# EXPERIMENTAL DATA ON ROMANIAN DOUBLE OBJECT CONSTRUCTIONS[1]

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**Abstract.** The goal of this paper is to present the results of an experiment carried out on Romanian ditransitive constructions and to put forth evidence in favor of a derivational analysis of these configurations. Numerous studies on Romance, paralleling accounts on English, have assumed structural differences between ditransitive configurations with clitic doubled indirect objects and their non-doubled counterparts, grouping the former sequences with Double Object Constructions (DOC) and the latter with Prepositional Datives. Against such approaches, we will argue that the distinction between the so-called DOCs and Prepositional Datives cannot actually be maintained for Romanian and that Romanian ditransitives instantiate the DOC configuration, irrespective of Clitic Doubling. Supporting this claim, the results of our experiment show that the two objects in the Romanian ditransitive construction have symmetrical binding potential and roughly equal privileges with respect to binding phenomena. We will thus argue that Romanian ditransitives instantiate the DOC configuration.

**Keywords:** ditransitives, Double Object Constructions, applicatives, symmetrical binding.

## 1. AIM OF THE PAPER

The analysis of ditransitive configurations has vacillated between two accounts: the alternative projection account and the derivational account. The alternative projection account was first proposed for English by Pesetsky (1995) and it is founded on the existence of assumed systematic differences between the prepositional Dative and the Double Object Construction (DOC). The two configurations are argued to be independent from one another, representing

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alternatively projected structures[5]. According to the derivational account, on the other hand, one of the constructions is syntactically derived from the other[6].

In the Romance domain (e.g. Demonte 1995, Cuervo 2003, among many), including Romanian (Diaconescu and Rivero 2007, D&R from now on), a distinction is set up between the cliticless construction, assimilated to the prepositional *to*-Dative of English and the CD construction, assimilated to the English DOC. In this description, the Romance DOC is viewed as an applicative construction and the clitic is interpreted as a spell-out of the applicative head.

This paper is devoted to the study of ditransitive configurations in Romanian and presents some new experimental data, arguing against the purported existence of two configurations i.e., a DOC and a Prepositonal Dative in this language. We will thus argue that a derivational analysis of ditransitive constructions is more appropriate for Romanian (see Ormazabal and Romero, 2010; Pineda 2012, 2013, a.o.) and refute the claim according to which Romanian ditransitives with a clitic doubled dative object correspond to DOCs, while their non-doubled counterparts correspond to the so-called Prepositional dative constructions, contra D&R (2007). More specifically, we will defend the view that Romanian ditransitives instantiate the DOC configuration irrespective of Clitic Doubling (CD).

The paper is structured as follows: section 2 presents the main claims put for th D&R's (2007) alternative projection account; in section 3, we present the experiment we conducted on Romanian ditransitive constructions: its motivation, the design, the results and their evaluation. Section 4 contains the main conclusions of this experiment.

## 2. BACKGROUND: DIACONESCUANDRIVERO (2007)

In their important pioneering paper, Diaconescu and Rivero (2007, henceforward, D&R), in turn inspired by Cuervo (2003), following Pylkkänen (2002) make the following important points: Firstly, in Romanian, the Goal may be an inflectional dative, as well as a PP, introduced by *la* 'at, to'. Dative Goals and Prepositional Goals (*la*+ Acc DP) share their syntactic and interpretative properties, but differ stylistically, in as much as Goal datives belong to standard Romanian, while PP Goals are largely restricted to popular or dialectal speech, even though they are standardly used with certain DPs. Apparently, Romanian,

[5] Proponents of the Alternative account are Oherle (1976), Marantz (1993), Pesetsky (1995), Harley (1995, 2002), Bruening (2001, 2010), Pylkkänen (2002, 2008) a.o.

[6] Some supporters of this account espouse the view that the DOC is derived from the Prepositional Dative (Larson 1988, 1990, Baker 1988, 1996, den Dikken 1995, Ormazabal and Romero 2010, 2012 a.o.), while others claim that the Prepositional Dative is derived from the DOC (Dryer 1987, Aoun and Li 1989 a.o.).

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unlike English, does not formally distinguish between a pattern used for caused possession and one used for caused movement, since both the inflectional and the prepositional dative may express both, as will be shown below. In choosing between the dative and the prepositional construction the animacy hierarchy plays an important role, specifically, DPs higher in the animacy hierarchy prefer the dative, while DPs with a low position in the hierarchy prefer the prepositional construction (see (1a-b)).

(1) a. *Mi se pare că vorbesc la pereți.*
me.Dat refl.3rd.p.sg. seems that speak.1st.p.sg. to walls
'I feel as if I were talking to the walls.'

b. **Mi se pare căvorbesc pereților.*
me.Dat refl.3rd.p.sg. seems that speak.1st.p.sg. walls.Dat
'I feel as if I were talking to the walls.'

(2) a. *A dat covrigii unor copii/*
has given pretzels.the some.Dat children
*??unor câini/ *??unor cămine*
some.Dat dogs some.Dat hostels
'He has given the pretzels to some children/some dogs/some hostels.'

b. *A dat covrigii la nişte copii / la nişte câini /*
has given pretzels.the to some children to some dogs
**la nişte cămine*
to some hostels
'He has given the pretzels to some children/some dogs/some hostels'

A second common syntactic property of the dative/prepositional construction is that both types of Goals show free word-order with respect to the Theme.

(3) a. *Mihaela scrie o scrisoare Mariei/ la Maria.*[from D&R]
Mihaela writes a letter Mary.Dat to Mary.

b. *Mihaela scrie Mariei/ ( ?) la Maria o scrisoare.*
Mihaela writes Mary.Dat to Mary a letter.
'Mihaela is writing a letter to Mary.'

The most relevant property of the Romanian prepositional goals is that, despite their prepositional form, they allow clitic doubling (=CD). Given this, D&R suggest that, at least in clitic doubled constructions, *la* is a case-marker rather than a lexical preposition with descriptive content, so that the status of the *la* phrase is that of a DP rather than a PP.

(4) *Profesorul le- a vorbit studenților/ la studenți.*
professor.the they.Dat.Cl has spoken students.Dat/ to students.
'The professor spoke to the students.'

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This view is confirmed by the occurrence of *la*-PPs in the Dativus Comodi/Incomodi of unergative verbs, where its interpretation is Beneficiary, not Experiencer, an interpretation normally expressed by the preposition *pentru*, 'for', not *la* 'at, to'. Significantly, in this construction, the clitic is obligatory to convey the Beneficiary interpretation; in its absence, the *la*-PP is interpreted as a location, as shown by the contrast between (5a) and (5b).

(5) a. *I- am muncit patronului/la patron* pe puțini bani.
he.Dat.cl have.I worked employer.the.Dat/at employer on little money
'I worked for the employer on little money'

b. *Am muncit pentru patron/la patron pe bani puțini.*
have.I worked for employer/at employer on money little
'I worked for the employer/ at an employer on little money.'

We will assume the same position regarding the similarity of the PP and inflectional datives and will discuss only inflectional datives in ditransitive constructions in this paper.

Starting with Demonte (1995), if not earlier, researchers on Romance propose that Romance languages, like English, dispose of two readings in the Theme-Goal construction: the caused movement reading, which does not show clitic doubling and is the analogue of the English prepositional dative construction, and a caused possession reading, where the dative must be clitic doubled, the structure being the analogue of the English DOC. The clitic is interpreted as the head of an Applicative projection that introduces the Goal.

In agreement with Cuervo (2003), D&R (2007) assume that the DOC interpretation is characteristically associated with a configuration where *the Goal c-commands the Theme*, a configuration which determines the well-known binding and scope asymmetries, first discussed in Barss and Lasnik (1986). They further claim that these properties hold *whenever the Goal is clitic doubled* and the Theme is not. Hence they conclude that, in Romanian, DOC interpretations require doubling by the clitic. In implementing this view, the two authors adopt an alternative projection account, proposing (6a) and (6b) below, as alternative syntactic configurations (see also Anagnostopoulou, 2005, or Georgala, 2011).

(6) a. *Theme c-commands Goal*
$[_{\text{VoiceP}}\text{DP}_{\text{Agent}}\text{Voice}[_{v\text{P}}v\ [_{\text{PP}}\text{DP}_{\text{Theme}}\ \text{P}\ \text{DP}_{\text{Goal}}]]]$

b. *Goal c-commands Theme* (clitic doubling, DOC)
$[_{\text{VoiceP}}\text{DP}_{\text{Agent}}\text{Voice}[_{v\text{P}}v\ [_{\text{ApplP}}\text{DP}_{\text{Goal}}\ [\text{cl}_{\text{Appl}}]\ [_{\text{VP}}\ \text{V}\ \text{DP}_{\text{Theme}}]]]]$

In the first case (6a), the goal is either prepositionally marked by *la*, or it has inflectional dative morphology. The Theme sits in the preposition's specifier, c-commanding the Goal. The Dative is inherently case licensed at merge. DOC readings should not occur in this structure, which is not an applicative construction.

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In the second configuration (6b), representing DOC readings, the Goal merges in the *specifier of an ApplP*, while the Theme occupies the lower complement position. The Appl head *spells out as the clitic* pronoun; therefore, in this interpretation *DOC readings depend on clitic doubling,* since the higher Goal is introduced by the clitic, in the Appl head position.

From a descriptive perspective, what the analysis is saying is that the Dative is interpreted either in a low position, where it is c-commanded by Theme, or in a high position (subject), in which case it c-commands the Theme. Doubling is unavailable in the low position where the Dative is analyzed as a PP, *while it is obligatory in the high position*.

D&R discuss c-commanding data on binding pronouns and anaphors, which agree with the structures in (6). Their analysis thus makes clear strong predictions. According to (6a), the direct object can bind the indirect object whether the direct object is clitic-doubled or not (since DO > bare IO). According to (6b), the indirect object in a higher position is always doubled and will always naturally bind the DO projected in the lower complement position (as IO [+cl]> DO).

There are configurations that are not derivable in this analysis and should be ungrammatical, accordingly. For instance, the direct object in (6a) should never bind a clitic-doubled indirect object, since the latter is always in the higher c-commanding position of (6b). Thus, the ***DO>IO [+clitic]** structure is predicted to be ungrammatical. Similarly, an indirect object which is not clitic-doubled should be unable to bind a direct object, since the indirect object is in the lower position, i.e. ***IO (without a clitic) > DO (+/- clitic)**.

Since our own intuitions occasionally disagreed with the analysis of the data in D&R and since the analysis seemed to be "data-driven", we thought that the only reasonable course of action was to obtain a more complete picture of the data by means of a comprehensive experiment. We started from listing the possible ditranstitive configurations, varying the order of the two arguments and the presence/absence of the clitic on either object or on both of them. In theory, the following patterns are logically possible:

(7)

| | |
|---|---|
| **A:** DO [+cl]> IO [+cl] | **E:**IO [+cl]> DO [+cl] |
| **B:**DO [+cl]> IO | **F:**IO > DO [+cl] |
| **C:**DO > IO [+cl] | **G:**IO [+cl]> DO |
| **D:**DO > IO | **H:**IO > DO |

D&R find grammatical (only) **B, D** and **G** of the eight configurations above. Structures **B** and **D** reflect analysis (6a); while structure **G** (8c) reflects analysis (6b) above. On the other hand, D&R consider ungrammatical patterns **C, H** and **F**, which are actually underivable in their analysis: Nothing is mentioned or follows regarding those structures where both objects are doubled i.e., **A** and **E**. Following a long tradition, starting with Barss and Lasnik (1986), D&R decide on the c-command relations in ditransitive structures on the basis of binding phenomena.

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They examine the binding of anaphors and of possessive pronouns. Here are some of their data, which support their analysis. The examples under (8), from D&R, are meant to show that, while a clitic doubled IO may bind the anaphor in a DO, (i.e. (8a) according to (6b)), a DO may not bind the anaphor in a clitic doubled IO (i.e. (8b) according to (6b)):

(8) a. *?Ion i-a descris fetei$_i$ pe ea însăşi$_i$.*
Ion she.Dat-has described girl.Dat pe she herself
'John described the girl to herself.' **IO [+cl]> DO [anaphor]**

b. **Ion i-a descris ei însăşi fata.*
Ion she.Dat-has described she.Dat herself girl.the
'John described herself the girl.' **DO>IO [+cl, anaphor]**
(D&R 2007: 25, p. 27)

Similarly, a non-doubled IO in the low position in (6a) is supposed to be unable to bind an anaphor within a DO (as shown in (9a)), while a DO in c-commanding position may bind an anaphor in a bare, low IO (9b):

(9) a. **Ion a descris fetei$_i$ pe ea însăşi$_i$.*
Ion has described girl.Dat pe her herself
'John described the girl to herself.' ***IO > DO [anaphor]**

b. *Ion a descris ei înseşi$_i$ fata$_i$.*
Ion has described she.Dat herself girl.the
'John described herself the girl.' **DO>IO [anaphor]**
(D&R 2007: 27, p. 30)

Supporting evidence for the analysis also comes from the binding of possessives. Again, while a clitic doubled IO may bind the possessive in a DO, a DO may not bind the possessive in a doubled IO (10):

(10) a. *I-am dat muncitorului$_i$ cecul său$_i$.*
he.Dat-have.I given worker.Dat cheque.the his
'I have given the worker his cheque' **IO [+cl]> DO [possessive]**

b. *??Poliția i-a dat tatălui său$_i$ copilul$_i$ pierdut.*
police.the he.Dat-has given father.the.Dat his child.the lost
'The Police has given the father his lost child.'***DO >IO [+ cl, possessive]**
(D&R 2007: 28, p.30)

Finally, D&R explain that a bare IO may not bind the possessor within a DO, while the DO may bind the possessor within the bare IO, as shown in (11):

(11) a. **? Am dat muncitorului$_i$ cecul său$_i$.*
have.I given worker.Dat cheque.the his
'I gave the worker his cheque.' **IO > DO [possessive]**

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b. *Poliția a dat tatălui său$_i$ copilul pierdut$_i$.*
police.the has given father.Dat his child.the lost
'The Police gave the father his lost child' **IO [possessive]> DO**
(D&R 2007: 30, p. 33)

D&R propose a clear and coherent alternative projection account of Romanian ditransitive constructions. In their view, the two internal arguments have an asymmetric binding potential reflected by the structures projected in (6a) and (6b).A second important virtue of the account put forth by D&R is that clear (i.e. testable) predications are made regarding the acceptability of various ditransitive structures.

However, some of the examples presented seemed problematic to us as native speakers and may seem infelicitous because of flawed lexical choices, rather than because of ungrammatical structures. Also, given the variety of (often synonymous) possible patterns (see (7) above), it is expected that there is a great deal of variation in the individual choice of acceptable constructions, even within the standard language. In order to test the predictions in D&R's analysis and also to get a more truthful representation of the data, we designed an experiment meant to shed light on the degree of grammaticality/acceptability of the 8 ditransitive constructions listed in (7). In the next section, we present the basic hypotheses of this experiment, as well as its results.

## 3. THE EXPERIMENT

### 3.1. Motivation and hypotheses

We found it necessary to resort to experimental research for basically two reasons. The first, as already mentioned, was the insecurity of the data and, sometimes, of our own judgments.

The second reason is theoretical and comes from the changing landscape of research in the area of ditransitive constructions. The alternative projection account, initially proposed for English (see Pesetsky 1995, Harley 1995, 2002) was not only economical, but also empirically motivated by the properties of the English constructions: there were supposed to be semantic differences between the Prepositional Dative Construction (expressing caused motion) and the Double Object Construction (expressing caused possession); at the same time, the internal arguments have well-known asymmetric c-commanding properties (Larson 1988).

The attempt to extend the alternative-projection account to Romance, by equating the clitic-doubled construction with the DOC and the un doubled structure with the Prepositional Dative structure (Demonte 1995, Cuervo 2003) has only partly been successful. As shown by Ormazabal and Romero (2010), the alternative

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projection account faces empirical difficulties, in the sense that it is hard to find semantic differences between the cliticless and the clitic-doubled pattern(s) and it appears that the two internal arguments show symmetric c-command in some of the Romance languages. The authors accordingly propose a derivational account, following the line initiated by Larson's (1988) paper.

Before offering an analysis for Romanian, it was necessary to extend the data under analysis so as to correctly estimate the possible differences between the clitic-less and the clitic-doubled construction, as well as the (a)symmetric binding potential of the two internal arguments.

The examination of the data resulting from the experiment suggests that, while the Dative is clearly interpreted in a low or in a high position with respect to the Theme, the presence of the clitic does not change the interpretation of the construction with respect to properties which depend on a c-command configuration, specifically, binding of anaphors and possessives.[7] We have systematically compared clitic doubled and non-clitic doubled direct objects (DO)/indirect objects (IO), examining the interpretation of all eight constructions in (6).

### 3.3. The design of the experiment

The experiment has been conducted within a *formal design framework*. There are many debates on the distinction between a formal and an informal design of experiments. Schütze and Spouse (2013) list five major respects in which typical informal linguistic judgment gathering tends to differ from standard practice in psychology: number of subjects: relatively few speakers (fewer than ten),linguists themselves as the participants, relatively impoverished response options (such as just "acceptable", "unacceptable", and perhaps "marginal"),relatively few tokens of the structures of interest, relatively unsystematic data analysis. We have thus opted for a formal design of the experiment, addressing the five points in the following manner: Firstly, the number of participants was 88, a number that permits sound statistical measurements. Secondly, no linguist was part of the experiment, only undergraduate students, from 3 different sections. Thirdly, the response options were yes / no for grammaticality and four grades (A, ±A, ± I, I) for acceptability. Fourthly, we have included in the survey at least four lexicalizations per each syntactic structure, in an effort to minimize the contribution of particular lexical itemsto the results. Finally, data analysis was performed by standard statistical tests in R.

[7] We have put aside scope phenomena since in Romanian scope is determined by the inherent structure of the DP rather than by the c-command configuration as extensively shown in Tigău (2011). In other words, scope is not configurational in Romanian.

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In the first stage of the experiment, we made a pilot study on 49 undergraduate students of the University of Bucharest, to check whether (random) factors like the lexical choice or register influence grammaticality / acceptability judgments. Indeed, sentences that used a less familiar, because formal or slightly obsolete, vocabulary got lower scores than those that included a vocabulary which was expectedly familiar to the subjects. We have pruned the data for such unwanted effects.

The second stage of the experiment included 39 philology students. The questionnaire focused on two classical binding problems: binding of an anaphor contained in the other argument and binding of a possessor contained in the other arguments. An additional factor to consider is that Romanian is a DOM language (DOM objects are marked by the preposition *pe* 'on'). Consequently, we chose to consider both bare DOs and DOM-ed ones. The number of acceptable patterns is not the same for the two classes of DOs, since, as will be discussed below, only animate objects may be clitic doubled. Thus, while for bare objects we expect all the patterns in (7) to be available, for DOM-ed DOs only four patterns are in principle possible, reflecting the relative hierarchical position of IO and DO and the variation in the structure of the IO (clitic doubled or not). Each questionnaire thus included 56 sentences. Eight of these dealt with the possibility of binding an anaphoric pronoun. They represented four lexicalizations, including for each lexicalization a grammatical, as well as an ungrammatical variant.

We also considered four lexicalizations for possessor binding, and we ran each lexicalization through the eight patterns possible in the case of DOM-ed (animate *pe*-marked objects). An ungrammatical sentence was also included for each lexicalization. Finally, we proposed three lexicalizations for inanimate DOs and ran them through the four patterns possible in this case. In some sense, the ungrammatical sentences we introduced functioned as distracters, but they also helped to make the subjects more aware of the difference between ungrammatical and unacceptable sentences.

Each subject saw all sentences exactly one time. Sentences had to be judged one at a time, without going back or skipping. Each questionnaire was printed separately and presented the sentences in a different random order. This was accomplished by entering the sentences into a spread-sheet program (Excel), adding a column of random numbers on the left (using the program's built-in random number generating function), and then ordering both columns by the random numbers. Randomization is a standard technique used to insure that the conditions over one run neither depend on the conditions over the previous run, nor do they predict the conditions in the subsequent runs. Thus, the order in which the 56 sentences were presented played no role, and differed from one subject to the next.

For each sentence, the subject had to perform a yes/no task for grammaticality and a 4-scale graded task for acceptability (fully acceptable (+A), more or less acceptable (±A), rather unacceptable but still interpretable (±I), and

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completely unacceptable, uninterpretable (-I)). The instructions and the important distinction grammatical/acceptable were explained beforehand.

### 3.3. The results of the experiment

We summarize the results of the binding of possessors experiment in Table 1. The first column represents a code of the sentence. The codes from 1 to 4 represent the 4 different lexicalizations for the experiment with DOM-ed marked objects. Codes N to S represent the sentences for non DOM-ed objects. The next eight columns are devoted to the 8 syntactic patterns in (6). The numbers at the intersection of one line and one row represent the number of subjects who found the sentence grammatical versus ungrammatical. We considered the patterns to be grammatical only if the instances of "grammatical" were at least twice as many as the instances of "ungrammatical" (over 66%). Thus, for a ratio of 80 to 76 the pattern will be considered ungrammatical or degraded, while for a ratio of 111 to 44, the pattern will be considered grammatical. Note that the sum of the grammaticality judgments is always 39, i.e. in Table 1, the sum of +G added to non-G judgments is 39, for any particular syntactic structure and lexicalization, since there are 39 participants in the experiment.

Regarding the binding of possessors problem, the patterns in (6) were modeled using a factorial design with three factors involved: the relative order of the DO versus IO, the presence or absence of the clitic on either the DO or the IO. Recall that the eight patterns in (6) are possible only for DOM-ed objects, because the DO is clitic doubled only if it is *pe*-marked.

As already mentioned, for each of these patterns, we have included in the experiment 4 different lexicalizations, that is 4 sentences that differ only in the choice of lexical items, but have the same syntactic structure. In Figures 1 to 4, we graphically present the raw frequencies of grammaticality judgments for the 4 lexicalizations. On the horizontal axis we can see the eight syntactic structures in (6). The red boxes represent the number of instances where the sentence was judged grammatical, while the blue boxes represent the number of instances where the sentence was judged ungrammatical. As can be seen, there are some important differences in grammaticality judgments between the 4 lexicalizations, confirming the expectation that lexicalization matters. One also observes that for each of the 8 structures, there is at least one of the lexicalizations which is judged to be grammatical by the subjects. Thus, we cannot rule out any of the 8 structures as ungrammatical (incidentally, this suggests that better care should be exercised before starring a sentence pattern!).

Since we are not interested in the lexicalization itself, but rather in the unique syntactic structure that generated the different lexicalizations, we sum up the results for all of the four different lexicalizations in one graph (Figure 5). In Figures 6 to 9, we graphically represent the raw frequencies of acceptability

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judgements. On the horizontal axis, we can see the eight syntactic structures, while on the vertical axis we have represented the number of instances judged acceptable to a degree by the subjects. The red boxes represent fully acceptable sentences, the green boxes more or less acceptable ones, the light blue boxes represent rather unacceptable, but still interpretable sentences, while the dark blue boxes identify completely unacceptable, therefore uninterpretable sentences. Again, as can be seen in figures 6 to 9, there is variation in acceptability judgements between the four lexicalizations. Figure 10, illustrates the total of acceptability judgements, for all of the four lexicalizations.

*Table 1*

Summary of Experimental Results for Binding of Possessor

| | P | A | | B | | C | | D | | E | | F | | G | | H | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DOM-ed direct objects | | DO > IO +cl | +cl | DO > IO +cl | | DO > IO | +cl | DO > IO | | IO > DO +cl | +cl | IO > DO | +cl | IO > DO +cl | | IO > DO | |
| | | G | non-G | G | non-G | G | non-G | G | non-G | G | non-G | G | non-G | G | non-G | G | non-G |
| | 1 | 22 | 17 | 35 | 4 | 21 | 18 | 21 | 18 | 18 | 21 | 18 | 21 | 11 | 28 | 11 | 28 |
| | 2 | 22 | 17 | 38 | 1 | 11 | 28 | 8 | 31 | 21 | 18 | 37 | 2 | 23 | 16 | 28 | 11 |
| | 3 | 18 | 21 | 34 | 5 | 26 | 13 | 18 | 21 | 19 | 20 | 20 | 19 | 16 | 23 | 7 | 32 |
| | 4 | 18 | 21 | 27 | 12 | 11 | 28 | 8 | 31 | 31 | 8 | 36 | 2 | 20 | 19 | 25 | 14 |
| | | 80 | 76 | 134 | 22 | 69 | 87 | 55 | 101 | 89 | 67 | 111 | 44 | 70 | 86 | 71 | 85 |
| Non DOM-ed DO | N | | | | | | | | | | | | | 33 | 6 | 33 | 6 |
| | O | | | | | | | | | | | | | 34 | 5 | 35 | 4 |
| | P | | | | | | | | | | | | | 38 | 1 | 35 | 4 |
| | Q | | | | | 29 | 10 | 28 | 11 | | | | | | | | |
| | R | | | | | 35 | 4 | 33 | 6 | | | | | | | | |
| | S | | | | | 27 | 12 | 27 | 12 | | | | | | | | |
| | | | | | | 91 | 26 | 88 | 29 | | | | | 105 | 12 | 103 | 12 |

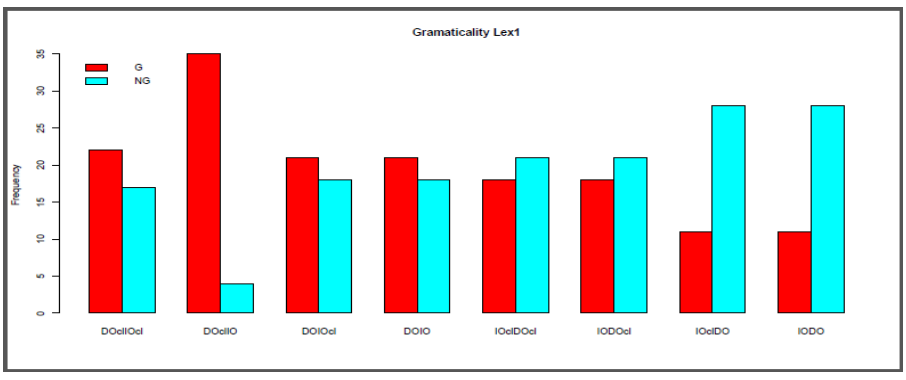



Figure 1. *Grammaticality judgments 1st lexicalization binding of possessors*

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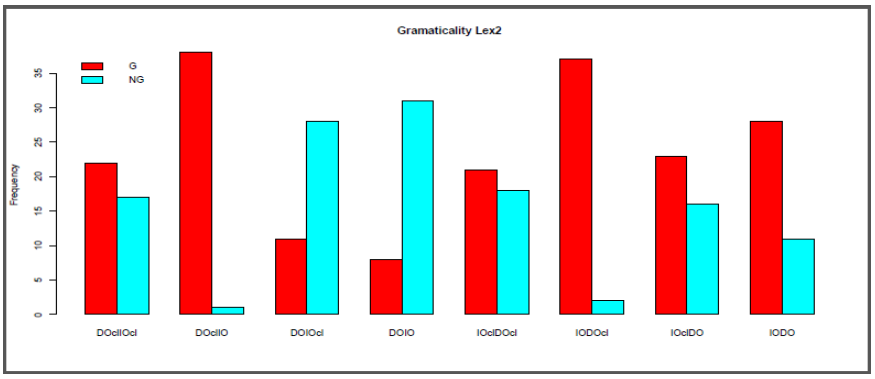



Figure 2. *Grammaticality judgments 2nd lexicalization, binding of possessors*

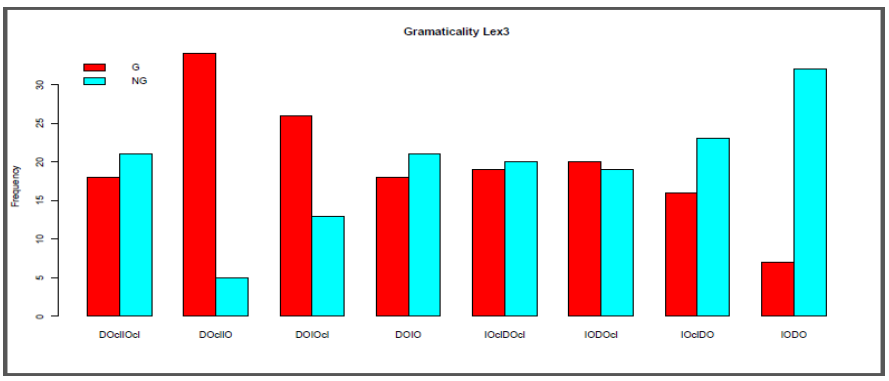



Figure 3. *Grammaticality judgments 3rd lexicalization binding of possessors*

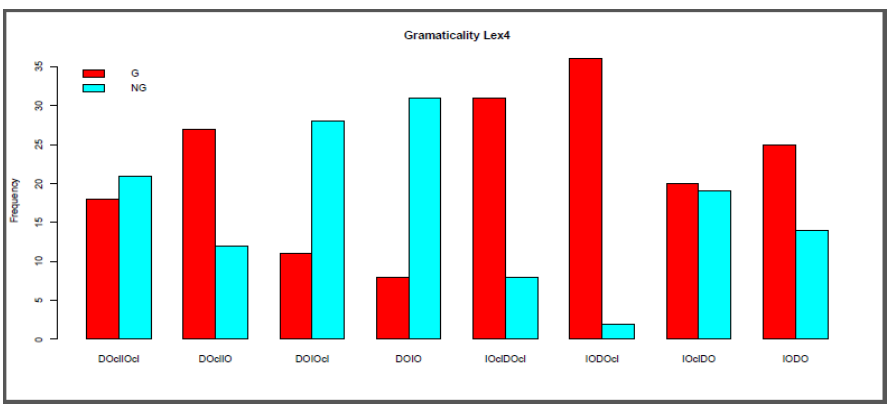



Figure 4. *Grammaticality judgments 4th lexicalization binding of possessors*

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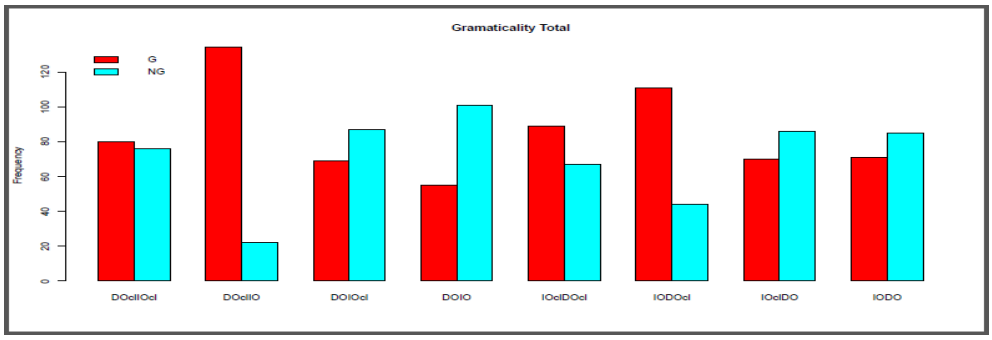



Figure 5. *Grammaticality judgments for all four lexicalizations, binding of possessors*

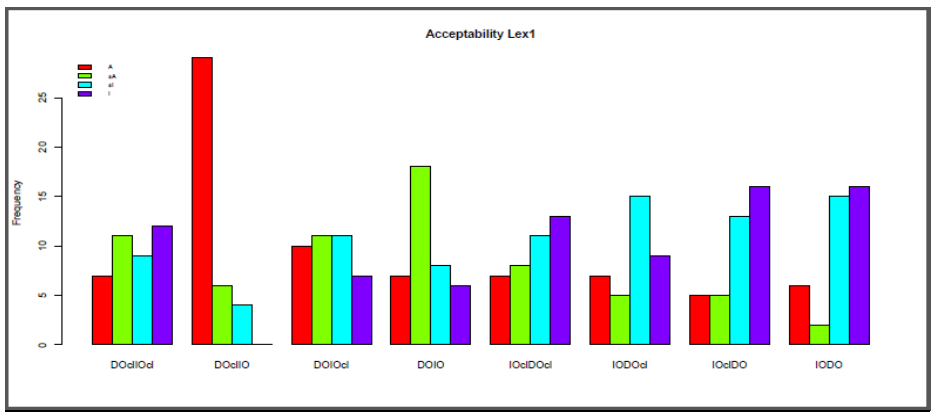



Figure 6. *Acceptability judgments 1st lexicalization binding of possessors*

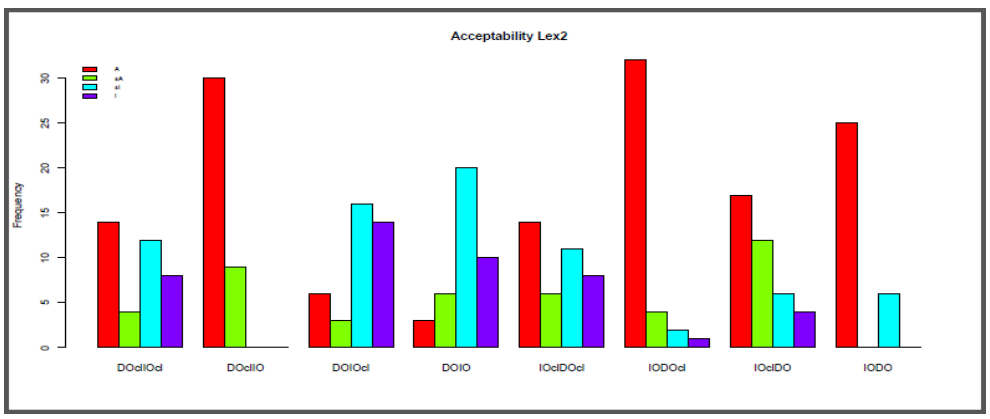



Figure 7. *Acceptability judgments 2nd lexicalization, binding of possessors*

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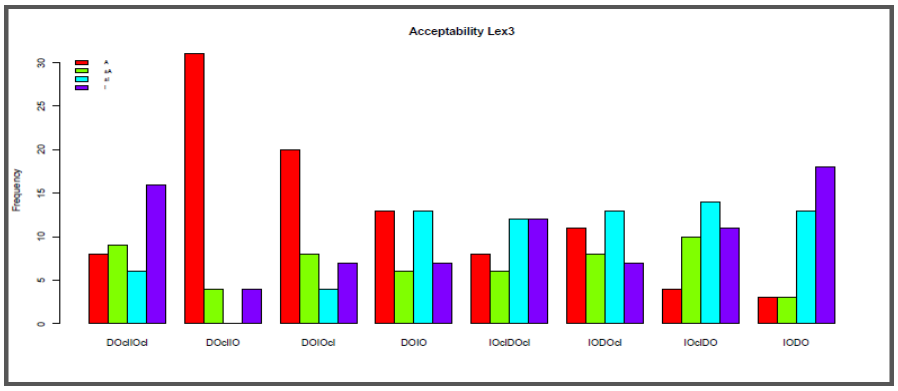



Figure 8. *Acceptability judgments 3rd lexicalization binding of possessors*

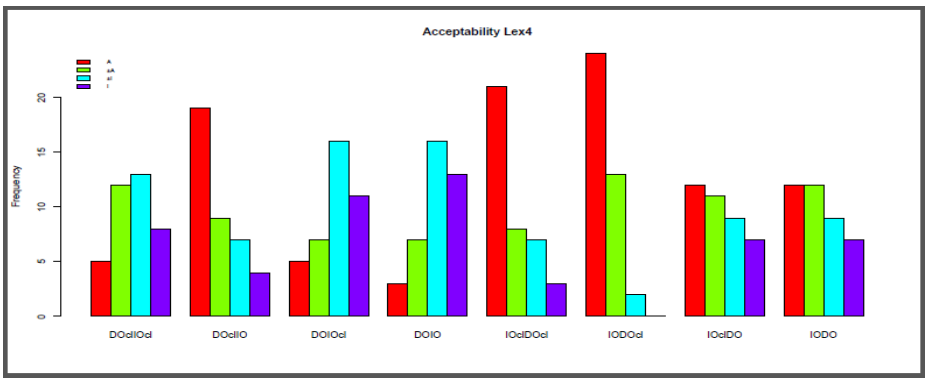



Figure 9. *Acceptability judgments 4th lexicalization binding of possessors*

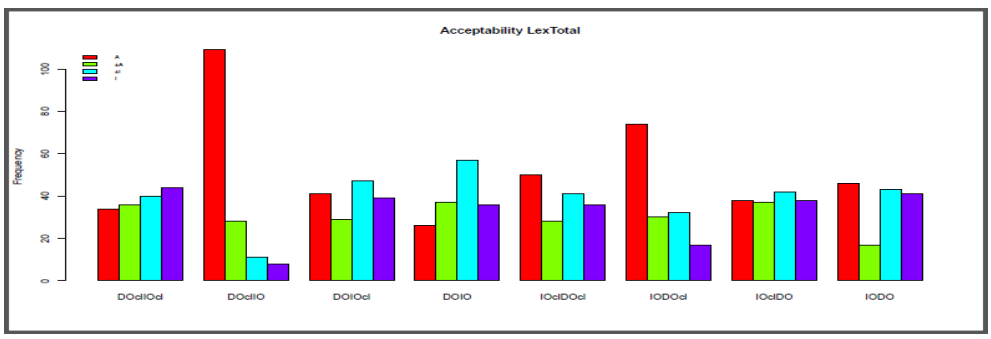



Figure 10. *Total of acceptability judgments for binding of possessors*

As already explained, bare DOs cannot be clitic doubled in Romanian and therefore only realize four of the eight patterns in (6) (those where the DO is not doubled). As apparent in table (1), results for bare objects are significantly different

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from those for DOM-ed objects, a problem which will have to be explained in the analysis. Specifically, we observed an important increase regarding the grammaticality of patterns with bare direct objects.

As far as the binding of anaphors is concerned, we have tested only sentences where the anaphor (an emphatic reflexive) is also clitic doubled. We started from the premise that descriptive grammars of Romanian (*Gramatica Academiei*, 2005) accept that for personal pronouns, clitic doubling is obligatory. We thus differ from D&R, who have also considered instances when the anaphor is not doubled (see example (11) and (12) above). This difference in designing the experiment had the consequence of sharpening the difference between grammatical and non-grammatical sentences, reflected in Figures 11 and 12.

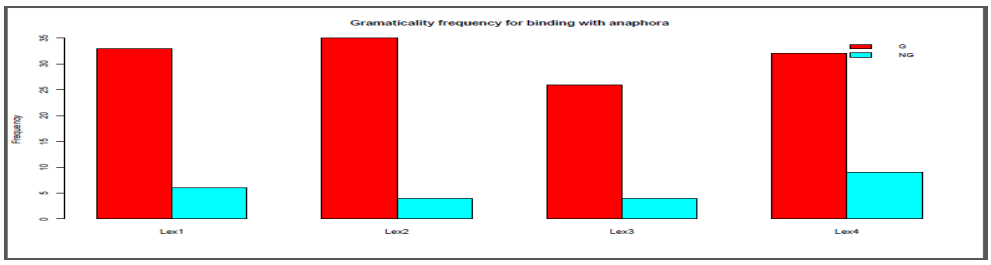



Figure 11. *Grammaticalityjudgements for binding of anaphors*

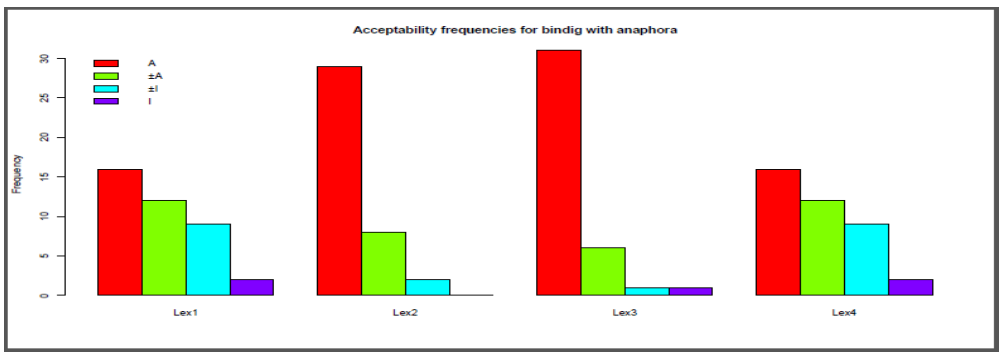



Figure 12. *Acceptability judgements for binding of anaphors*

Based on all these quantitative results, we are in a better position to analyze D&R's predictions. We expected that the quantitative data obtained give a more truthful image of the Romanian data in the domain of double object construction. From this vantage point, we may now reconsider D&R's study regarding the validity of its predictions. To the extent to which the judgments of the subjects differ from those in D&R, the analysis presented by D&R is weakened and should be replaced by an analysis more in line with the data.

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## 4. DISCUSSION OF THE RESULTS

### 4.1. Configuration where the DO is not DOM-ed

As known, ditransitive verbs have characteristic s-selection properties, prototypically requiring [-person] direct objects and [+person] indirect objects. It is this characteristic situation which is mostly investigated by D&R. At the same time, recall that [-person] objects cannot be clitic doubled in Romanian, so that one cannot have both objects in post-verbal position if the direct object is doubled and [-person]. We thus eliminate from discussion four of the eight patterns in (6), namely the four patterns where the direct object is clitic doubled.

Regarding the remaining patterns, like D&R, we first discuss configurations where the direct object is bare, i.e. it has neither the DOM preposition *pe*, nor clitic doubling. The experiment confirms the correctness of the analysis proposed by D&R for this category of objects: both of the structures in (6) above come out grammatical, with the following scores, taken from Table 1:

(12) **DO > IO 88-29** (13) **IO+cl> DO 105-12**

However, contrary to D&R's predictions, the other two patterns where the DO is not DOM-ed are also grammatical, as shown below:

(14) **DO >IO+cl 91 - 26** (15) **IO > DO 103 - 12**

These patterns seem to be fully acceptable and, nevertheless, they are underivable in the analysis in (6). Here are examples from the experiment illustrating patterns (14) and (15):

(16) *Banca le-a retrocedat toate casele*$_i$ *proprietarilor lor*$_i$ *de drept*
bank.thethem-has returned all houses.the owners.the.Dat their of right
'The bank returned all the houses to their rightful owners.'

(17) *Angajatorii nu au dat încă toate drepturile lor*$_i$
employers.the nothave given yet all rights their
*băneşti muncitorilor*$_i$.
financial workers.the.Dat
'The employers haven't yet given the workers all their financial rights.'

Concluding, all the four possible structures are grammatical when the DO is not DOM-ed. This means that Romanian shows symmetrical binding abilities for the DO and IO, which may c-command each other.

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### 4.2. Configuration where the DO is DOM-ed

In this section, we turn to sentences where the DO is DOM-ed, i.e. preceded by the preposition *pe*. There is a correlation between the use of *pe* for the Accusative and clitic doubling, in the sense that some types of [+person] DO require not only marking by *pe*, but also CD. This is the case of personal pronouns. For other categories of [+person] DPs *pe* is optional, though frequently used (see Cornilescu, 2000; Tigau, 2016). As already mentioned, D&R do not discuss DOM-ed DOs, and to that extent, the analysis is incomplete. We have continued their analysis by systematically considering sentences with DOM-ed objects, as apparent in Table 1. The results in this area are quite unexpected, as will be seen below.

Both of the patterns in (6) seem to be degraded (as indicated by the close scores) or even ungrammatical, a situation which an adequate analysis should account for. Examples (20, 21), from the experiment, illustrate configuration (18, 19).

(18) DO > IO **55 – 101** (19) IO+cl> DO **70 – 86**

(20) **În prima zi de şcoală, directorul are misiunea de a prezenta*
in first day of school, principal.the has mission.the of to introduce
*tuturor viitorilor elevi$_i$ pe învăţătorul lor$_i$.*
all future.the.Dat pupils *pe* teacher.the their
'On the first school-day, the principal has the mission to introduce their$_i$ teacher to the pupils$_i$.'

(21) **?Colegii îi vor recomanda fiecărui şef$_i$*
colleagues.the he.Dat will recommend each.Dat boss
*pe noul său$_i$ angajat.*
*Pe* new.the his employee.
'The colleagues will recommend each boss his new employee.'

Consideration of the patterns in (22) clearly shows that a *pe*-marked DO can bind a doubled or undoubled IO only if the *pe*-marked DO is also clitic doubled. This is shown by the contrast between example (20) and (23) which is flawless.

(22) a. DO > IO 55 – 101
b. DO >IO+cl 69 – 87
c. DO+**cl**>IO 134 - 22

(23) *În prima zi de şcoală, directorul are misiunea de a-**l** prezenta*
in first day of school, principal.the has mission.the of to-he.Acc introduce
*tuturor viitorilor elevi$_i$ pe învăţătorul lor$_i$.*
all.Datfuture.Dat pupils *pe* teacher their
'On the first school-day, the principal has the mission to introduce their$_i$ teacher to all the future pupils$_i$.'

Similarly, the doubled or undoubled IO can bind into a *pe*-marked DO only if the DO is clitic doubled. This is shown by the scores obtained by the patterns in (24) and by example (25) which is fully acceptable and contrasts with (21) above.

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(24) a. IO+cl> DO 70 – 86
b. IO > DO 71 – 85
c. IO >DO+cl 111 - 44

(25) *În prima zi de şcoală, directorul are misiunea de a-l prezenta*
in first day of school, principal.the has mission.the of to-he.Acc introduce
*tuturor viitorilor elevi$_i$ pe învăţătorul lor$_i$.*
all.Dat future.Dat pupils *pe* teacher their
'On the first school-day, the principal has the mission to introduce their$_i$ teacher to all the future pupils$_i$.'

In conclusion, ditransitive sentences with DOM-ed objects are less permissive than ditransitive sentences with bare objects, a problem that has never been discussed for Romanian and which will be addressed in the companion paper (see this volume).

### 4.3. Binding of anaphors

Before examining the examples, recall that personal pronouns and emphatic reflexive anaphors are definite, so that, in Romanian, they naturally require differential object marking by the preposition *pe* and clitic doubling. Interestingly, against the prediction of structure (6), *non doubled* datives may bind anaphors contained in the clitic-doubled accusatives. In the experiment, we used four different lexicalization of structure (7F), repeated below in (26). In each case, judgments were sharp, indicating full acceptability of anaphor binding, when the anaphor is contained in the direct object and the IO is the binder. Thus, in the example below, 33 of the 39 subjects found the sentence grammatical.

(26) F: IO > DO [+cl] 33–6

(27) *Ion a înfăţişat-o Dianei pe nimeni altcineva*
Ion has described-she.Acc.Cl Diana.Dat PE no one else
*decât peea însăşi.**
than PE she.Acc herself
'Ion has described non other than Diana to herself.'

Remark: Example (30) was contextualized to facilitate the comprehension. Here is the context: "Ion este un tip foarte glumeţ, care mereu joacă feste colegilor de birou. Ieri, de pildă, Ion a înfăţişat-o Dianei pe nimeni altcineva decât pe ea însăşi şi s-a amuzat teribil când aceasta nu şi-a dat seama despre cine era vorba." (John is a very playful fellow who always playstricks on his colleagues. Yesterday, for instance, John described to Diana no other person than herself and was terribly amused when she did not realise who he was talking about.)

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### 4.4. Methodological evaluation of the experiment

In principle, even if controls were applied, a certain amount of variance would remain in the experimental data. This variance could either be due to chance and other external factors, or could result from an experimental manipulation, i.e., from a factor that the experiment is meant to investigate. In the latter case, the effect (e.g., a difference in grammaticality / acceptability judgments) is significant, in the former case it is not. As suggested by Keller (1999), the only way of determining the significance of an effect is by performing statistical tests on the data.

To this end, in the present study, we have chosen to use linear fixed effects models for multi-factor experiments and two-sample t-tests for single factor experiments.

## 5. CONCLUSIONS OF THE EXPERIMENT

The experiment we conducted was primarily meant to examine more data and to give a more faithful representation of the empirical properties of the Romanian ditransitive constructions. Naturally, we were interested in assessing the relevance of the Dative clitic on the syntax and interpretation of ditransitives. The following empirical results have emerged: Firstly, there are 8 variants of the ditransitive configurations, as presented in (7), all of which are grammatical and should be derivable. Secondly, the DO and the IO show symmetrical binding abilities: each of them can bind a possessor or an anaphor contained in the other. Thirdly, the presence of the Dative clitic does not influence the binding potential of either DO and IO, as also noticed for other Romance languages (Pineda 2012, a.o.). This finding is in agreement with traditional Romanian studies (e.g. Gramatica Academiei, 2005) that did not distinguish between a locative and a possessive interpretation of *give*-verbs. Finally, when confronted with the data in the experiment, the analysis proposed in D&R proves too narrow and should be extended, so as to include all the grammatical structures. The development of a more comprehensive and adequate analysis is the aim of the companion paper to this experimental study.

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