-CL for Group1 and Group2 ( $p < 0.05$ ) with all items included (Fig. 7) and only for Group1 with the excluded items (Fig. 8). Moreover, GOAL-CL were significantly better compared to BENEF-CL ( $p < 0.001$ ) for Group2 (Fig. 8).

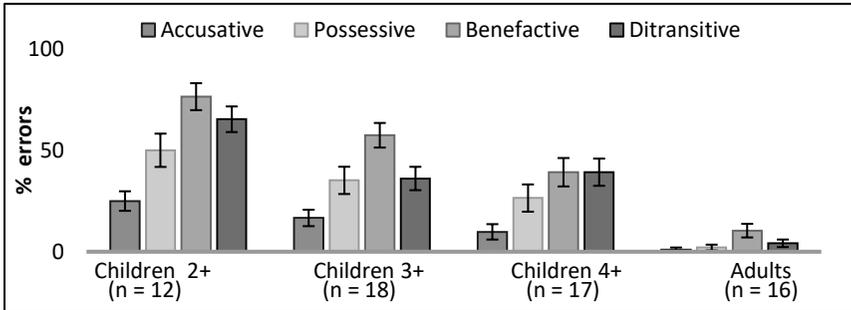


Figure 7. Children's errors across conditions for all age-groups (all items)

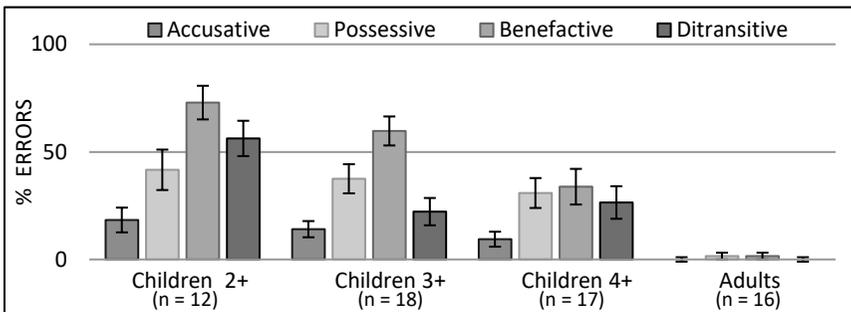


Figure 8. Children's errors across conditions/all age-groups (with excluded items)

Finally, we checked for statistical differences within the GOAL-CL condition, namely for difference between clitics-arguments of verbs classified as *freely relational* (FRV) (i.e. Items 4.2, 4.3 and 4.6) and *obligatorily-relational* (ORV) (i.e. Items 4.1, 4.4 and 4.5) in Bello's (2017) terms. Arguments of ORVs were found to emerge significantly earlier than arguments of FRVs in Group2 and Group3 but not in Group1. However, Items 4.2 and 4.6 (both within the FRV-type) were two of the items we considered difficult for eliciting the actual verb (i.e. *send* and *throw*), which raises a more general question regarding depicting actions of this type, independently of the development of their argument structure.

## 6. Conclusions and further predictions

Our findings indicate an asymmetry between ACC and DAT-clitics in Greek. This is in line with some of the previous findings on DAT-CL in other languages (e.g. Bulgarian, Radeva-Bork (2012)) and it reveals the opposite pattern of what has been reported for Catalan (Gavarró & Mosella 2009). The latter is not surprising since Catalan goes through a Clitic Omission Stage (Wexler et al. 2004) exhibiting high rates of ACC-CL omission, while Greek does not (Tsakali & Wexler 2004). Our study confirms previous findings regarding the development of ACC-CL (Tsakali & Wexler 2004, Tsakali 2006 a.o.), showing that DO-clitics in Greek are acquired early.

The observed significant differences discussed in the previous section along with the rate differences on DAT-CLs point towards the following developmental trajectory for Greek clitics: *ACC-CL* > *POSS-CL* > *GOAL-CL* > *BENEF-CL*

The attested pattern indicates that the obligatoriness scale suggested in *Hypothesis III* regulates children's performance regarding the occurrence of DAT-CL. Adult's almost null omission rates in all conditions show that the experimental set-up facilitated the elicitation of the relevant clitic. However, the fact that GOAL- and BENEF-CL are lower in the obligatoriness scale (as indicated in (8)-(9)) and their omission does not lead to strong ungrammaticality in target language, affects their development projected in children's performance.

The presence of an Appl-head does not seem to play a role in acquisition as no significance was revealed between THEME- and POSS-CL. Furthermore, it is unclear at this stage if the thematic role/proximity to the root plays a weighty role in the acquisition path. Although, overall children have constantly lower omission rate with GOAL-CL compared to BENEF-CL, the fact that significance between the two was only detected for Group2 (Fig. 8) suggests that further research is required. Moreover, additional experimental evidence is necessary to detect if: a) the thematic role of IO-CL (i.e. SOURCE vs. GOAL), b) the distinction between benefactive- versus malefactive-DATs (Bosse et al. 2012 i.a.), and c) Possession encoding alienable (non-obligatory) arguments (see Cuervo 2003), provide a finer grained developmental pattern, as suggested by our hypothesis.

## References

- Anagnostopoulou, Elena (2003). *The syntax of ditransitives: Evidence from clitics*. Berlin: de Gruyter.
- Anagnostopoulou, Elena (2005). Cross-linguistic and cross-categorial distribution of datives. In *Advances in Greek generative syntax*, eds. Melita Stavrou and Arhonto Terzi, pp. 61–126. Amsterdam: Benjamins.
- Anagnostopoulou, Elena & Christina Sevdali (2020). Two modes of dative and genitive case assignment: Evidence from two stages of Greek. *Natural Language & Linguistic Theory* 38 (4): 987-1051.
- Babyonyshev, Maria & Stefania Marin (2006). Acquisition of Pronominal Clitics in Romanian. *Catalan Journal of Linguistics* 5, pp. 17-44.
- Bello, Sophia (2017). *Prolegomenon to the study of French indirect objects in first language acquisition*. Ph.D. Dissertation, University of Toronto.
- Blasco, Maria Vicenta Aznar (2002). *On the Acquisition of Object Pronominal Clitics in Spanish*. PhD Dissertation, City University of New York.
- Bowers, John & Effi Georgala. (2007). The syntax of goals and beneficiaries in Standard Modern Greek. In *Studies in the Morpho-syntax of Greek*, ed. A. Alexiadou, pp. 14-46. Cambridge: Cambridge Scholars Publishing
- Bosse, Solveig, Benjamin Bruening, & Masahiro Yamada. (2012). "Affected experiencers." *Natural Language & Linguistic Theory* 30 (4).
- Bruening, Benjamin (2010) Ditransitive asymmetries and a theory of idiom formation. *Linguistic Inquiry* 41(4): 519–562.
- Costa, João, Lobo Maria, Carmona Jaqueline & Silva Carolina (2008). Clitic omission in European Portuguese: correlation with null objects? In: A. Gavarró and M. J. Freitas,

- eds., *Language Acquisition and Development. Proceedings of GALA 2007*. Newcastle upon Tyne: Cambridge Scholars Publishing, pp.133-143.
- Cuervo, Maria Cristina (2003) *Datives at Large*. Ph.D. Dissertation, MIT.
- Deal, Amy Rose. (2013) Possessor raising. *Linguistic Inquiry* 44(3): 391–432.
- Dimitriadis, Alexis. (1994). Clitics and object drop in Modern Greek. In *Proceedings of SCIL 6*. MIT Working Papers in Linguistics.
- Gavarró, Anna & Marta Mosella. (2009). Testing syntactic and pragmatic accounts of clitic omission. In J. Crawford, K. Otaki & M. Takahashi (eds.), *Proceedings of the 3rd GALANA 2008*, Cascadilla Proceedings Project, Somerville, pp. 25-35.
- Gavarró, Anna, Vincent Torrens & Ken Wexler. (2010) Object clitic omission: two language types. *Language Acquisition*, 17: 192-219.
- Georgala, Effi, & John Whitman. (2007) Ditransitives and applicative structure in Greek. *Proceedings from the Annual Meeting of the Chicago Linguistic Society*. 43;1. Chicago Linguistic Society, 2007.
- Georgala, Effi. (2012). Applicatives in their structural and thematic function: A minimalist account of multitransitivity. PhD diss., Cornell University.
- Grimshaw, Jane (1994). Lexical reconciliation. *Lingua* 92, pp. 411-430.
- Harley, Heidi. (2002). Possession and the double object construction. *Yearbook of Linguistic Variation* 2: 29-68
- Kapia, Enkeleida. (2010). The role of syntax and pragmatics in the structure and acquisition of clitic doubling in Albanian. Ph.D. dissertation, Boston University.
- Larson, Richard K. (1988). On the double object construction. *Linguistic inquiry* 19.
- Lyczkowski, David. (1999). *Adquieretelo: On the acquisition of pronominal object clitics in Spanish*. AB thesis, Harvard University.
- Marantz, Alec. (1993). Implications of asymmetries in double object constructions. *Theoretical aspects of Bantu grammar 1*: 113–151.
- Michelioudakis, Dimitris (2012). *Dative arguments and abstract Case in Greek*. Ph.D. dissertation, University of Cambridge.
- Pylkkänen, Liina (2002/2008). *Introducing arguments*. Cambridge Mass: MIT Press.
- Pesetsky, David. (1995). *Zero syntax: Experiencers and cascades*. Cambridge: MIT Press.
- Radeva-Bork, Theodora. (2012). *Single and Double Clitics in Adult and Child Grammar*. Frankfurt: Peter Lang. [ Ph.D. dissertation, University of Vienna].
- Torrens, Vincent & Ken Wexler (1996). Clitic doubling in early Spanish. In A. Stringfellow, D. Cahana-Amitay, E. Hughes and A. Zukowski (eds.), *Proceedings of the 20<sup>th</sup> Boston University Conference on Language Development*. MA: Somerville, Cascadilla Press.
- Torrens, Vincent & Ken Wexler. (2000). The Acquisition of Clitic Doubling in Spanish. In Powers, S. and C. Hamann, eds. *The Acquisition of Scrambling and Cliticization*, Kluwer Academic Publishers.
- Tsakali, Vina & Ken Wexler. (2004). Why children omit clitics in some languages but not in others: New evidence from Greek. In J. Kampen and S. Baauw (eds.), *Proceedings of Generative Approaches to Language Acquisition 2003*, vol.II. Utrecht: LOT.
- Tsakali, Vina. (2006). *The Syntax and Acquisition of Pronominal Clitics: a Crosslinguistic Study with Special Reference to Modern Greek*. PhD Dissertation, UCL.
- Tsakali, Vina. (2014). Acquisition of Clitics: the state of the art. In *Developments in the Acquisition of Clitics*, (eds. Kl. Grohmann & Th. Neocleous), Cambridge Scholar Publishing, Cambridge UK, pp. 162-189.
- Wexler, Ken, Anna Gavarró & Vincent Torrens. (2004). Feature checking and object clitic omission in Catalan and Spanish. In R. Bok-Bennema, B. Hollebrandse, B. Kampers-Manhe and P. Sleeman (eds.), *Romance Languages and Linguistic Theory*. Amsterdam: John Benjamins.

# Proceedings of the 45th annual Boston University Conference on Language Development

edited by Danielle Dionne  
and Lee-Ann Vidal Covas

Cascadilla Press    Somerville, MA    2021

## **Copyright information**

Proceedings of the 45th annual Boston University Conference on Language Development  
© 2021 Cascadilla Press. All rights reserved

Copyright notices are located at the bottom of the first page of each paper.  
Reprints for course packs can be authorized by Cascadilla Press.

ISSN 1080-692X  
ISBN 978-1-57473-067-8 (2 volume set, paperback)

## **Ordering information**

To order a copy of the proceedings or to place a standing order, contact:

Cascadilla Press, P.O. Box 440355, Somerville, MA 02144, USA  
phone: 1-617-776-2370, sales@cascadilla.com, www.cascadilla.com